

HIGH FIDELITY

ICD ® 8398

New Section
Bonus VIDEO TODAY

HIGH-TECH RECORDS

Are they worth the money?
Double-blind tests reveal the truth!



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AL AUDIO AT HOME
oon? ■ How good?

LISTENING REPORTS

's sexy cassette deck
y's "robot" turntable
's top-value receiver

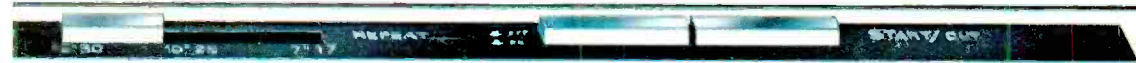


**IF ALL \$200 TURNTABLES HAVE
THE SAME SPECS, HOW COME THE PL-400
SOUNDS BETTER?**





PIONEER QUIET-PLL FULL-AUTOMATIC PL-400

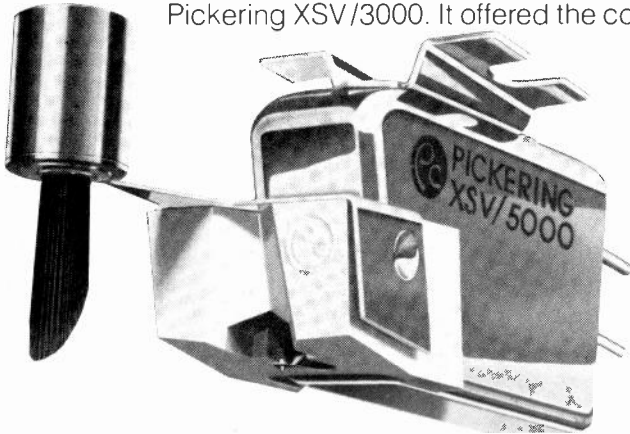


The best for both worlds

The culmination of 30 years of Audio Engineering leadership— the new Stereohedron®

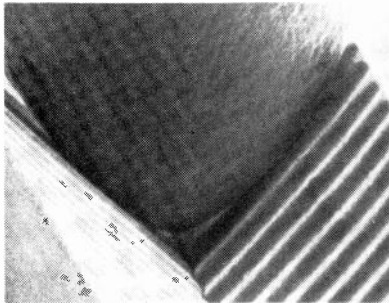
XSV/5000

One of the most dramatic developments of cartridge performance was the introduction of the Pickering XSV/3000. It offered the con-



sumer a first generation of cartridges, combining both high tracking ability and superb frequency response. It utilized a new concept in stylus design—Stereohedron, coupled with an exotic samarium cobalt moving magnet.

Now Pickering offers a top-of-the-line Stereohedron cartridge, the XSV/5000, combining features of both the XSV/3000 and the XSV/4000. It allows a frequency response out to 50,000 Hz.



The Exclusive Stereohedron Tip

The new XSV samarium cobalt magnet accounts for an extremely high output with the smallest effective tip mass. The Stereohedron tip design is the result of long research in extended frequency response for tracing of high frequency modulations. The patented Dustamatic® brush and stylus work hand in hand with the rest of the cartridge assembly to reproduce with superb fidelity all frequencies contained in today's recordings.

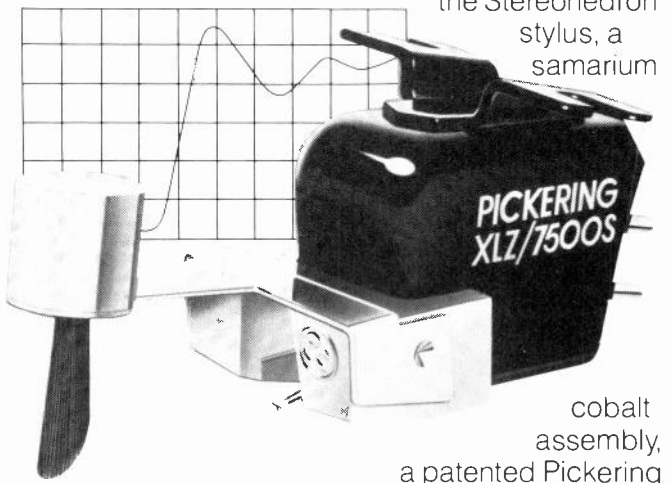
Pickering is proud to offer the XSV/5000 as the best effort yet in over 30 years of cartridge development.

A fresh new breakthrough in cartridge development designed specifically as an answer for the low impedance moving coil cartridge—

XLZ/7500S

The advantages of the XLZ/7500S are that it offers characteristics exceeding even the best of moving coil cartridges. Features such as an openness of sound and extremely fast risetime, less than 10μ , to provide a new crispness in sound reproduction. At the same time, the XLZ/7500S provides these features without any of the disadvantages of ringing, undesirable spurious harmonics which are often characterizations of moving coil pickups.

The above advantages provide a new sound experience while utilizing the proven advantages of the Stereohedron



stylus, a samarium

cobalt assembly, a patented Pickering

Dustamatic brush, with replaceable stylus, along with low dynamic tip mass with very high compliance for superb tracking.

So, for those who prefer the sound characteristics attributed to moving coil cartridges, but insist on the reliability, stability and convenience of moving magnet design, Pickering presents its XLZ/7500S.



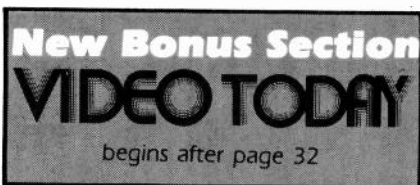
"for those who can hear the difference"

Two new sources of perfection!

For further information on the XSV/5000 and the XLZ/7500S write to Pickering Inc., Sunnyside Blvd., Plainview, N.Y. 11803.

from Pickering

HIGH FIDELITY



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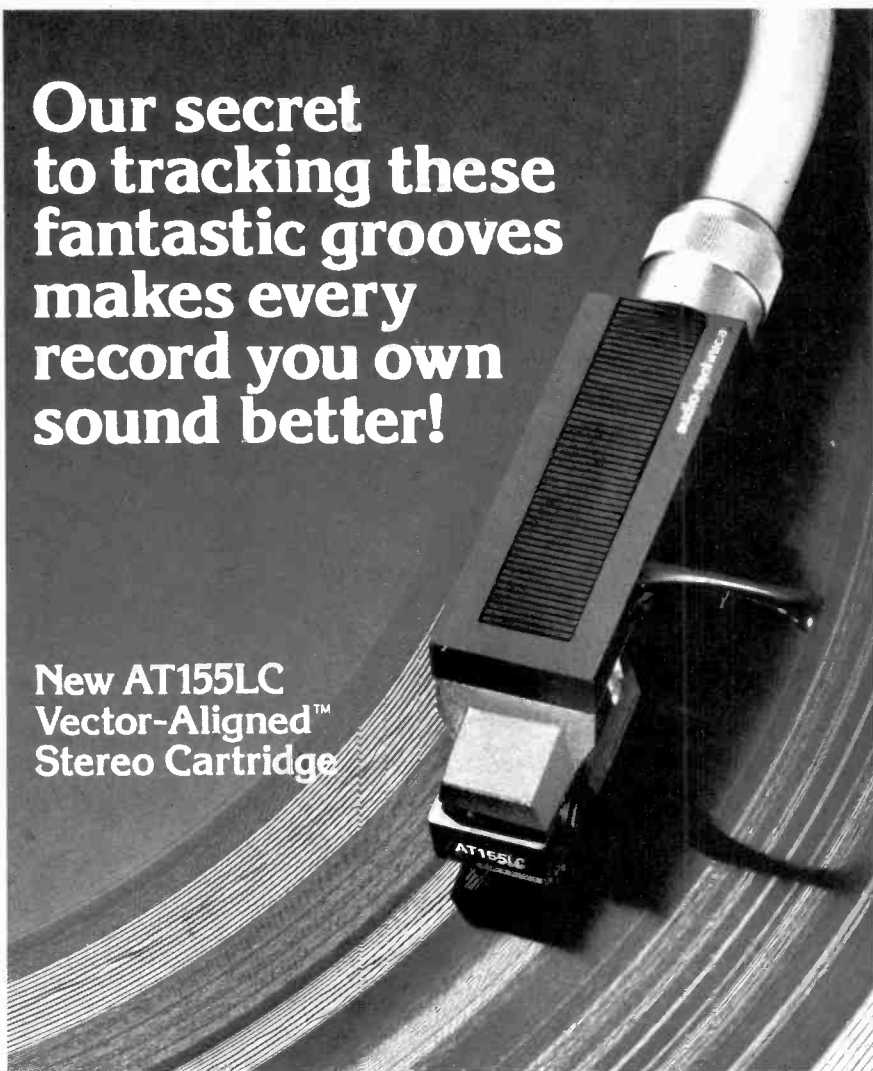
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Our secret
to tracking these
fantastic grooves
makes every
record you own
sound better!

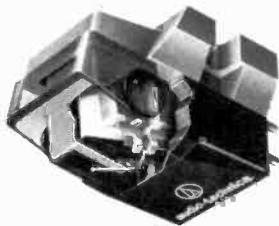
New AT155LC
Vector-Aligned™
Stereo Cartridge



There are perhaps a dozen reasons why the new AT155LC does so well tracking even the most explosive new digital records. An advanced new Line Contact stylus, our exclusive Vector-Aligned™ magnetic system, and new high-efficiency coil and core designs to mention just a few.

But it's our *sound*, not the construction that is important. And our capability to track even the tough records which benefits you *every time* you listen. Because even slight mis-tracking can quickly destroy any record, shortening both disc and stylus life dramatically.

Of course it's easy to claim "good tracking"... everybody says it. *Proving* it is something else. *Well, we guarantee that every new AT155LC will pass an objective test which easily exceeds the limits of most commercial pressings.* Specifically, the AT155LC will cleanly track the 90 micron band of a standard



DIN 45 549 or AT6607 equivalent test record at 1.6 grams. And the less-demanding 80 micron band at just 1.2 grams.

Of course tracking is not the only virtue of the new AT155LC. Response is uniform from 5 to 35,000 Hz, separation is great, and efficiency is uncommonly high*. All claims we back up with specific tests any lab can duplicate.

But the most important test is a visit to your Audio-Technica dealer. Ask to hear the new AT155LC with your favorite records and with the new digital blockbusters. We promise a remarkable sonic experience. And audible proof that the new AT155LC can unlock the full potential of every other hifi component you own.

*Performance specifications available on request.

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AUDIO-TECHNICA U.S., INC.,
1221 Commerce Dr., Stow, OH 44224
Dept. 110H.

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SOLUTION TO HIFI-CROSTIC NO. 57

Imogen Holst: Benjamin Britten

Britten's generosity is possibly the chief danger to his work as a composer. So many young musicians write to him, not just once, but many times, sending their compositions or asking his advice. But perhaps, after all, he can be trusted to organize his own life.

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A new intelligence in a metal tape deck.
After it senses the bias and EQ levels,
it precisely controls the recording levels.

Making an accurate and faithful recording on most cassette decks requires a lot of practice, a lot of patience and a lot of jumping up and down. After all, with conventional decks, you have to adjust the recording levels as the music varies. But not with Technics RS-M51.

The first thing the RS-M51 does is select the proper bias and EQ levels for normal, CrO₂, or the new metal tapes, automatically. That makes life easy.

So does our Autorec sensor. Just push a button and wait seven seconds while the RS-M51 seeks the proper recording level. 16 red LED's tell you the deck is in the "search" mode. When the green LED lights up, you're ready to go.

For manual control of the recording level, there's also a fine-adjust switch which raises or lowers levels in precise 2 dB steps. While the RS-M51's two-color peak-hold FL meters show you the signal being recorded.

With the RS-M51's record/playback and sendust/ferrite erase heads, you'll not only hear superb dynamic range, you'll also get a wide frequency response: 20 Hz to 18 kHz with metal. And with an electronically controlled DC motor and dynamically balanced flywheel, wow and flutter is just a spec (0.045%), not a noise.

Technics RS-M51. Don't be surprised if its intelligence goes right to your head.

Technics
The science of sound

SONY



Heavy.

Introducing another Sony only. The MDR series open-air headphones. The smallest, lightest stereo headphones available today. Or tomorrow.

With our lightest at 40 grams, you will barely know you're wearing them. Yet the sound is dynamite.

Through a remarkable new audio breakthrough, our engineers have succeeded in reducing big-headphone technology down to the size of your listening channels.

The MDR series headphones' spaciousness delivers absolute rity through an ultra-small driver

unit that produces more than three times the energy of conventional circuits. And a new high-compliance diaphragm accurately reproduces the 20 to 20,000Hz bandwidth and improves low-range response.

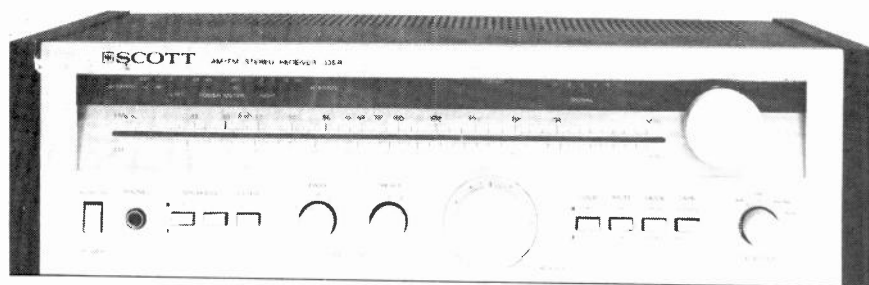


That means you can listen to the heaviest of music for hours. Lightly. And know that you're hearing every nuance of the original recording from deep bass to the highest treble.

Listen to our new MDR series headphones. They're light. And heavy.

STEREO HEADPHONES
MDR

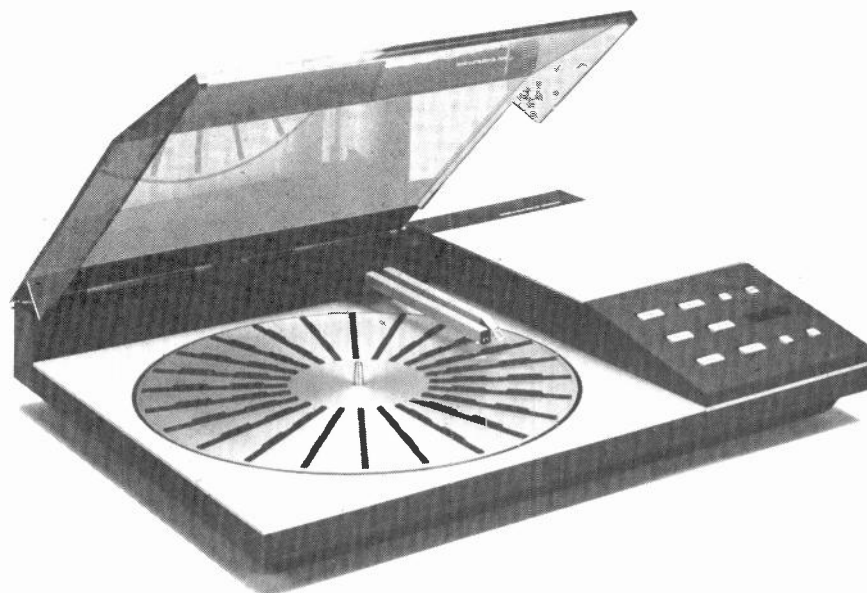
High Fidelity News



Scott's new look

H. H. Scott's latest is the Model 335R, an AM/FM receiver rated at 30 watts (14 $\frac{3}{4}$ dBW) per channel. The unit features a switchable infrasonic filter, 12-LED power output indicators, a 5-LED signal-strength meter, switchable FM muting, and connections for two sets of speakers. The Model 335R costs \$279.95. Another new model from Scott is the 675DM, a metal-capable cassette deck with full-logic transport controls and remote-control capability. Cost of the 675DM, with fluorescent peak level meters, is \$349.95.

Circle 145 on Reader-Service Card

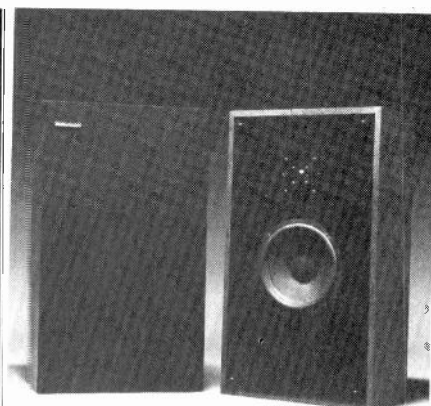


Beauty and brains from B&O

The Beogram 8000 is the third generation of Bang & Olufsen's linear-tracking turntable. The platter of the new unit is driven by a tangential system in which an aluminum ring underneath is set in motion by eddy currents from two sets of fixed coils. With no poles on the ring itself, cogging is said to be eliminated. Turntable speed, displayed on a four-digit readout, can be varied $\pm 3\%$. A microprocessor allows for complete automation of all functions, including arm return to finish an interrupted play cycle. The Beogram 8000, which comes with an MMC-20CL moving-coil pickup, costs \$995. See our test report on the companion Beocord 8000 cassette deck in this issue.

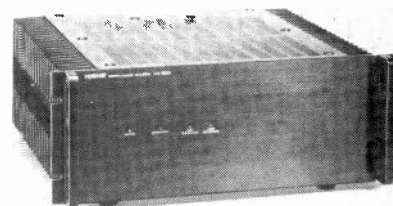
Circle 137 on Reader-Service Card

◀ Circle 43 on Reader-Service Card



Boston on a budget

Least expensive of Boston Acoustics' speakers line is the A-100, a two-way acoustic suspension system with an 8-inch woofer and a 1-inch soft-dome tweeter. Like the rest of the line, the A-100 has an unusually tall, slim cabinet and is reported to be highly tolerant of a variety of room placements. The A-100, in vinyl-clad particleboard enclosure, costs \$130.



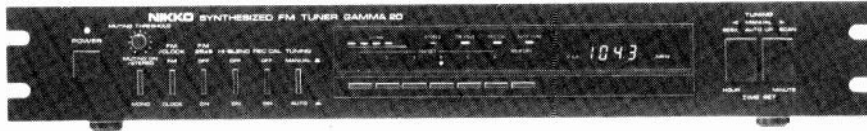
Do-it-yourself power

Heath's latest amplifier kit, the AA-1800, is rated at 250 watts (24 dBW) per channel into 8 ohms with less than 0.025% THD. The manual gives step-by-step instructions, including soldering techniques for the first-time kit builder. Unlike some power amps that depend on forced-air fan cooling, the new Heath design employs a wire-frame chassis that reportedly makes maximum use of convection cooling. Price of the AA-1800 is \$600.

Circle 143 on Reader-Service Card

(More)

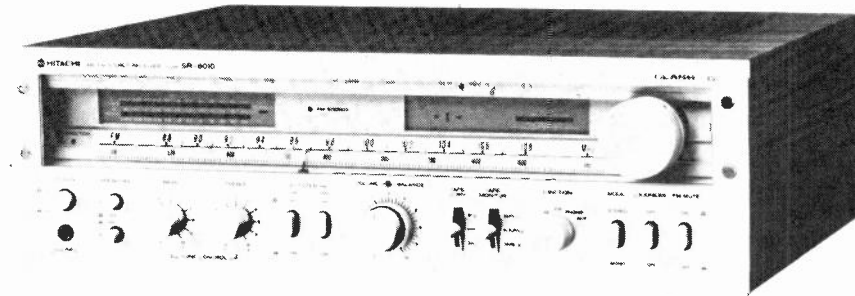
High Fidelity News



Tune in with Nikko

The Gamma 20 is Nikko's newest frequency-synthesized AM/FM tuner. This model features a digital clock display, six station presets, a built-in record-calibration tone, and adjustable muting threshold. Design highlights include a pilot-canceling integrated circuit for better high-frequency response and an IF stage with linear phase ceramic filters for improved group-delay characteristics. Price of the Gamma 20 is \$379.

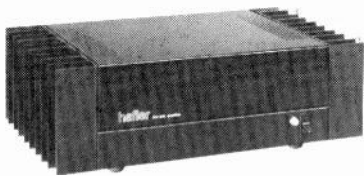
Circle 146 on Reader-Service Card



Hitachi's turbo-charged receivers

Hitachi now terms its proprietary Class G amplifier circuitry Turbo Power and includes it in three new receivers. Class G operation stretches the amplifier's dynamic headroom for a short-term doubling of output power, lessening the chances of clipping and distortion on demanding musical peaks. Top of the line is the SR-8010, rated at 50 watts (17 dBW) per channel and costing \$450. The SR-5010 and SR-6010 are priced respectively at \$260 and \$300.

Circle 138 on Reader-Service Card



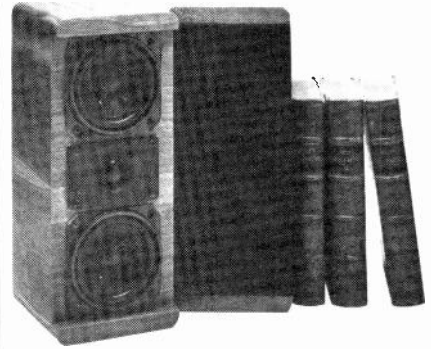
Hafler pursues pro market

Aimed at the professional as well as the audiophile market, the PRO-300 power amp from the David Hafler Company is a 300-watt (24 $\frac{3}{4}$ -dBW) mono power amp. Employing power MOS FETs as output devices in a fully complementary arrangement, the amp is said to achieve the virtues of Class A operation without its inefficiency. The PRO-300 is priced at \$450.

Circle 151 on Reader-Service Card

We had no Inkeling . . .

In our September feature, "Guess Who's Coming to Entertain You," we reported at length on the audio offerings from Inkel Corp., a new name in the U.S. market. Latest news, however, indicates that Inkel-branded products will never show up on dealers' shelves. Instead, the California-based distributor of South Korean products has acquired the rights to the Sherwood brand and will come to market under that name. Considering the pace with which these changes have been announced, there may be still more in store for Sherwood qua Inkel. Stand by.



Koss goes mini

Koss's entry in the mini-speaker market is the M-80, a 12-inch-high system with two 4 $\frac{1}{2}$ -inch woofers and a 1-inch dome tweeter. The new model has a maximum continuous power-handling capability of 30 watts (14 $\frac{3}{4}$ dBW) and a rated nominal impedance of 6 ohms (4.5 ohms minimum). Cost of the M-80, enclosed in a hand-rubbed walnut veneer cabinet, is \$130.

Circle 139 on Reader-Service Card



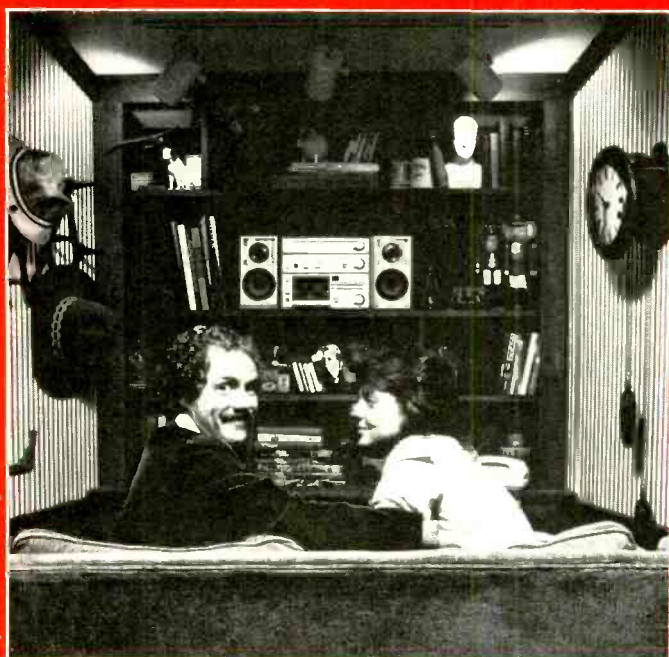
Stylus hygiene with SC-2

Discwasher, turning its attention to stylus cleaning, has come up with SC-2 a fluid said to be chemically targeted against the abrasive glaze that can build up on unattended styli. The solution is claimed to be nondamaging to stylus adhesives, cantilever materials, and the rubber polymers that hold the cantilever in place. SC-2 is offered as part of a system, along with the original SC-1 brush, for \$8.50; fluid refills sell for \$1.25.

Circle 142 on Reader-Service Card

(More)

AKAI MINI-COMPONENTS. FOR PEOPLE WITH MORE TASTE THAN SPACE.



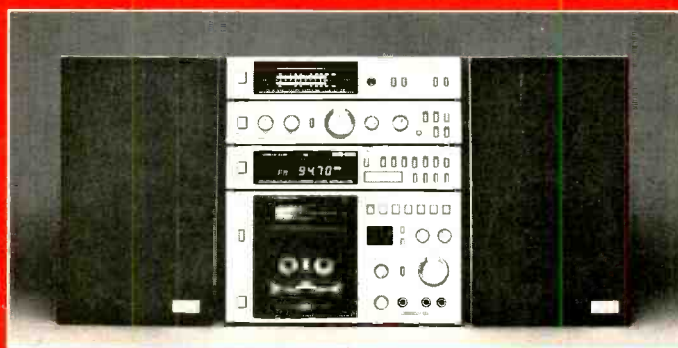
Through the magic of LSI technology, pulsed power supplies and a unique mini circuit board design, AKAI has masterfully managed to craft a collection of audio components that rivals many systems twice its size. The new UC-5 series.

For starters, you'll find gold-plated pin jacks and input terminals standard throughout to minimize distortion and maximize durability.

And an optional infrared remote control unit that allows operation of every major function within the system.

AKAI's steadfast dedication to quality doesn't diminish with the size of the package.

Further proof. A pre-amp with a phono cartridge selector for either moving magnet or moving coil cartridge, two tape monitors, tape dubbing, tone control



The UC-5 series. Both pre-amp and amp, digital tuner, metal cassette and 2-way bookshelf speakers.

defeat switches and more.

Signal-to-noise is 105dB and THD is a very tidy 0.005%.

Next up, a DC power amp including fluorescent power meters, clipping indicator, subsonic filter and pulsed power supply.

On to the quartz synthesized AM/FM tuner, with five-LED signal strength indicators, digital frequency display, six-station preset capability, and both auto and manual tuning.

And our *metal-capable* cassette deck rounds out the package, with two DC motors, twin field super GX Head, solenoid controls, fluorescent bar meter with 2-step peak level indicator and an electronic LED tape counter. Plus timer recording, auto stop, memory, and auto play/rewind/repeat.

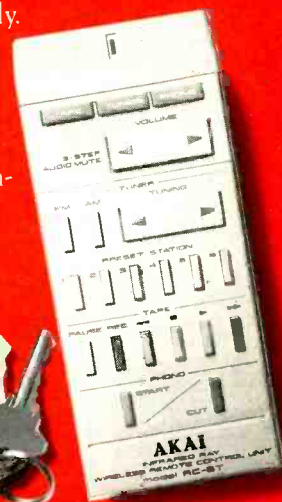
All in all, a pretty substantial package of components that measures a fashionably lean 10 7/8" wide. Incredible.

And for the music lover with more taste than money, AKAI offers the economically-minded UC-2 series with integrated amp. Coupled

with a pair of their own specially designed two-way speakers, both the UC-5 and UC-2 aptly prove you can get giant stereo sound.

Without cramping your style.

Write to AKAI, P.O. Box 6010, Compton, CA 90224.

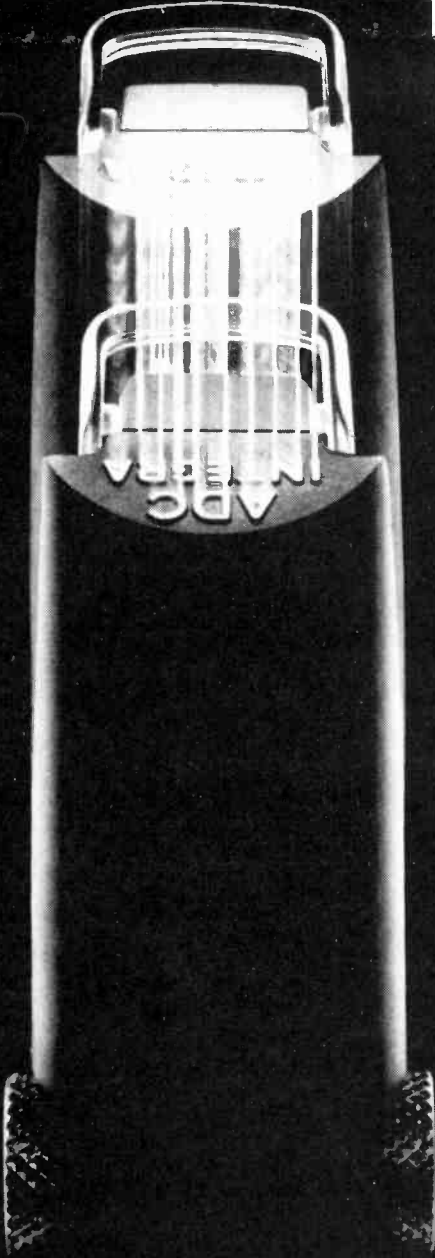


Our optional infrared remote control unit allows operation from across the room.

A K A I

YOU NEVER HEARD IT SO GOOD

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

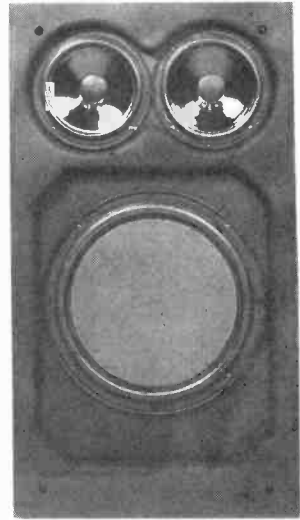


As your tonearm sweeps a record, the angle the stylus makes with the record groove constantly changes. The result? Offset angle distortion. It's an old problem. That's why it took a new kind of cartridge to solve it... our ADC Integra. Unlike conventional cartridges, the ADC Integra is a carbon fibre integrated headshell/cartridge with overhang dimension adjustment. There are no more nuts, no more bolts and that means no more hassles. To minimize offset angle distortion all you do is release the adjustment locks. Adjust. Then re-lock. It's incredibly simple. We've even included a tracking angle gauge. So it's also incredibly accurate. Because we know even an error as small as 2° can more than double cartridge distortion! Impressed? We thought so. But the most impressive feature of our new overhang dimension adjustment is that it is available in three different ADC Integra models. One for every kind of budget. All for one kind of sound... devastating. If you'd like to hear more call Audio Dynamics Corp. toll-free (800) 243-9544 or your ADC dealer.



Circle 2 on Reader-Service Card

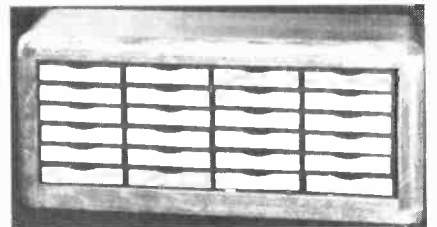
High Fidelity News



Polk goes way down

Polk Audio has added a subwoofer to its line of full-range loudspeakers. The LF-14 utilizes two small polymer drivers coupled to a 12-inch foam-laminate flat radiator. When used as a single dual-channel bass module, with each channel of the stereo signal fed to its own driver, many of the performance-degrading distortions common in summing single-cabinet bass systems are said to be eliminated. A built-in crossover network can be bypassed for use in biamped and triamped systems. The LF-14 sells for \$260.

Circle 144 on Reader-Service Card



Style meets storage

Shape West's cassette storage cases are fashioned to complement the look of audio components. They accommodate twenty-four separate tape holders, each of which dispenses a cassette with pressure on its spring-loaded mechanism. Cost of the storage cases in solid oak and walnut is \$49.95; with vinyl finish, \$29.95.

Circle 141 on Reader-Service Card

(More) Circle 49 on Reader-Service Card ▶

The continuing story of TDK sound achievement.

Parts Five and Six.



The guide roller and spindle pin are the turning point in a TDK cassette. It's there the tape takes on a sudden surge of tension. The winding angle changes sharply to 75°, causing great stress. The slightest imperfection, even a microscopic speck, will cause serious output fluctuations in sound.

TDK engineers began by analyzing existing molding techniques. They knew many manufacturers used a low cost, inferior split-die process. This turned out rollers with seams, which disturb tape travel. Spindle pins were no better. Merely convenient mold extensions with pullout tapers which allowed rollers to slip up, wear out and wrench the tape off the track.



TDK guide roller and spindle pin in cassette.

TDK engineers began by analyzing existing molding techniques. They knew many manufacturers used a low cost, inferior split-die process. This turned out rollers with seams, which disturb tape travel. Spindle pins were no better. Merely convenient mold extensions with pullout tapers which allowed rollers to slip up, wear out and wrench the tape off the track.

Part Five, the TDK guide roller, is flared and absolutely seamless. Made from a low-friction precision

molded plastic, it's created in one piece through an expensive forced-injection mold technique. Its flared edges provide perfect tape guidance while its six spokes maintain rigidity and perfect circularity. The tape flows through the mechanism and past the head gap in true vertical alignment. There's virtually no tracking variation or loss of high frequencies. Sixty checkpoints during the manufacturing process guarantee it.

For Part Six, the TDK spindle pin, our engineers chose stainless steel. Machined to size and aligned to a perfect 90°, it's designed without a taper. Micro-polishing and a silicone coating cut down friction. The TDK spindle pin is far more resistant to heat and cold than plastic. It won't bend out of shape

and wear down the spindle. Tape is assured safe passage with virtually no flutter or channel loss.

In a TDK cassette, the parts are much like the instruments of an orchestra. All equally important. Music is an outcome of the perfect interplay between them. In the end, that's what's so distinctive about TDK.

Music is the sum of its parts.



TDK
The Amazing Music Machine.

JBL's L112.
Introducing a new upper class.

Introducing a new class of tweeter performance:

The upper frequencies of music reproduced with accuracy, power, depth and subtlety that you've never heard from a bookshelf speaker before.

To advance the state-of-the-art of tweeter behavior, JBL engineers utilized laser holography to study cone diaphragm movement. The resulting tweeter component for the L112 is at the leading edge of technology.

JBL First with the pros.



©1980 James B. Lansing Sound, Inc.

Combined with this newly developed tweeter is a 5" midrange driver that provides transients incredibly close to a live performance. And a Symmetrical Field Geometry 12" woofer which delivers low frequencies with extremely low distortion.

Get to know the new upper class. At your JBL dealer.

James B. Lansing Sound, Inc.,
8500 Balboa Blvd.,
Northridge, CA 91329.



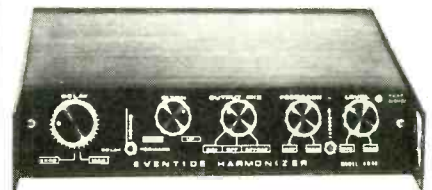
High Fidelity News



Professional monitor from ADS

The L-2030 is the largest of ADS's new line of floor-standing professional monitor speakers. Its driver complement consists of two 14-inch woofers in independent acoustic suspension chambers, four 2-inch soft-dome midrange drivers, and a 1-inch soft-dome tweeter with samarium-cobalt magnets. Three of the midrange drivers can be switched in or out of the system by the user, thereby modifying spatial characteristics and power-handling capabilities. A single switch disables a portion of the built-in crossover and allows for biamplification. Sold in mirror-image pairs, the L-2030 costs \$1,900.

Circle 147 on Reader-Service Card



Space-age effects from Eventide

Designed for the working musician, Eventide's HM-80 Harmonizer is a compact device intended to produce a variety of special effects during live performance. It can increase or decrease pitch in a one-octave range, as well as provide delays of up to 270 milliseconds. A new effect, time reversal, is said to defy description and, according to Eventide, "must be heard to be believed." Other features are feedback control, mixing of original signal with effects, and repeat of short musical passages. The HM-80 Harmonizer is priced at \$775.

Circle 140 on Reader-Service Card

ANYTHING AND EVERYTHING.

It all comes together in Status:Pro by Gusdorf. The luxury. The fantastic flexibility. Like the Model 1930 we show you here.

Designed to accommodate and coordinate every kind of component and to achieve every kind of component interface including VCR and video disc.

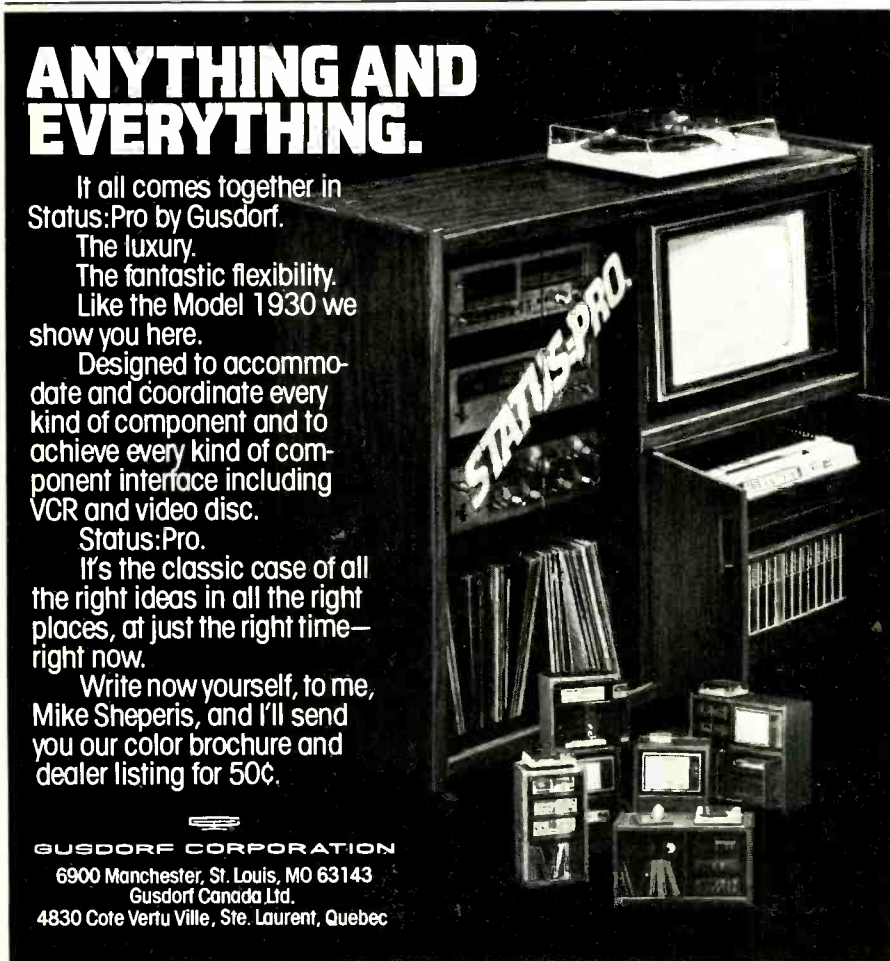
Status:Pro.

It's the classic case of all the right ideas in all the right places, at just the right time—right now.

Write now yourself, to me, Mike Sheperis, and I'll send you our color brochure and dealer listing for 50¢.

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Circle 19 on Reader-Service Card



TAPE 5 OUTPERFORMS ALL MAJOR BRANDS OR YOU GET YOUR MONEY BACK

STUDIO MASTERING TAPE NOW AVAILABLE TO CONSUMERS

It's a fact that tape decks have improved greatly in the past few years, while tapes (except for ultra-expensive metal tape) have stayed about the same. But now, there's a no-compromise cassette as good as the deck you use it with. A studio mastering tape that **you** can buy.

Sure, the "establishment" tape manufacturers make good products, but how often have they let you down with a dropout during a live broadcast that you'll never be able to tape again? And how often has a taping been ruined by fuzzy, rasping distortion during loud music? And what about the frustration of being unable to record at loud levels without driving the tape into distortion? What about jam-ups and tangles? And have you ever really made a tape at home that sounded good in your car?

Those are the questions that led us to begin distributing TAPE 5 to the home tapper. You can be sure that studios and broadcasters can't be bothered with inferior, or even average tape. And now home tappers too can use TAPE 5 and not settle for second best.

WHAT TAPE ADS DON'T TELL YOU

You probably know that the actual bias settings of almost all tape decks are different because each manufacturer sets its deck differently. Therefore, bias adjustments (except for some infinitely variable controls) hardly ever match the bias of an ordinary tape. Also, as your deck gets older, its internal components change with age, another source of bias mismatch. This mismatch causes tape to distort and lose frequency response.

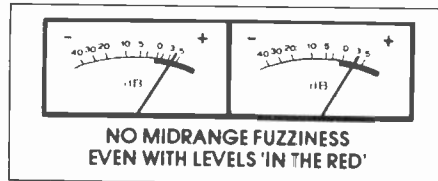
But TAPE 5's WIDE-LATITUDE* formulation minimizes the incompatibility problem by **building in** a generous 2 dB leeway around "standard" bias. This is why we can **guarantee** that your deck and TAPE 5 will be a good team.

COMPARE TAPE 5'S SPECS AND FEATURES

Since TAPE 5 was originally a professional tape, it's made with features the pros insist on. Like pre-stretched polyester film base, multiple-calendered non-abrasive gamma ferric oxide coating, precision-torqued 5-steel-screw case, and teflon-impregnated slip sheets to reduce internal friction. And never any annoying dropouts or splices. We've made some recent improvements: thicker screws, heavier shell, flanged guide rollers, and heavier steel pins. The labels now have lots of writing space and the outer box now has an overlapping, dustproof lid.

With a mirror-polished oxide surface and quality-control assembly, TAPE 5 cassettes can deliver the type of sound that you've never before been able to get onto a

cassette. And even with recording levels "in the red," you won't get any fuzziness in the midrange. Check the specs. An astounding Signal-to-Noise Ratio of 64.4 dB, so quiet that many users find no objectionable tape hiss even without Dolby.™ Maximum Output Level at 3% THD is 6.7 dB. (These first specs are essential to making good tapes for your car stereo.) At 0 dB input, IM Distortion is 1%. Attainable Frequency Response is 30-18,000 Hz, ± 1.5 dB. And keep in mind that these figures were obtained using the widely-accepted DIN testing standards.



MUSICIANS, TAKE NOTE

You'll find TAPE 5's extraordinary ability to handle sudden loud peaks a real asset when recording live or when dubbing from reel-to-reel to cassette. And without going into fancy language, let's just say that with TAPE 5's accurate reproduction of harmonics, a cymbal crash will sound like a cymbal crash

and a plucked acoustic guitar string will sound exactly like a plucked acoustic guitar string. But don't buy TAPE 5 only for the sound; we've sold tapes by the thousands for use as demos because the mechanisms are rugged enough to withstand the stresses of duplicating at 30 inches per second. Whatever you use audio cassettes for, Tape 5 can take it. With a sizeable reserve in headroom and dynamic range, you'll be able to get the most out of your tape recorder because you'll be using your machine to its fullest ability. Even in tough spots like live concerts and copying digital discs, the cassette to use is TAPE 5, the tape that can take it.

AFFORDABLE PRICES PLUS 5-YEAR WARRANTY

So now there's no need to pay stiff prices for chrome and exotic formulations when TAPE 5 guarantees better performance than the other name brands. Plus a 5-year warranty. If your local retailer does not yet stock TAPE 5, ask him to contact his local rep. In the meantime, feel free to order directly from us. Phone or use the coupon.



READ WHAT TAPE 5 USERS SAY

"I was amazed. My Nakamichi likes Tape 5 better than any of TDK, Maxell, Scotch, or Ampex's standard bias tapes. When a client requests some thing in cassette form, I go for Tape 5. It's the best quality for the least expenditure." —Bill Tullis, Progressive Music Services, Atlanta, GA

"In critical listening tests, I found Tape 5 to be at least as good as TDK-SA, Maxell UDXL-II and BASF Pro II. When I subjected the cassettes to intentional transport abuse to see if I could make them jam up, your mechanisms operated very smoothly and performed without a failure." —Al Valusek, Ann Arbor, MI

"Tape 5 has a better sound than any other tape I've used (Memorex, Maxell, TDK, Sony, and a few others). With Tape 5 I get all of the highs and all of the lows." —Jimmie Taylor, Elsberry, MO

Charge by phone, 9-5 Eastern Time
Dial 212/249-TA-P-E (249-8273)



TAPE 5 WIDE-LATITUDE®
SOUND RECORDING TAPE

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New York, NY 10003

TO: TAPE 5, 111 Third Avenue, New York, NY 10003

ALL ORDERS TO 48 STATES SHIPPED
VIA INSURED U.P.S. ADD 5%

CANADIAN ADD 10%.

OVERSEAS AIR MAIL ADD 25%.

LENGTH	1-11	12-49	50-99	100	QTY
C-46	2.35	2.19	2.05	1.89	
C-60	2.65	2.49	2.29	2.09	
C-90	3.39	3.19	2.95	2.69	
C-120	4.59	4.29	3.99	3.65	

U.P.S. POSTAGE ADD 5% (Quick Insured)
NY state residents add sales tax

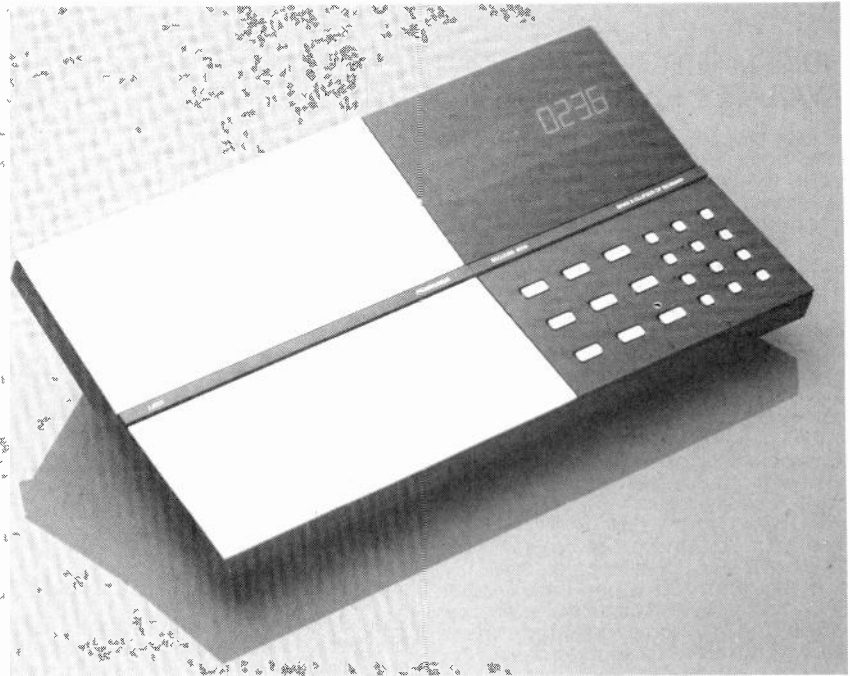
MINIMUM ORDER 6 TAPES
MINIMUM CREDIT CARD ORDER \$30
CHECK OR MONEY ORDER ENCLOSED
CHARGE MY VISA Master AmEx

Card # _____
Exp Date _____
Signature _____
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SEND COUPON AND START SAVING NOW

New Equipment Reports

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



Technology and Chic from Denmark

B&O Beocord 8000 cassette deck, in metal case with rosewood trim. Dimensions: requires 20½ by 11 inches table space, plus ½-inch clearance at back for heat sinking; 5 inches high closed, 9½ inches with cover open. Price: \$995. Warranty: "limited," one year parts and labor. Manufacturer: Bang & Olufsen a/s, Denmark; U.S. distributor: Bang & Olufsen of America, Inc., 515 Busse Rd., Elk Grove Village, Ill. 60007.

B&O has its own very individual way with component design, and the Beocord 8000, perhaps, epitomizes that way. That it is exceptionally handsome goes without saying. That it hides some of its technological light behind that handsome exterior also should be a foregone conclusion because B&O traditionally has believed that it should spare the user as much nutsy-boltsy involvement as possible. Here, thanks to elaborate microprocessor functions, the involvement remains intense, though it focuses on the playing (and recording) of music and not on the tape technology as such. Thus its chic may well be a turnoff to amateur engineers.

Part of the design intent became apparent only as our testing neared its conclusion, in fact. B&O has announced its "ultimate" 8000 system: an AM/FM receiver, the automated straight-line-tracking Beogram 8000 turntable, and this deck, all remotely controllable from an easy chair. Understood in that context, some of the Beocord's "quirks" can be seen as rational elements of that system. For example, there is no source-feedthrough during recording; in order to monitor the source signal, you must revert to the monitor switch on your receiver or preamp. We had never before encountered a quality deck that behaved this way and were somewhat taken aback. In the system, source monitoring automatically takes place (via the receiver) during recording from any source; since the deck has a single combination record/play head, the tape (and therefore the deck) can be heard from only during subsequent playback.

Mostly, however, the system-related elements have positive application for the user who chooses the Beocord alone. Take the timer/locator microprocessor, for example. Its clock can be used to start or stop recording or playback, in the "usual" fashion (though a built-in clock is not all that usual); almost unique is the real-time tape counting and playback access. If you keep track of the readout settings during recording, you need only punch up the starting time on the tape of whatever selection you want to hear in playback. The deck will shuttle about to determine tape winding density (essentially, tape thickness) so that it can keep track

Report Policy: Equipment reports are based on laboratory measurements and controlled listening tests. Unless otherwise noted, test data and measurements are obtained by CBS Technology Center, a division of Columbia Broadcasting System, Inc., and 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, CBS Technology Center, and Diversified Science Laboratories assume no responsibility for product performance or quality.

HIGH PERFORMANCE HIGH BIAS.



AMPEX GM II HIGH BIAS TAPE.

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

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

head contact is precise, we use our exclusive Ferrosheen™ calendaring process to give the tape an ultrasmooth, glossy surface.

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

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

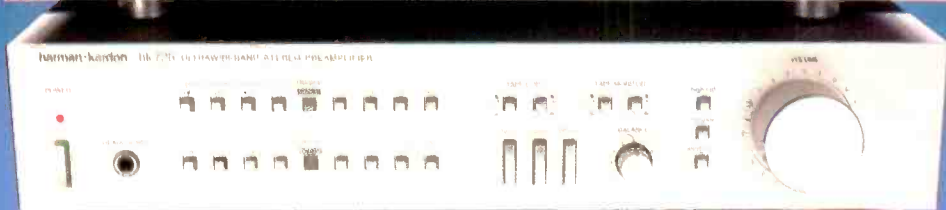
For complete information and specifications on all Ampex premium tapes, write us for a copy of our Full Line Brochure.

AMPEX
The Tape of the Stars

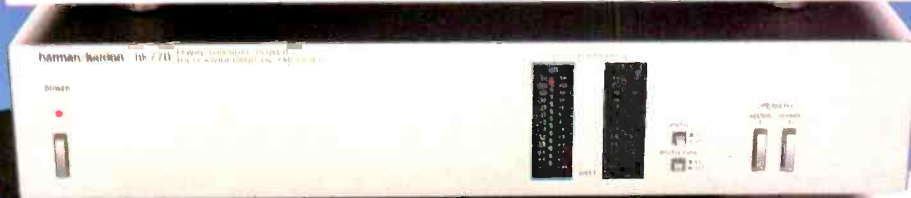
Our first low negative feedback components were designed for the audiophile.



The hk715 High Technology quartz locked digital tuner.



The hk725 High Technology preamplifier.



The hk770 High Technology 65 watt per channel power amplifier.



The hk710 High Technology phase locked analog tuner.

The new hk750 High Technology 45 watt per channel integrated amplifier.

Last January, we introduced our 700 series High Technology Separates. The first moderately priced separates designed with low negative feedback.

Negative feedback?

It's a form of electronic compensation used in virtually every preamplifier, amplifier and receiver. Used judiciously, negative feedback can improve frequency response and THD

distortion characteristics. Unfortunately, most manufacturers try to reduce THD to lower and lower levels by adding more and more negative feedback – typically 60-80 dB. This excess negative feedback results in a new form of distortion called Transient Intermodulation Distortion (TIM), which does far more to degrade music than THD. In fact, according to a listening survey, TIM in music is detectable at

levels just 1/10 the detectable levels of THD.

By keeping negative feedback to 30 dB or less in all Harman Kardon electronics, we've eliminated the harsh, metallic, grating effects of TIM produced by conventional equipment with high negative feedback. You'll hear startlingly clean, clear, open sound.

Now everyone can afford to be an audiophile.



The new hk350i
High Technology
20 watt per
channel receiver.

The new hk460i
High Technology
30 watt per
channel receiver.

The new hk570i
High Technology
45 watt per
channel receiver.

The new hk680i
High Technology
60 watt per
channel receiver.

Now low negative feedback comes in an integrated amp and four receivers.

Not everyone could afford our original system of separates. Or needed the flexibility it offered. So we've expanded our High Technology Series to include a new 45 watt per channel integrated amplifier and four new receivers ranging from 20 to 60

watts per channel*.

In addition to low negative feedback, all feature our Ultra-wideband designs for clearer, more precise stereo imaging. And our new receivers as well as our new integrated amp are all built with an extremely high instantaneous current capability. Which means they can deliver more than twice their power ratings when transients demand it.

*20-20,000 Hz into 8 ohms @ 0.09% (or less) THD.

For all the technological advances you get with our low negative feedback components, you might expect to give up convenience features. Or pay a premium price.

But you don't.

So now you can have the best sound money can buy. No matter how much you have to spend.

harman/kardon

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Toll free: 1-800-528-6050, ext. 870

IF YOU'RE NOT USING THE SCOTCH[®] RECORD CARE SYSTEM, YOU'RE USING THE SECOND BEST.

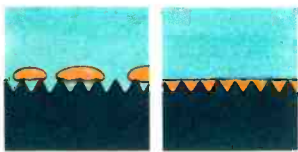
**INTRODUCING SCOTCH[®] RECORD CARE SYSTEM. IT CLEANS,
ANTI-STATS AND REDUCES FRICTION—ALL IN ONE STEP.**

Finally there's a way to give your records the kind of care and protection that hasn't been possible until now... a way to insure a long life of true sound.

The System.

The Scotch Record Care System combines new Sound Life[™] fluid with a unique dispensing applicator. To use, simply depress the supply container and Sound Life fluid is fed automatically to the pad. That's all there is to it. It's quick, easy and simple. No guesswork about how much fluid you need or how to apply it correctly. Just place the applicator on your turntable spindle, revolve it and the record is cleaned.

Super-wetting action deep-cleans grooves.



Discwasher D3[®] solution (left) beads up on the grooves. Sound Life (right) with super-wetting action deep-cleans grooves.

If your present cleaning solution beads up on the record surface, it may not be getting the job done.

Scotch Sound Life spreads onto the disc surface evenly—safely penetrating grooves to remove micro-dust and fingerprints. Sound Life leaves the record with a brilliant look, as brilliant as the sound is clean and true.

As it cleans, it wipes out static.

Even though your record surface is clean, it's generally the electrostatic charge that gets it dirty again. An anti-static gun is just a temporary treatment.

One application of Sound Life reduces the residual charge to near zero. And it prevents static from returning no matter how often the record is played.



(Left) Styrofoam beads are attracted to static charge left on record after cleaning with Discwasher D3[®].

(Same record (right) after one treatment with new Sound Life fluid.

Friction reduction's a plus.

The same application of Sound Life that super-cleans and removes static can reduce stylus drag up to 15%.

And with your sensitive stylus that can mean less wear and improved record life.

Better stereo performance.

To get all the true, pure sound you expect from your stereo, you need records that are truly clean, and protected from static and friction. Only the Scotch Record Care System gives you all three in one application. Ask to see a demonstration at your record or stereo store right now.

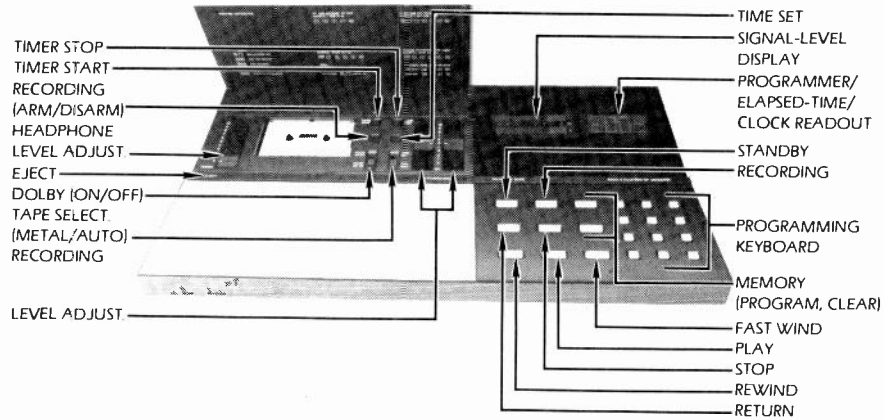
All of the tech data we've used to back up these statements is available free. Write to Magnetic A/V Products Division, 3M Company, 3M Center, St. Paul, MN 55101. Ask for report C-242.



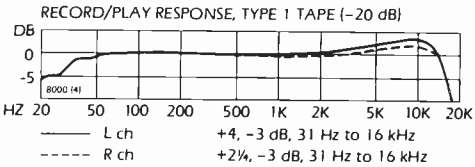
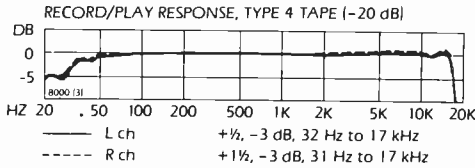
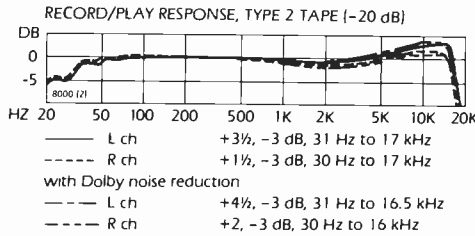
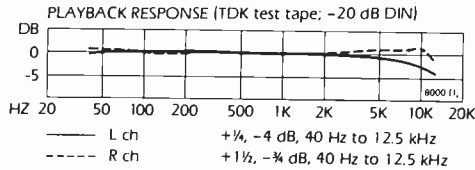
**SCOTCH[®]
RECORD CARE SYSTEM.
THE TRUTH COMES OUT.**



3M



Beocord 8000 cassette deck



S/N RATIO (re DIN 0 dB; A-weighted)		Type 1
Type 2	Type 4	
playback without noise reduction		58 dB
Dolby playback		66 1/2 dB
record/play without noise reduction		54 dB
Dolby record/play		62 dB
METER READING FOR DIN 0 DB		+2 dB

METER READING FOR 3% DISTORTION (at 333 Hz)	
Type 2 tape	+2 dB
Type 4 tape	+4 dB
Type 1 tape	+6 dB

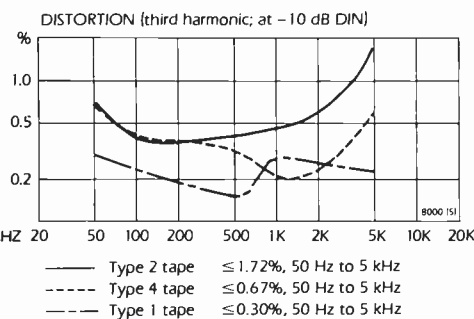
of equivalent elapsed time in its fast-wind modes. Then it measures the tape off from the beginning until it arrives at a point a few seconds ahead of that for which you have programmed it and starts to play. Thus, if you have a prerecorded tape on which selection timings are listed, you have enough information for direct random access to the beginning of any item, with a tolerance as close as that of most conventional "turns counters" but without the need to go through the tape and list counter numbers for each section.

The MEMORY works like a conventional memory stop except that you can punch in the indexing at any time (rather than first having to stop the tape at the indexing spot) and that it works in fast wind as well as rewind. There also is a useful REPEAT feature that, during recording, keeps track of the spot at which the last recording began and will return to it on command should you make a mistake and want to do over the latest addition. If you are recording a series of tunes, you will find that every time you press stop (there is no PAUSE), a few seconds of silence is recorded before the tape actually stops. In playback, it stops immediately, so if you want tight editing between one passage and the next, you can play back the earlier one and stop at its end, just before the arbitrarily added silence, and begin recording of the second passage at that point. This may seem an elaborate subterfuge to those used to the conventional PAUSE, but it is consistent with the kind of recording most owners can be expected to do. That is, elegant spacing of short numbers is likely to be more welcome to more recordists than elegant tightening of long ones.

The recording interlock, too, is unusual; the ARM/DISARM button (somewhat confusingly labeled as "recording open" by B&O) makes recording possible when you press it once, prevents (disarms) recording when you press it again. When you stop recording, the button automatically reverts to the DISARM mode to prevent inadvertent erasure, though that would be difficult in any event because of the way the RECORDING button operates. Once the recording is armed, a single press on this button will display the input signal on the meters—very much like putting a conventional deck into the RECORDING/PAUSE mode; a second press causes the transport to engage and the recording to begin. If you activate any other transport mode in between, you must begin the progression afresh.

Even the connection options are out of the ordinary. The jacks are DIN designs, and an adapter cable for our standard pin jacks is supplied for the back panel, where line input/output ("amplifier") connections are switchable between DIN levels and impedances and those standard in North America. A second jack, at the bottom of the front edge, is for aux and mike inputs; next to it is a MIKE/AUX/LINE switch that chooses between these two and the signal from the back-panel input. Obviously, there is no input mixing, but a level control for the headphone output is provided near the front-panel input jack. On the bottom are screwdriver controls for the line-output level in the two channels, supplementing the two-position (DIN/line) switch; the output range shown in the data was measured with the switch set for line operation.

There are just two tape bias/EQ options: METAL and AUTO, which delivers DIN-standard ferric bias and 120-microsecond playback equalization to any cassette without the extra keyway built into the back edge of of "chrome" shells. If the sensor in the deck discovers the keyway, it automatically switches to DIN chrome bias and 70 microseconds. As the manual warns, some tapes may emphasize high frequencies with these bias settings, and even the brands recommended by B&O—BASF Professional II for "chrome" Type 2 and Studio I for ferric Type 1—show some tendency to peak toward the top in Diversified Science Laboratories' data. The



ERASURE (333 Hz; re DIN 0 dB)

Type 2 tape	77 dB
Type 4 tape	72 dB

CHANNEL SEPARATION (at 333 Hz) 51 dB

SPEED ACCURACY 0.5% fast at 105, 120, and 127 VAC

WOW & FLUTTER (ANSI/IEEC weighted peak)

	average	maximum
playback	$\pm 0.07\%$	$\pm 0.09\%$
record/play	$\pm 0.07\%$	$\pm 0.09\%$

SENSITIVITY (re DIN 0 dB; 333 Hz)

line input	22 mV
mike input	0.058 mV

MIKE INPUT OVERLOAD (clipping) 10.6 mV

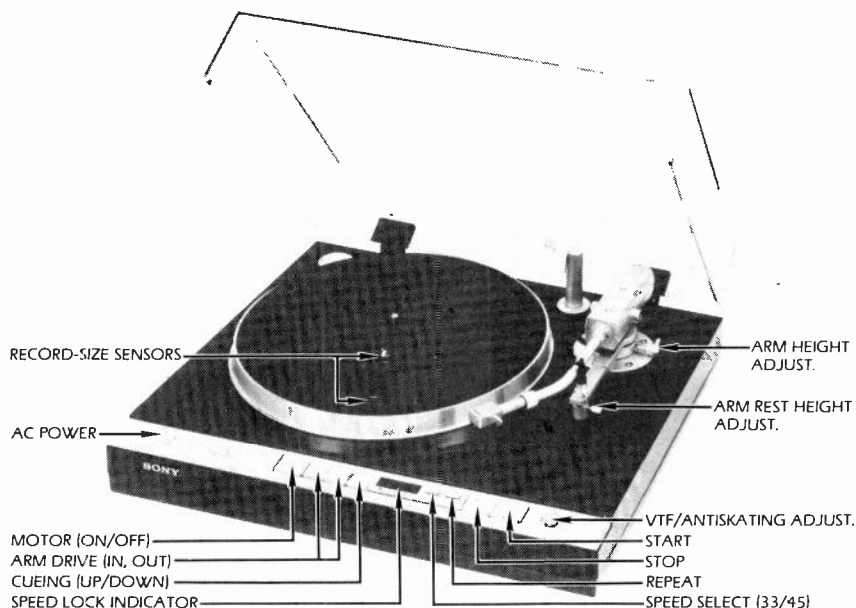
MAX. OUTPUT (from DIN 0 dB) 0.38-2.3 V

metal-particle tape—Scotch Metafine, also used by DSL at B&O's suggestion—proved exemplary in its flatness with the METAL position.

The metering aids materially in getting good recordings, though it is limited both in total range (-20 to +6 dB) and in differentiation (2 dB per step) in the critical range, around the 0-dB mark. The good news is equalization, which boosts high frequencies reciprocally to typical tape overload curves so that a "0" reading implies roughly the same degree of overload danger at any input frequency and with any tape type. As far as we could determine, the boost applies in both recording and playback; unlike some tailored metering schemes, therefore, recording-level readings are reproducible in playback, for minimum confusion in assessing results.

If a single feature of the deck can be taken to characterize the whole, in the case of the Beocord it is the omission of a feature—the on/off switch. The power comes on automatically when you touch any of the controls; in essence, its logic anticipates your need. Similarly, if you press **STANDBY**, the deck decides what can be shut down, and one small red light remains on the control panel to reassure you that memory and timer functions are still in operation. This is where the technology is concentrated: in saving you the nuisance of determining what is needed and activating it. This also can prevent mistakes, but at a price in user freedom and performance (as exemplified by the limited tape-matching options and the omission of a multiplex-filter defeat switch, for examples). So while performance is less than ultimate in audiophile terms, the design does make quasi-audiophile performance uniquely accessible to nonaudiophiles who want the sound and the style but not the hassles.

Circle 135 on Reader-Service Card



Sony PS-X75 two-speed (33 and 45 rpm) turntable with electronic servo tonearm and hinged dust cover. Dimensions: 18½ by 15½ inches (top plate), 6½ inches high with dust cover closed; additional 11 inches at top and 3½ inches at back required with cover open. Price: \$500. Warranty: "limited," two years parts and labor. Manufacturer: Sony Corp., Japan; U.S. distributor: Sony Industries, 9 W. 57th St., New York, N.Y. 10019.

Though there is much to distinguish the PS-X75 turntable in terms of overall performance and automation, a discussion of it must start with its extraordinary tonearm—which, as one observer remarked, resembles the gun turret on an old Sherman tank. Sony calls it a Biotracer tonearm, alluding to the electromechanical control systems employed by living organisms and mimicked here by the type of servo system Norbert Wiener termed cybernetic.

A key consideration in the design is its solution to the chronic problem of low-frequency resonance in tonearm/pickup combinations. The natural resonance

Circle 4 on Reader-Service Card ▶

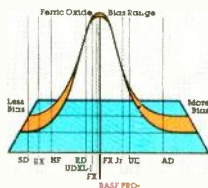
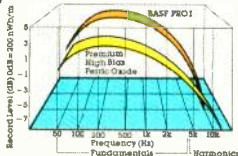
Sony's Cybernetic Biotracer

The Tape Guide

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



Premium ferric oxide tapes have more headroom which allows higher maximum recording levels (MRL). Among all premium ferric oxides PRO I has the best MRL for loud recordings. Uniform maghemite particles provide increased headroom for very accurate and loud recordings with virtually no distortion. In the fundamental music range (20Hz-5kHz) PRO I can be



PRO I is designed to be compatible with the normal bias setting of more cassette decks than any other ferric tape.

recorded louder and driven harder than even high bias tapes. PRO I is the internationally accepted reference tape, whose bias point is specifically matched to the Type I/normal/ferric position on today's high quality cassette decks.

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

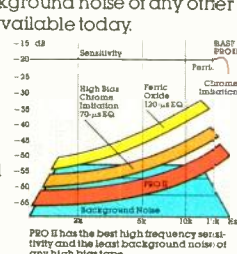


High bias tapes consistently provide wider frequency response and less tape noise (his or background noise) than any other tape type. Among premium high bias tapes PRO II is in a class by itself. It is the second generation chromium dioxide tape with superb frequency response and outstanding sensitivity in the critical (10kHz-20kHz) high frequency range. It also has the lowest background noise of any other competitive tape available today.



The pure chromium dioxide particles in the PRO II, unlike ferric oxide particles, are homogeneously shaped and universally sized to give this tape superior performance.

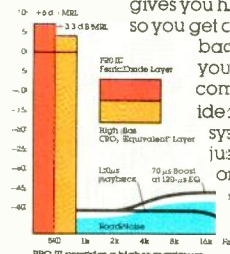
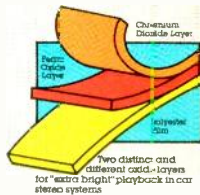
PRO II will capture the many subtle harmonics of the most demanding recordings and play them back with the reality and presence of a live performance. PRO II is the tape for the Type II/chrome/high bias position that comes closest to Metal tape performance for half the price.



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



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



GUARANTEE OF A LIFETIME

"The guarantee of a lifetime." All BASF tape cassettes come with a lifetime guarantee that covers everything. Should any BASF cassette ever fail—for any reason—simply return it to BASF for a free replacement.



Patented "Jam-Proof" Security Mechanism (SM): All BASF tape cassettes come with our exclusive SM—Security Mechanism. Two precision arms actually "guide" the tape in a smooth, exact and consistent track, so that winding is always even, no matter how often the cassette is played. SM puts an end to tape jamming.

BASF
Crosby Drive, Bedford, Massachusetts 01730

THE REALIZATION OF GREAT EXPECTATIONS.

THE SANSUI "Z" SERIES.

Music lovers expect uncommon products from Sansui. And Sansui delivers. The Sansui "Z" Series of synthesized digital receivers are designed and built with a loving logic that can be seen, touched and heard. Take the Sansui 5900Z, a reasonably priced receiver with every important feature you could possibly want for the heart of your high fidelity system.

SYNTHESIZED DIGITAL TUNING

You can't mistune a Sansui synthesized digital receiver. Not even a little. Press the up/down tuning buttons. The digital circuitry ensures that every station received is automatically locked in for lowest possible distortion, with its frequency indicated both on a digital readout and by an LED indicator along an analog type dial.

TOUCH VOLUME CONTROL & LED PEAK POWER LEVEL INDICATOR

The Sansui 5900Z uses a pair of touch-buttons to adjust the listening level. Relative volume control setting is indicated on a fluorescent display. Actual peak power amplifier output is shown by 14-segment LED indicators.

12 PRESET STATIONS

To make FM and AM tuning still easier, up

to 12 user-selected stations may be "stored" in the 5900Z's memory circuits for instant recall. The last station received will be remembered when the tuner is turned on again; and memories are kept "live" even during a power outage.

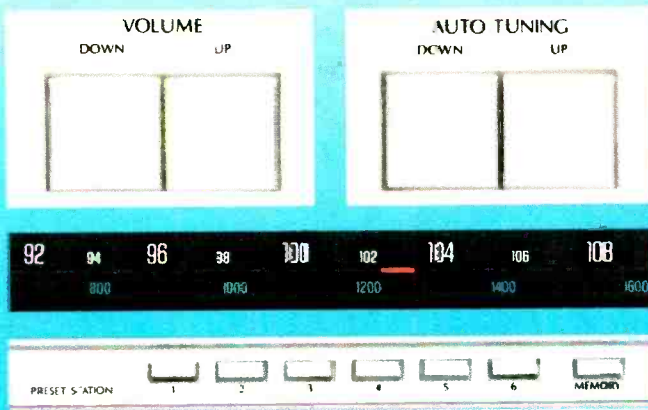
DC-SERVO AMP FOR DEPENDABLE POWER

The leader in DC technology, Sansui uses a servo-controlled amplifier circuit in all "Z" receivers to eliminate unwanted ultra-low frequencies — like record warps — while maintaining the advantages of direct-coupled circuitry in their amplifier sections. The 5900Z delivers 7.5 watts/channel, min. RMS, both channels into 8 ohms, from 20-20,000Hz, with no more than 0.03% THD.

And there's more. Like LED's for every important function. Two Muting Modes. Two tape deck connection with dubbing. And much more.

Visit your Sansui dealer and make sure you

see all the wonderful stereo receivers in the Sansui "Z" Series. And expect great things. You won't be disappointed



Sansui

SANSUI ELECTRONICS CORP.

Lynhurst, New Jersey 07071
Gardena, Ca. 90247
SANSUI ELECTRIC CO., LTD., Tokyo, Japan
SANSUI AUDIO EUROPE S.A., Antwerp, Belgium
In Canada: Electronic Distributors



Sony PS-X75 turntable

SPEED ACCURACY (at 33 and 45 rpm)	
	no measurable error at 105, 120, or 127 VAC
WOW & FLÜTTER (ANSI/IEEE weighted peak)	
	± 0.035% average; ± 0.060% max. instantaneous
TOTAL AUDIBLE RUMBLE (ARLL)	-63½ dB
TONARM RESONANCE & DAMPING	
vertical	9 Hz; 1-dB rise
lateral	no measurable resonance
ARM FRICTION	negligible
VTF-GAUGE ACCURACY	
	reads approx. 10-15% below measured values
ANTISKATING BIAS FACTOR	0.1
MIN. STYLUS FORCE FOR AUTO TRIP	100 mg
TOTAL LEAD CAPACITANCE	7.5 pF

is determined by the effective mass of the combination and by the compliance of the stylus suspension. Rule of thumb says that these factors, neither of which can be assessed directly by the user, should be played off against each other until the frequency of the resonance is below 20 Hz (so it won't resonate to program content) and above 6 Hz or so (where warp "information" is most extreme) to minimize boominess, mistracking, frequency-modulating stylus "scrubbing," and preamp-overload distortion—to name only the most obvious of ill effects. And even if this ideal can be achieved for one pickup, how is a multicartridge audiophile system to maintain that ideal when the cartridge is changed? In the Biotracer arm, Sony tackles the problem with two linear motors (for vertical and horizontal motion) along with velocity sensors that react to the instantaneous displacement of the arm in each plane. A velocity feedback loop via a microprocessor orders either or both of the motors to generate the exact force necessary to damp out vertical and horizontal resonances.

This microprocessor "drive" system also provides several operating conveniences. Once the arm/pickup has been brought to balance, VTF is applied electronically via a front-panel dial, whereupon antiskating bias adjusts automatically. Each of these values varies dynamically during play in response to actual conditions. Cueing and arm return also are electronic; the electronics allow all controls to be along the front edge of the top plate, in easy reach even with the dust cover closed.

The direct-drive motor is a brushless and slotless design that, Sony claims, eliminates the cogging effects of some others of this type. A magnetic pickup head monitors its motion, "reading" a magnetic coating at the edge of the platter. The resulting pulses are compared to a quartz oscillator, and the motor speed adjusts accordingly.

The arm—whose height can be adjusted, by the way, permitting some control over vertical tracking angle—is "informed" of record size for automatic play by an optical sensing system, which employs prisms embedded in the rubber mat, a columnar light source at the side of the platter, and photo detector beneath the platter. A nice touch, too, is the overhang adjustment gauge on the underside of the mat, into which parallel guidelines and stylus-intersect point are molded. This is much more convenient than the usual, separate plastic gauges, which can easily be misplaced.

When CBS Technology Center mounted the highly compliant Shure V-15 Type III cartridge in the massive Biotracer arm—a combination that normally would produce a horrendous resonance—the damping was virtually complete in both planes, and what little resonance remained was just about ideal in frequency. The other data also document very civil behavior: exact and unvarying speed at all test voltages, negligible arm friction, low rumble.

In use, we could not have been more delighted with the PS-X75 and its robotlike arm. We mounted a host of different pickups, ranging from models with ultralow mass and high compliance to stiff and massive moving-coil cartridges, and found the arm capable of extracting excellent performance from each. Infrasonics did not engender resonance-excited woofer behavior, and tracking proved exceptional, even on severely warped records. The electronic cueing controls are a breeze to operate, and we quickly learned to set down the stylus wherever we wanted. A brief touch on the FORWARD or BACK CUE controls causes the arm to move very slowly; the longer you maintain pressure, the faster it moves. The annoying thump of stylus meeting record is muted electronically, as is all output when the pickup is not in the playing position. The REPEAT on the front panel starts a continuous repeat-play function, which can be halted via a tap on START or another touch on REPEAT. Since there is no mechanical linkage between arm and platter, back cueing can be accomplished using the MOTOR ON/OFF to start platter rotation.

Obviously, we are quite taken with the PS-X75. Last year, when we first heard of the Biotracer arm in the \$1,800 PS-B80 turntable, we did not guess that Sony would be able to bring the technology down to such an affordable price. In performance and appeal, however, this \$500 version is nothing less than first class. The PS-X75 is an audiophile's dream, both because it plays records so well and because it does so with virtually any cartridge. Now, at last, the inquisitive phonophile need not be limited in his choice by the arm on his turntable.

Circle 131 on Reader-Service Card

(More)

Mitsubishi's First Receiver

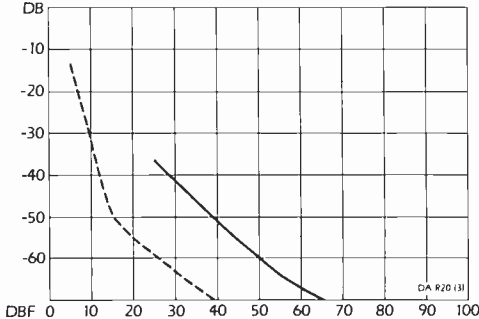
Mitsubishi DA-R20 FM tuner section

MONO FREQUENCY RESPONSE
+½, -3 dB, 20 Hz to 15 kHz

STEREO RESPONSE & CHANNEL SEPARATION
Frequency response (either IF mode)

L ch +½, -3 dB, 24 Hz to 15 kHz
R ch +½, -3 dB, 22 Hz to 15 kHz
Channel separation
wide IF mode ≥40 dB, 60 Hz to 7.2 kHz
narrow IF mode ≥43 dB, 50 Hz to 4 kHz

FM SENSITIVITY & QUIETING



— stereo quieting (noise), wide IF mode
- - - mono quieting (noise), wide IF mode
Stereo sensitivity (for 50-dB noise suppression)
39 dBf at 98 MHz, with 0.38% THD+N
(38 dBf at 90 MHz; 4 1/2 dBf at 106 MHz)
Mono sensitivity (for 50-dB noise suppression)
15 1/2 dBf at 98 MHz

Muting threshold 24 dBf
Stereo threshold see text
Stereo S/N ratio (at 65 dBf) 70 dB
Mono S/N ratio (at 65 dBf) 78 dB

CAPTURE RATIO (either mode) 1 1/2 dB

ALTERNATE-CHANNEL SELECTIVITY
wide IF mode 56 1/2 dB
narrow IF mode 60 1/2 dB

HARMONIC DISTORTION (THD+N)
wide IF mode stereo mono
at 100 Hz 0.14% 0.12%
at 1 kHz 0.066% 0.050%
at 6 kHz 0.16% 0.078%
narrow IF mode
at 100 Hz 0.52% 0.11%
at 1 kHz 0.38% 0.18%
at 6 kHz 0.34% 0.52%

STEREO PILOT INTERMODULATION
wide IF mode 0.044%
narrow IF mode 0.23%

IM DISTORTION (mono)
wide IF mode 0.035%
narrow IF mode 0.072%

AM SUPPRESSION wide narrow
56 1/2 dB 46 dB

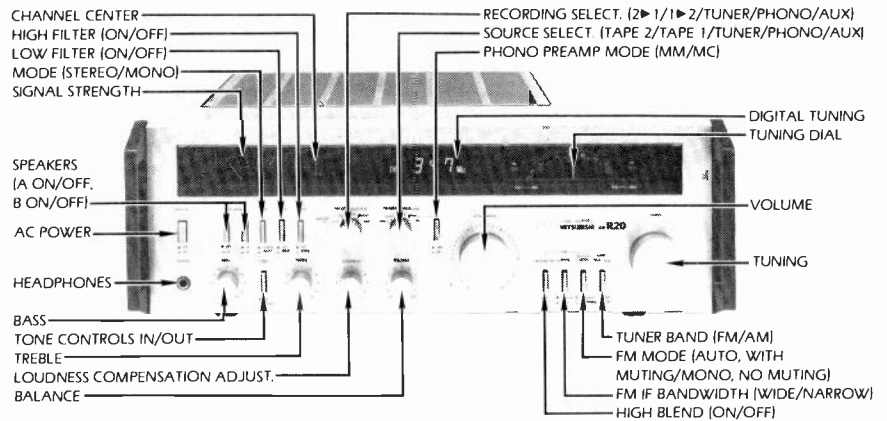
PILOT (19 kHz) SUPPRESSION 78% dB

SUBCARRIER (38 kHz) SUPPRESSION > 100 dB

Mitsubishi DA-R20 amplifier section

RATED POWER 17% dBW (60 watts)/channel

OUTPUT AT CLIPPING (both channels driven)
8-ohm load 19% dBW (84 watts)/channel
4-ohm load 19% dBW (84 watts)/channel
16-ohm load 17% dBW (53 watts)/channel



Mitsubishi Model DA-R20 AM/FM receiver, in wood case with vinyl finish. Dimensions: 18½ by 6½ inches (front panel), 14 inches deep plus clearance for connections and handles. AC convenience outlets: two switched (300 watts max. total), one unswitched (300 watts max.). Price: \$560. Warranty: "limited," three years parts and labor. Manufacturer: Mitsubishi Electric, Japan; U.S. distributor: Mitsubishi Electric Sales America, Inc., 3010 E. Victoria St., Compton, Calif. 90221.

Until this year, Mitsubishi was represented in this country chiefly by its high-end separates and loudspeaker systems. You could create a Mitsubishi receiver by "docking" its DA-C20 preamp/tuner (test report, March 1979) with one of its power amps. But the company now has three all-in-one receivers, with the DA-R20 enjoying flagship status. Its rack handles and rotary tuning dial (plus digital frequency readout) make it distinctly recognizable as a Mitsubishi.

Despite the digital readout, the R20's tuner employs a variable capacitor. In essence, the static-drive numerical display is a fine-tune adjunct to the rotary dial, which is calibrated only in 1-MHz intervals for FM (and at 100-kHz intervals for AM); conversely, the rotary dial offers the orientation that some users miss in numerical-only tuning. In addition there are full meters, not just LED displays, for signal strength and channel centering. The tuning knob locks into the automatic frequency control circuit; when you touch the knob, the AFC loses its hold on the station, permitting retuning. IF bandwidth can be switched to NARROW for increased selectivity in crowded suburban reception areas, and a HIGH BLEND switch cleans hiss from weak stereo broadcasts without losing all stereo separation. Our only gripe with the extremely flexible controls is the MUTE/MODE button, which prevents mute-free stereo reception. It's a common enough scheme on less complex tuners and receivers, but here it is redundant with a separate preamp-based MODE button. And though the stereo pilot lamp comes on at 18 dBf, you cannot hear stereo until signal strength has passed the 24-dBf muting threshold.

The data from Diversified Science Labs show FM performance primarily (as usual) in terms of the wide IF mode without the BLEND, listing the alternative measurements only where they differ significantly. The narrow mode does improve quieting at low signal strengths, for example, but only by 1 or 2 dB beyond the already excellent wideband performance. Likewise, stereo quieting generally improves by 1 dB or so with the BLEND on, though the subjective improvement at low signal strengths is unusually good. Alternate-channel selectivity, which is good in the WIDE mode, improves surprisingly little in NARROW. Adjacent-channel selectivity, incidentally, is exceptionally good for both modes, at 8 and 11 1/2 dB, respectively. All the documented performance parameters are in the separate-tuner league. The signal-strength meter's tested calibration points range from 28 1/2 dBf, just above the muting threshold, to 66 dBf in "full strength" territory. Thus the meter can serve as a genuinely useful aid in antenna orientation.

Preamp-based controls and switching are handled quite nicely, indeed. The separate program and tape selectors obviate the problem of distortion or other loading effects caused by an unpowered deck hooked directly into the signal path. This switching also allows tape dubbing to proceed while you are listening to another source. Speaker switching actually takes place at the output stage's protection relays to avoid long runs of internal wiring that raise output impedance. (The high damping factor measured by DSL seems to confirm the effectiveness of the approach.) And flexible shafts avoid unnecessary wiring in the selector and tape

DYNAMIC HEADROOM (8 ohms)	2½ dB	
HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)	≤0.016%	
at 17½ dBW (60 watts)	≤0.016%	
at 0 dBW (1 watt)	<0.01%	
FREQUENCY RESPONSE	+0, -¼ dB, 12 Hz to 34.8 kHz; +0, -3 dB, <10 Hz to 117 kHz	
RIAA EQUALIZATION		
fixed-coil pickup	+½, -0 dB, 20 Hz to 20 kHz; -1 1/4 dB at 5 Hz	
moving-coil pickup	+½, -0 dB, 20 Hz to 20 kHz; -9% dB at 5 Hz	
INPUT CHARACTERISTICS (re 0 dBW; A-weighting)		
fixed-coil phono	0.35 mV	77 dB
moving-coil phono	16.4 µV	80% dB
aux	20.5 mV	85 dB
PHONO OVERLOAD (clipping at 1 kHz)		
fixed-coil pickup	145 mV	
moving-coil pickup	6.8 mV	
PHONO IMPEDANCE		
fixed-coil pickup	49k ohms; 340 pF	
moving-coil pickup	13 ohms	
DAMPING FACTOR (at 50 Hz)	160	
HIGH FILTER	-3 dB at 8.1 kHz; 12 dB/octave	
INFRASONIC FILTER	-3 dB at 18 Hz; 12 dB/octave	

switching, which takes place close to the rear panel.

The continuously adjustable LOUDNESS control—a feature whose versatility we applaud every time we encounter it—attenuates the upper midrange faster than the frequency extremes as it is turned away from its "0" (off) calibration point, thus "boosting" both extremes relative to the remainder. The separate BASS and TREBLE have shelving characteristics that match the marked boost and cut calibration more closely than usual. But a slight deep-bass droop is introduced whenever the tone controls are switched into the circuit, requiring that the bass control be set at "+2" if flat bass is to be restored. RIAA equalization is ruler flat for both moving-coil and fixed-coil inputs. Signal-to-noise figures for all inputs are uniformly excellent. The capacitance of the fixed-coil input is a bit higher than average for current models. Though many pickups will operate well—even ideally—into a load of 340 picofarads, you should double-check specs before buying.

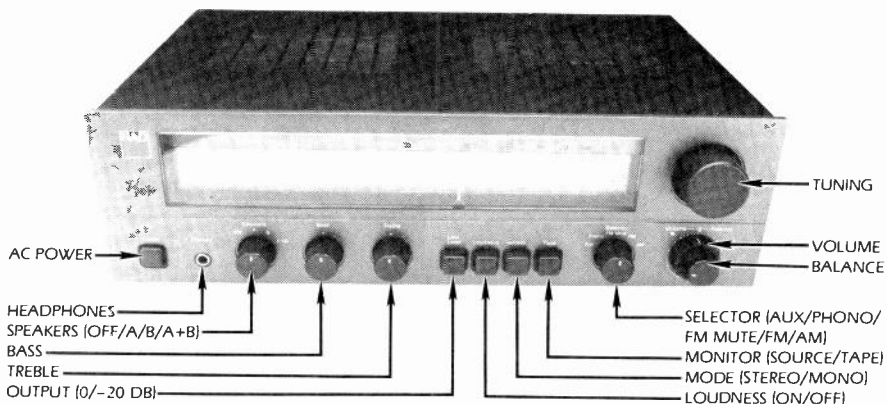
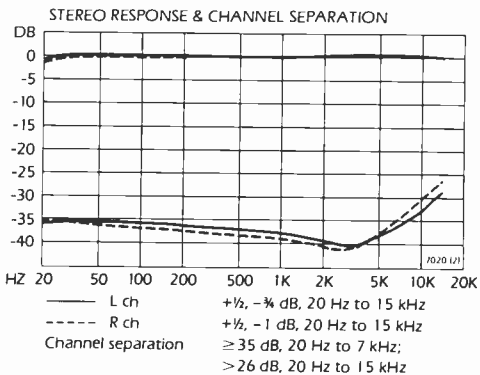
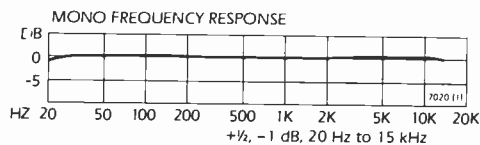
The amplifier section is said to employ multiple negative feedback loops in place of the conventional single-loop scheme. Mitsubishi claims this maintains a high slew rate and good stability under most operating conditions. Protective circuitry in the output stage operates in three ways: Any DC potential is detected at the speaker terminals and a relay opens to isolate the speaker; a power dissipation detector responds to unduly low load impedance (including short circuits) by similarly isolating the speakers; and a muting circuit keeps the output relays open for about 6 seconds after power has been switched on to prevent turn-on transients from zapping speakers. On the test bench at DSL, the amp showed itself capable of pumping out 19½ dBW (84 watts) into 8 ohms at clipping on steady tones; tone bursts held up to 20½ dBW (106 watts) for a hefty 2½-dB dynamic headroom.

Each section of the DA-R20 contributes a degree of operating flexibility uncommon in all-in-one designs. As Mitsubishi's first foray into the audio mainstream, it is an auspicious beginning, indeed—and one that augurs well for the consumer in search of top-notch separates performance in a receiver.

Circle 132 on Reader-Service Card

NAD's "Real World" Receiver

NAD Model 7020 FM tuner section

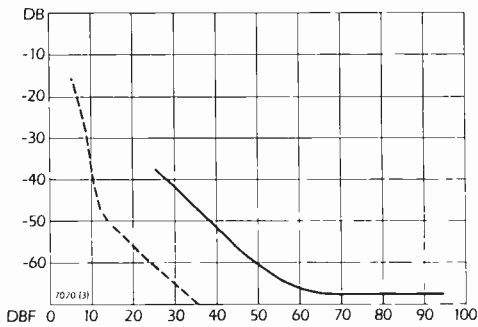


NAD Model 7020 AM/FM receiver, in metal case. Dimensions: 16½ by 5 inches (front), 9¾ inches deep plus clearance for controls and connections. AC convenience outlets: one switched (100 watts max.), one unswitched (150 watts max.). Price: \$330. Warranty: "limited," two years parts and labor. Manufacturer: made in Taiwan for New Acoustic Dimension, International; U.S. distributor: NAD (U.S.A.), Inc., 675 Canton St., Norwood, Mass. 02062.

Low-power receivers are sometimes viewed as the wallflowers of the audio industry; many manufacturers offer them as low-cost leader models, but none stakes its reputation on the virtues of a 13-dBW (20-watt) output stage. None except NAD, that is. Formed in Europe as a response to the perceived need by dealers for a line of low-priced, high-quality audio electronics, NAD quickly earned an enviable reputation for its Model 3020, a low-power, low-cost integrated amplifier that drew plaudits from both the audiophile press and cost-conscious consumer. With an American dealer network now in place, the company hopes to win similar praise for the 7020 receiver, which incorporates essentially the same amp and preamp electronics.

Among the more striking features carried over from the 3020 is the soft clipping option, NAD's solution to maintaining economy while avoiding the bane of conventional low-power receivers—hard clipping of transient waveforms whenever

FM SENSITIVITY & QUIETING



— stereo quieting (noise)
 - - - - mono quieting (noise)

Stereo sensitivity (for 50-dB noise suppression)
 38 dBf at 98 MHz, with 0.34% THD+N
 (37½ dBf at 90 MHz; 38½ dBf at 106 MHz)

Mono sensitivity (for 50-dB noise suppression)
 13½ dBf at 98 MHz

Muting threshold ca. 24 dB (see text)

Stereo threshold 24½ dBf
 Stereo S/N ratio (at 65 dBf) 67½ dB
 Mono S/N ratio (at 65 dBf) 75½ dB

CAPTURE RATIO 1 dB

ALTERNATE-CHANNEL SELECTIVITY 61½ dB

HARMONIC DISTORTION (THD+N)

	stereo	mono
at 100 Hz	0.70%	0.42%
at 1 kHz	0.11%	0.38%
at 6 kHz	0.20%	0.48%

STEREO PILOT INTERMODULATION 0.16%

IM DISTORTION (mono) 0.23%

AM SUPPRESSION 49% dB

PILOT (19 kHz) SUPPRESSION 69% dB

SUBCARRIER (38 kHz) SUPPRESSION 93 dB

NAD Model 7020 amplifier section

RATED POWER 13 dBW (20 watts)/channel

OUTPUT AT CLIPPING

SOFT CLIPPING off, both channels driven

8-ohm load 16¼ dBW (42.2 watts)/channel

4-ohm load 17% dBW (59.6 watts)/channel

16-ohm load 13½ dBW (22.4 watts)/channel

SOFT CLIPPING on; both channels driven

8-ohm load 14% dBW (29.9 watts)/channel

4-ohm load 16½ dBW (44.7 watts)/channel

16-ohm load 12% dBW (17.8 watts)/channel

DYNAMIC HEADROOM (8 ohms)* 3¼ dB

HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)*

at 13 dBW (20 watts) ≤ 0.014%

at 0 dBW (1 watt) < 0.01%

FREQUENCY RESPONSE

"normal" mode ± ¼ dB, 17 Hz to 26.7 kHz,
 +¼, -3 dB, 14 Hz to 60 kHz

"lab" mode ±½, -¼ dB, 18 Hz to 39 kHz,
 +½, -3 dB, 11 Hz to 145 kHz

RIAA EQUALIZATION +¼, -0 dB, 20 Hz to 20 kHz;
 -2B½ dB at 5 Hz

INPUT CHARACTERISTICS (re 0 dBW; A-weighting)

	sensitivity	S/N ratio
phono	0.59 mV	75½ dB
aux	34 mV	88% dB

PHONO OVERLOAD (1-kHz clipping) 300 mV

the peak levels run too high. In high-power equipment, much of the manufacturing cost goes toward huge filter capacitors, custom-made power transformers, heavy-duty output transistors, and heat sinks, all to guarantee that transients will emerge intact. NAD contends that most listening takes place at a level that demands only a few watts of continuous output and that consumers should not have to pay for reserves that are seldom used. To that end, when the back-panel SOFT CLIPPING switch is turned on, the waveform is, in effect, compressed to forestall hard clipping.

Of course, this implies somewhat reduced maximum power output levels, but when clipping does occur (or even before it occurs), the waveform takes on a more rounded shape, without the harsh-sounding high-order harmonics that create the normal squared-off clipping and threaten ears and tweeters alike. At the same time, NAD has taken care that the output transistors can handle the current drain imposed by relatively low impedances. Its solution here is to use higher-rated output transistors than are normally found in 20-watt receivers.

Data from Diversified Science Labs attest to the capabilities of the output stage. With SOFT CLIPPING off, the amp held up to continuous levels of 16¼ dBW (42 watts) into an 8-ohm load, while the 4-ohm continuous capability reached 1½ dB higher. With the switch engaged, the waveform is deliberately distorted at high levels, of course, but clipping in the usual sense can no longer be observed on the oscilloscope. Hence DSL measured at observable clipping (for under 0.1% of distortion) with the switch off and at 1% third harmonic distortion as the "soft clipping equivalent." Using this figure—a different "equivalent" would, of course, have netted different results—switching in SOFT CLIPPING pulled down maximum continuous output (at "clipping") by about 1½ dB in each measurement, as the figures show, and reduced 8-ohm dynamic headroom by about 1 dB. And at rated output SOFT CLIPPING increased THD to near 0.02% over most of the band while keeping the generated harmonics mainly the second and third. DSL also documented an improvement of about 15 milliseconds in transient-overload recovery time with the option switched in. The dynamic headroom figure cited in the accompanying data, 3¼ dB, refers to pulsed output with SOFT CLIPPING off. The fact that pulsed output at clipping matches clipping levels on continuous tones indicates an extremely "stiff," well-regulated power supply.

Another back-panel option is equally unusual. There are pre-out/main-in jumpers, which would surprise nobody were there not two pairs of main-in jacks. One pair, marked NORMAL, includes both infrasonic and ultrasonic filtering to minimize interference problems with extramusical "signals"; the LAB input is extremely broadband, though the RIAA equalization (measured in this operation mode) displays its own infrasonic filtering to control warp signals. The preamp stage also holds up to close scrutiny with high marks. Tone controls are not overaggressive (10 dB is their maximum cut and boost) and shelve quite symmetrically and predictably about their "flat" settings. The loudness contouring affects both the lows and the ultrahighs.

The tuner section maintains these high standards, with excellent alternate-channel selectivity, capture ratio, and ultimate quieting figures. Adjacent-channel selectivity measures 4½ dB—a very good figure, despite its skimpiness in comparison to alternate-channel specs, and better than many an expensive tuner can manage. There is no signal-strength meter, but the central lamp of the three-LED channel-centering array begins to glow at a 38-dBf input, and its intensity increases with signal strength. It's not very useful in antenna orientation, but as a quick and easy tuning aid, it's just dandy. Sensitivity is on par with other comparably priced receivers, but AM suppression is a bit on the low side. In our own listening tests, we could not find fault with the tuner's ability, even with exceedingly weak broadcasts. When their signal strength is down in the muting-threshold range around 24 dBf, the sound dims much like the central LED does; that is, muting is progressive within ± 1¼ dB of the center point shown in the data.

Of course, numbers can tell only part of a receiver's story, and it is in the listening room that the 7020 really shines. To our delight, the amp continues to function even into loads of preposterously low impedance and even when driven into fairly fearsome clipping (though not indefinitely without tripping its thermal protection relay, of course). In the process, we had a good test of the SOFT CLIPPING, which to our ears does take some of the grit out of the clipped sound. In more realistic setups—with just one pair of speakers and at moderate listening levels—the amp rarely clipped, making comparisons difficult.

With its modest price tag and remarkable stability into difficult loads, the 7020 stands as an exceptional value in the budget-receiver market. Others have

THE KLIPSCH HERESY:®

The biggest sound in a small speaker is two-thirds Klipschorn® at less than half the price.

KLIPSCH HERESY one of the most efficient small speakers in the world. Only one watt of power will deliver 96 dB of sound pressure four feet into your room and it can take 100 watts if your ears can. Response range is from 50 to 17,000 Hz plus or minus 5 dB.

This lowest priced KLIPSCH HERESY comes in unfinished birch plywood for exceptional durability, so if you want great sound without the furniture finish, this is the one for you.

The KLIPSCH HERESY cabinet is shown here in beautiful, hand-finished walnut. Built to the highest quality construction standards in the industry, you can also choose oak, teak, rosewood, zebra wood, ebony and other exotic wood veneers.

The KLIPSCH HERESY is a sound investment because, unlike every other aspect of today's component hi-fi systems, it will not be obsolete ten years from now.

In 1957 Paul Klipsch designed a small loudspeaker that utilized the same tweeter and mid-range driver as the legendary KLIPSCHORN. He added a 12" woofer and maximized the cabinet volume for exceptional bass response. Until that time, Klipsch had built only corner speakers and the new design was for "against the wall" placement. When he described this accomplishment to a sales representative, the man said it was "heresy" to put so much KLIPSCHORN in such a small speaker that didn't even require a corner.

Because of its high efficiency, the KLIPSCH HERESY simply doesn't require expensive, high-powered amplifiers to reproduce the full bandwidth of dynamic sound. This helps you afford a better cartridge, turntable or tape deck.

For tonal detail, definition, imaging, transient response and durability, the KLIPSCH HERESY has no equal in its size. It will put you front row center, feeling the thunder of the bass, the impact of the drums, and the exhilaration of each crescendo.



A Legend in Sound.™



Please send me free information on the KLIPSCH HERESY and the entire line of Klipsch loudspeakers. Send me the name of the nearest dealer too.

Name _____

Address _____

City _____ State _____ Zip _____

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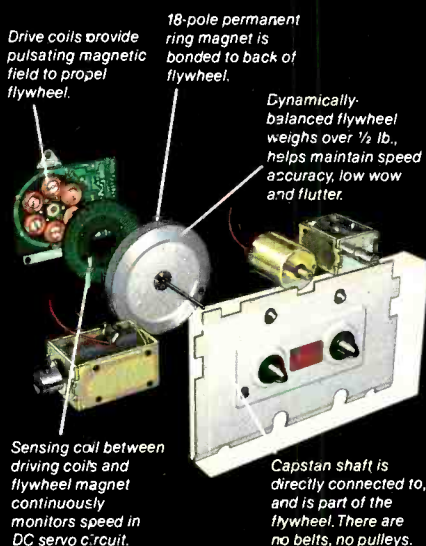
The new FISHER



Fisher Direct Drive... the most technically advanced tape drive system.

In the new Fisher DD280 cassette deck, Fisher has replaced the conventional belt-drive system with a high-torque 18-pole brushless, coreless, direct drive DC flywheel motor. The motor shaft is the tape transport capstan itself. The result is a silent, one-piece direct drive system that glides at a stable 360 rpm. Wow and flutter are reduced to an incredibly low 0.04%. Gone forever are belt wear problems resulting in speed change, belt breakage and replacement. For long term reliability direct drive is the answer.

Feather touch electronic solenoid controls. Don't look for "clunky" levers on the DD280. Transport functions are actuated by sensitive solenoid electronic switching. IC logic circuitry assures instant, positive action. You can go directly from rewind to fast forward to play... without having to manually stop between functions. LED indicators signal mode of operation.



Drive coils provide pulsating magnetic field to propel flywheel.

18-pole permanent ring magnet is bonded to back of flywheel.

Dynamically balanced flywheel weighs over 1/2 lb., helps maintain speed accuracy, low wow and flutter.

Sensing coil between driving coils and flywheel magnet continuously monitors speed in DC servo circuit.

Capstan shaft is directly connected to, and is part of the flywheel. There are no belts, no pulleys.

Metal tape compatibility.

The DD280 is also metal tape compatible. The new metal particle tapes offer a marked improvement in signal-to-noise ratio and dynamic range over previous tape formulations. With its metal EQ and bias settings, plus high performance MX/Ferrite heads, the

DD280 produces tapes of stunning accuracy. With metal tape, the DD280 delivers an impressive frequency response of 30Hz-20kHz.

Low in profile. And high on features. The low-profile DD280 has everything you'd expect in a professional-quality cassette deck. Calibrated input level controls. Dolby* Noise Reduction. Large-scale dual-range VU meters. Peak level LED indicators and more.

It's what you'd expect from the new Fisher. We invented high fidelity over 40 years ago. We've never stopped moving ahead. The new DD280 is a perfect example. Part of the new Fisher. Where the only thing about us that's old is our dedication to quality and craftsmanship. See the DD280 soon at your Fisher Dealer.

*Dolby is a registered trademark of Dolby Laboratories.

© Fisher Corporation, 1980

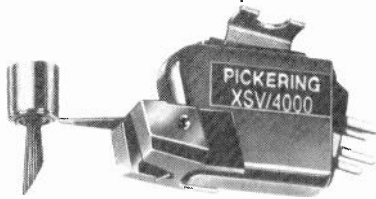
FISHER
The first name in high fidelity.®

PHONO IMPEDANCE 48k ohms; 110 pF

DAMPING FACTOR (at 50 Hz) 130

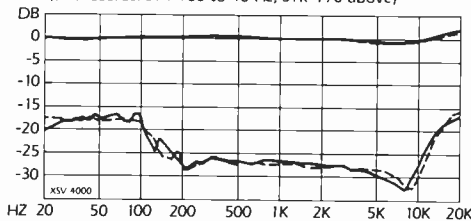
*These factors influenced by setting of SOFT CLIPPING switch, which was off for measurements shown here; see text.

Stereohedron Pickup Updated



Pickering XSV-4000 phono pickup

FREQUENCY RESPONSE & CHANNEL SEPARATION
(test records: STR-100 to 40 Hz; STR-170 above)



Frequency response
 — L ch +2, -4 dB, 20 Hz to 20 kHz
 - - - R ch +1½, -1 dB, 20 Hz to 20 kHz
 Channel separation
 ≥ 25 dB, 170 Hz to 10.5 kHz;
 > 15 dB, 20 Hz to 20 kHz

SENSITIVITY (at 1 kHz) 1.25 mV/cm/sec

CHANNEL BALANCE (at 1 kHz) ± ½ dB

VERTICAL TRACKING ANGLE 27°

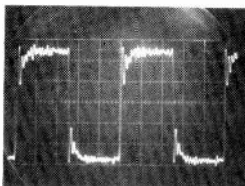
LOW-FREQUENCY RESONANCE (in SME 3009)
 vertical 8.8 Hz; 7-dB rise
 lateral 8.8 Hz; 6-dB rise

MAXIMUM TRACKING LEVEL (re RIAA 0 VU; 1.0 gram)
 at 300 Hz > +15 dB
 at 1 kHz +15 dB

WEIGHT 6.8 grams
 (5.7 grams without brush)

TIP DIMENSIONS
 tip radii 7.1 by 9.2 micrometers
 scanning radii 7.1 and 6.3 micrometers

SQUARE-WAVE RESPONSE (1 kHz)



described its progenitor, the 3020 amp, as the sonic equal of \$2,000 preamp/amp combinations. Though this receiver incorporates the same output stage and preamp (with the addition of a very good tuner section), we feel that such comparisons are ultimately fallacious. Simply stated, the 7020 is a very good receiver designed with a canny eye to real-world operating conditions and tight budgets. And that's surely recommendation enough.

Circle 133 on Reader-Service Card

Pickering Model XSV-4000 fixed-coil phono pickup, with Stereohedron diamond stylus. Price: \$160; D-4541 accessory stylus for mono LPs, \$28.80; D-4543 accessory stylus for 78-rpm records, \$28.80. Warranty: "limited," one year parts and labor, excluding normal stylus wear. Manufacturer: Pickering & Co., Inc., 101 Sunnyside Blvd., Plainview, N.Y. 11803.

If any benefits accrued to the audio industry from the CD-4 Quadradisc era, they most certainly occurred in the design of pickup styli. Faced with the need to develop a stylus capable of following incredibly minute groove details without chipping them away, designers evolved the multiradial tip with a contact area large enough to reduce record and stylus wear, yet narrow enough to read even the shortest of modulation wavelengths. Pickering dubbed its tip Quadrahedral (referring to its four elliptical surfaces) and later adapted that geometry to a stereo-only stylus and pickup, the XSV-3000 (test reports, February 1977). The highly regarded 3000 now yields pride of top billing to the XSV-4000, for which the company claims even better performance.

As usual for Pickering, the cartridge incorporates a small brush that cleans the groove at the last possible instant before the stylus tracks it. The brush exerts 1 gram of lifting force, which must be compensated for by adding 1 gram to the downward tracking force, which Pickering recommends as $1 \pm \frac{1}{4}$ gram. Another Pickering hallmark is the V-Guard stylus assembly that retracts the tip should excessive downward or sideways pressure be exerted on the pickup. Self-locking nuts ease the task of fitting the cartridge to the arm, and the supplied instructions are clear and to the point.

In CBS Technology Center tests, the 4000 performed well. Minimum tracking force required to pass the "torture test" was just 0.5 gram (slightly higher than the 3000's 0.4 gram). All other tests were performed at a VTF of 1 gram, the mean of Pickering's recommended range.

Pickup sensitivity is reasonably high (about ½ dB higher than that of the 3000). Frequency response is quite flat, with no significant aberrations below about 8 kHz, where a dip of about 1 dB is rendered even less significant by the gradual slope (just over 1 dB per octave) leading down to it. Above that point, response begins rising to a maximum of about 2 dB at 20 kHz. Harmonic and intermodulation distortion are about average for cartridges in this price and quality range. At 27 degrees the vertical tracking angle is closer than many to current cutting angles.

Low-frequency resonance in our SME arm is 8.8 Hz, a touch on the low side; in a less massive arm, the frequency would doubtless rise. Better damping at resonance, however, would be an even more welcome improvement. Maximum tracking level varied surprisingly little with frequency, being just above 15 dB at 300 Hz and 15 dB at 1 kHz.

Separation is greater than 25 dB through the critical middle and lower-treble frequencies, from 200 Hz to 10 kHz, and well above 15 dB at all frequencies from 20 Hz to 20 kHz. Since tones below 100 Hz defy localization anyway, the reduced separation in that region has no pernicious effect on stereo imaging. Square-wave response scope photos show very fast rise time but with some overshoot. The ultrasonic oscillation derives from the cutter used to make the test record, rather than the pickup. And, finally, microscopic examination of the stereohedron tip shows excellent alignment and good polish.

The sound of the XSV-4000 is difficult to characterize—a common problem as cartridges become ever truer reproducers of the information in the groove. Its rising high end proved a ruthless revealer of weaknesses elsewhere in the system, even though the rise is moderate. An early tendency to a slight buzzing on some signals, for example, turned out to be a high-frequency resonance in the thin-walled metal headshell used in our initial listening tests; transfer to a less resonant shell reduced the problem. The sound is basically warm but has a slight rough edge in the upper frequencies. Bass piano notes are slightly softened, while bass guitar notes and drums ring out with solid definition.

Circle 134 on Reader-Service Card

(More)

Manufacturers' Comment

We invite rebuttal from those who produce the equipment we review. The comments printed here are culled from those responses.

KA Stat loudspeaker, September 1980. We wish to make the following corrections and clarifications. The 28-mm [1-inch] dome tweeter, having less mass in the dome area, will provide more extraordinary performance beyond the 20-kHz range than the 1½-inch tweeter you incorrectly specify, which is unlikely to go any farther than 12 kHz.

A 2-amp fuse gives more than ample protection for the user to stay within warranty. A fuse larger than 2 amps (up to 5 amps) may be considered with careful handling of the equipment. This need not jeopardize warranty, and improved performance will be reflected.

That you should call the Stat a worthy speaker and, in the same breath, state that many larger systems in the

same price class will outperform it does not make sense. The Stat is reviewed on its own merits—not as a comparison, regardless of size and price. And are there any speakers, regardless of size, in that price class that could outperform it?

Ted R. Karson
Kinetic Audio International, Ltd.
Chicago, Ill.

HF replies: We repeat, we certainly do find that "many larger systems in the same price class will outperform it," and we consider the Stat "worthy" only if the auditioner's "listening room requires its volumetric stinginess." We reserve the right to make comparisons or not, as we believe appropriate, with the equipment we review.

Dual C-830 cassette deck, August 1980. Fuller description of two features is essential if they are to be understood by your readers. FADE/EDIT, for

example, allows the user to introduce the erase function during playback, so that any unwanted material can be smoothly and permanently eliminated while it's being auditioned.

Dual's unique system for inserting and removing cassettes (which we call Direct Load and Lock) eliminates the conventional window. When inserted, the cassette is automatically loaded in perfect alignment with the heads. Access to the tape is always immediate, and replacement a matter of a second or two—very useful when recording off the air a program, such as an opera, that may be too long for one cassette. Even the shortest of pauses in the music near the end of the tape will allow a new one to be put in place with hardly a note lost. Another advantage of DLL is the easy accessibility to heads for cleaning.

Murray I. Rosenberg
United Audio Products, Inc.

AMERICA'S FOREMOST ROCK/JAZZ MAGAZINE SAYS

POLK AUDIO SPEAKERS PUT THE OTHERS TO SHAME!

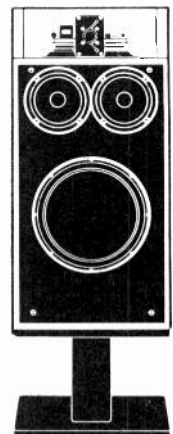
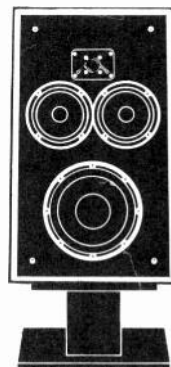
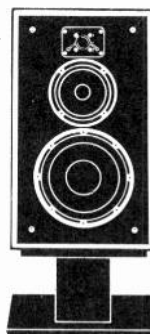
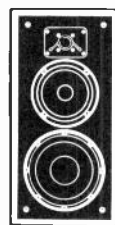
"If you're shopping for stereo our advice is not to buy speakers until you've heard the Polks." *Musician*

"We at *Musician* have found the Polk Audio Monitor Speakers so vastly superior to the competition in their price range we had to pass the information along...the design produces a remarkably well integrated and coherent sound that adapts itself ideally to all kinds of music...and produce the kind of open uncolored perfectly imaged sound we thought began at twice the price and required huge amounts of amplification...(The Polks) will benefit from state-of-the-art electronics but sound quite magnificent with a good mid-powered popular brand receiver...They make the popular speakers in their price range seem dim, colored, boxy, unmusical and just plain insufficient...If you're shopping for stereo our advice is not to buy speakers until you've heard the Polks" **MUSICIAN**

Polk Audio loudspeakers starting at around \$125 each, are available at the finest hi-fi stores. Use the Reader Service Card for complete information and the location of the Polk Audio dealer nearest you.

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

polkaudio
Monitor Series Loudspeakers



INCREDIBLE SOUND—AFFORDABLE PRICE

Circle 40 on Reader-Service Card

AIWA M-501 MINI-COMPONENTS.

FULL PERFORMANCE... STUDIO SOUND.

There is a sound so rich, full, all-encompassing as to defy its own source. The sound of Aiwa's M-501 four-component mini-system... every unit a technological gem designed to provide total performance in a space no more than thirteen inches high and nine inches wide.

SA-C50U Stereo Preamp

Full featured control unit, including MC cartridge, bass and treble controls, -20dB muting, cross-dubbing and all input/output facilities.

SA-P50U DC Stereo Power Amplifier

50 watts per channel, minimum RMS at 8 ohms, both channels driven from 20-20,000 Hz with no more than 0.02% THD. 9-point peak power indicators.

ST-R50U Quartz Synthesized Tuner

Precise, automatic or manual tuning with a 12-station programmable memory: six each for AM and FM.

SD-L50U Metal Compatible Stereo Cassette Deck

Completes the entire system. Professional-type IC logic controls, 3-color peak level bar graph indicators, Dolby* NR.

Equally exciting is Aiwa's M-502, a complete system in two components...

AX-S50U AM/FM Stereo Quartz Synthesized Auto Tuning Receiver (20 watts per channel,

minimum RMS at 8 ohms, both channels driven from 20-20,000 Hz with no more than 0.1% THD)... and the SD-L50U described above.

Because full performance means convenience and versatility too, Aiwa has even more systems, components and options, including some you can't get from anyone else: AP-D50U, unique, front loading DD fully automatic turntable; HR-50H High-Com** NR system with 25dB Improvement over Dolby; RC-R300U infrared wireless remote, full-function control; MT-50U programmable, ultra-slim quartz timer for unattended operation and SC-E50Y 3-way bass reflex speaker system with bass and treble tone controls.

Aiwa has everything you need, from basic to luxury, with the quality that's made Aiwa a leader in mini-components. See your Aiwa dealer for the cleanest sound in small space. Or write Bob Fisher, National Sales Manager, for more information.

*Dolby is a registered trademark of Dolby Laboratories, Inc.

**High-Com is a trademark of AEG Telefunken.



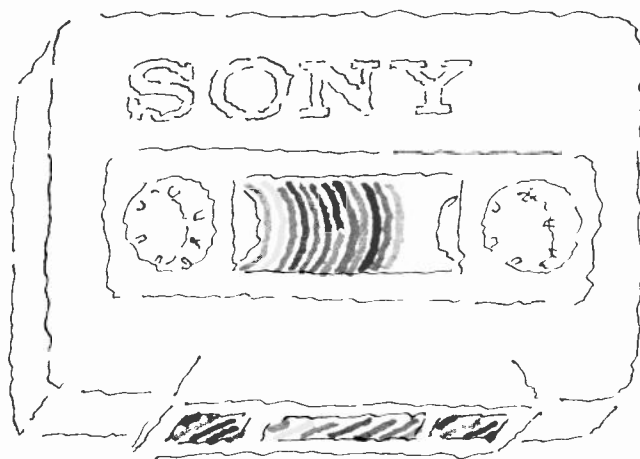
Upgrade to...

AIWA®

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Inside Full Color Sound.



There's more to Full Color Sound than meets the ear.

There is a story of experience and technical achievement that no other tape manufacturer can tell. Fact: Sony is the only company that produces both high fidelity audio and video tape and the high quality equipment that plays it. Fact: Sony pioneered magnetic tape recording, and has been producing tape and tape equipment for over 30 years.

Because of this vast and unique experience, we believe Sony knows more about producing high quality recording tape than anyone else. Sony know-how goes beyond exclusive magnetic particles and glues, or our exceptionally smooth SP transport system, or superb MOL and frequency response.

What Sony does in its own unique way has to do with *balance*. The fine-tuning of all the elements that go into making a tape, so that each complements the other, and together—in balance—deliver the finest recording that is humanly and technically possible to achieve.

It is this balance that is the secret of Full Color Sound. It isn't really difficult to make one particular element extraordinarily superb. So when some tapes boast about a particular feature,

we are not impressed. And neither should you be.

The true test of a tape is to balance these superb elements, some of which actually work against each other. For example, high sensitivity (so vital for MOL and S/N ratio) can produce print-through. Another example: increasing the volume of magnetic particles on the tape improves sensitivity. However, this would decrease tape durability and increase head wear.

Some of the factors that we consider important to tape performance are: MOL, frequency response, S/N ratio, sensitivity, uniformity of output level, print-through, erasability, and such physical attributes as runability, shedding, head wear, resistance to temperature and humidity.

This is where the genius of Sony comes in. To take all these elements and balance them so they work with, instead of against each other.

Balance. It's why Sony audio tapes are so superb. The fact is, the more expensive your audio equipment, the more you'll appreciate Full Color Sound. Listen to Sony SHF (normal bias), EHF (high bias), FeCr or Metallic tape yourself. Listen to the balance. It's the secret of Full Color Sound.

SONY.

VIDEO TODAY

Crisp. Clear. Tuned in. That's the way you want your TV programming; that's what you want when it comes to information about home video. And that's the rationale behind VIDEO TODAY. This special supplement (which, incidentally, is in addition to the coverage you regularly find in this magazine) was conceived as a no-frills packet of useful and current information. ■ In VIDEO TODAY you'll find comprehensive coverage, tightly edited. In forthcoming issues you'll get the straight story (continued on page A16)

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Home Video Today

Important facts about VCRs, video discs, and large-screen TV Page A10

VideoFile

8 video terms you should know Page A13

The Prize You're It!



You're the prize. You're what all the fuss is about. If it weren't for you, there'd be no "video revolution." But regardless of which wide-eyed prophet you choose to believe, the fact is that home video systems, in one form or another, are here to stay.

The current problem is trying to determine what that form will be. As we point out elsewhere in these pages, the lack of com-

nicolor brought out systems late last summer.

While Sony (which is already heavily committed to the Beta format) won't market its system for several years (1985), the demonstration of an all-in-one color video camera/recorder that uses 8mm (approximately 5/16-inch) tape created a sensation. Tagged the Video Movie, not without a certain irony, this prototype single-unit arrangement provides a clear clue to the future of electronic home movies.

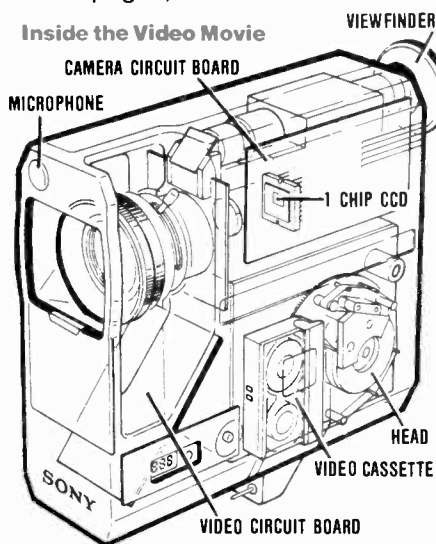
How did Sony shrink all the necessary elements and stuff them into a package weighing only 4.4 pounds? For one thing, it has replaced the traditional vidicon tube as the imaging vehicle with a CCD (charge-coupled device), which is about the size of a book of matches. For another, its video cassette recording section has been scaled down so that it is no larger than a mini audio recorder. This enabled Sony to stack the camera atop the record-

ing section in one sealed, hand-holdable unit that measures about 8 by 7 by 2 1/2 inches.

It was the downsizing that necessitated the move to 8mm tape. (Recording time is about 20 minutes.) To overcome inter-format incompatibility, Sony will provide an editing device for transferring material to 1/2- or 3/4-inch tape. And while the \$1,000 price tag may seem high now, it may not in 1985.

Technicolor's VCR entry also evoked considerable interest, perhaps because it's much closer to being a reality. The Model 212 (made in Japan by Funai Electric Trading Company, Inc.) is a 7-pound deck (including battery), measuring 10 by 10 by 3 inches and using 1/4-inch tape! The 30-minute cartridge is essentially the same size as an audio cassette and will sell for about \$9.00 — about the same as a quality audio cassette but considerably less than any other video tape (though the recording time is substantially

(continued on page A16)



patibility among tape and disc formats is almost universally seen as impeding widespread acceptance of home video: Who wants to pay \$1,000 for something that may be outmoded in six months?

Here we were a year ago, sagely forecasting a fight to the death between Beta and VHS, when Toshiba brashly unveiled its LVR format. And we had barely grown accustomed to a three-way fray when Sony and Tech-

Technicolor's 212 — smallest and lightest portable VCR yet.



SUPER AVILYN:

The future of videotape is suddenly very clear.

Super Avilyn is the videotape that helped make six-hour videodecks possible. TDK invented a new magnetic technology to create it. Effortlessly, it overcomes the horrors haunting home video. Problems that are not the fault of the deck, but the fault of the tape. You've seen them. Poor resolution. Dullness. Bleeding colors. Pictures with the jitters. Drop outs.

Inside your videodeck there's a harsh reality. Video heads spin at 1800 rpm. At that speed, poor quality tape sheds a shower of oxide particles into the works. An insidious process that may produce good pictures while damaging your deck. During six hours things get tougher. Tape barely moves at .43 inches per second. More information is

squeezed onto less space. Imperfections get magnified. But Super Avilyn stays super. Its high density particles are polished micron-smooth to cut down friction. Colors stay separate. Brightness and crispness is superb. Pictures are rock steady through hundreds of hours of play.

This much is clear. Now that you know the inside story, you won't judge videotape by its picture. You'll judge it by its future.

 **TDK**
The Vision of the Future



The Plunge Into Portable Video-The

On the face of it, video recording with a lightweight color camera and portable video cassette recorder (VCR) is the most immediate and convenient form of creating sound images currently available. You tape whatever you want, from TV shows to your very own production; the recorder does the processing and stores the images in a handy cassette. But lurking just below the surface is a maze of high-tech hardware and electronics that may baffle you even before you get started. The bewildering array of cameras combined with recorders in the 1/2-inch Beta or VHS formats may be enough to send you scurrying rapidly back to your Bolex.

But don't despair. Just as the process of moviemaking has become less of an enigma to the public at large, so too will video tape recording. To start you off, we'll look at how the various components work and how they interact. A basic knowledge of video imaging and processing will help you choose equipment suitable for your particular needs.

This month, let's concentrate on the first link in the chain: the video camera. As with any image-making device, it requires light, a means of focusing, and a medium

Part I

to receive the focused image. While a movie camera captures a scene on film, the video camera operates by using a tube, or series of tubes, to form the image and relay it to the receiving end, your television set.

That sounds simple enough, but different types of camera tubes and video camera designs are geared to different applications. For broadcast TV, an elaborate three- or four-tube camera is used, often of the Plumbicon (lead oxide) variety. Since each tube carries a separate color — red, blue, green — and there may be a fourth tube for luminance (brightness), precise registration is critical. The cost of such video perfection comes high and rules out its use for the hobbyist. The additional weight makes it impractical for portability.

Two-tube cameras have been employed for industrial and educational video as well as home video. One of these tubes carries the chrominance value (shade and intensity of color),

and the second provides luminance information. Again, cost and weight are a factor, in most cases, and so we have the single-tube camera — the most prevalent on today's home video scene.

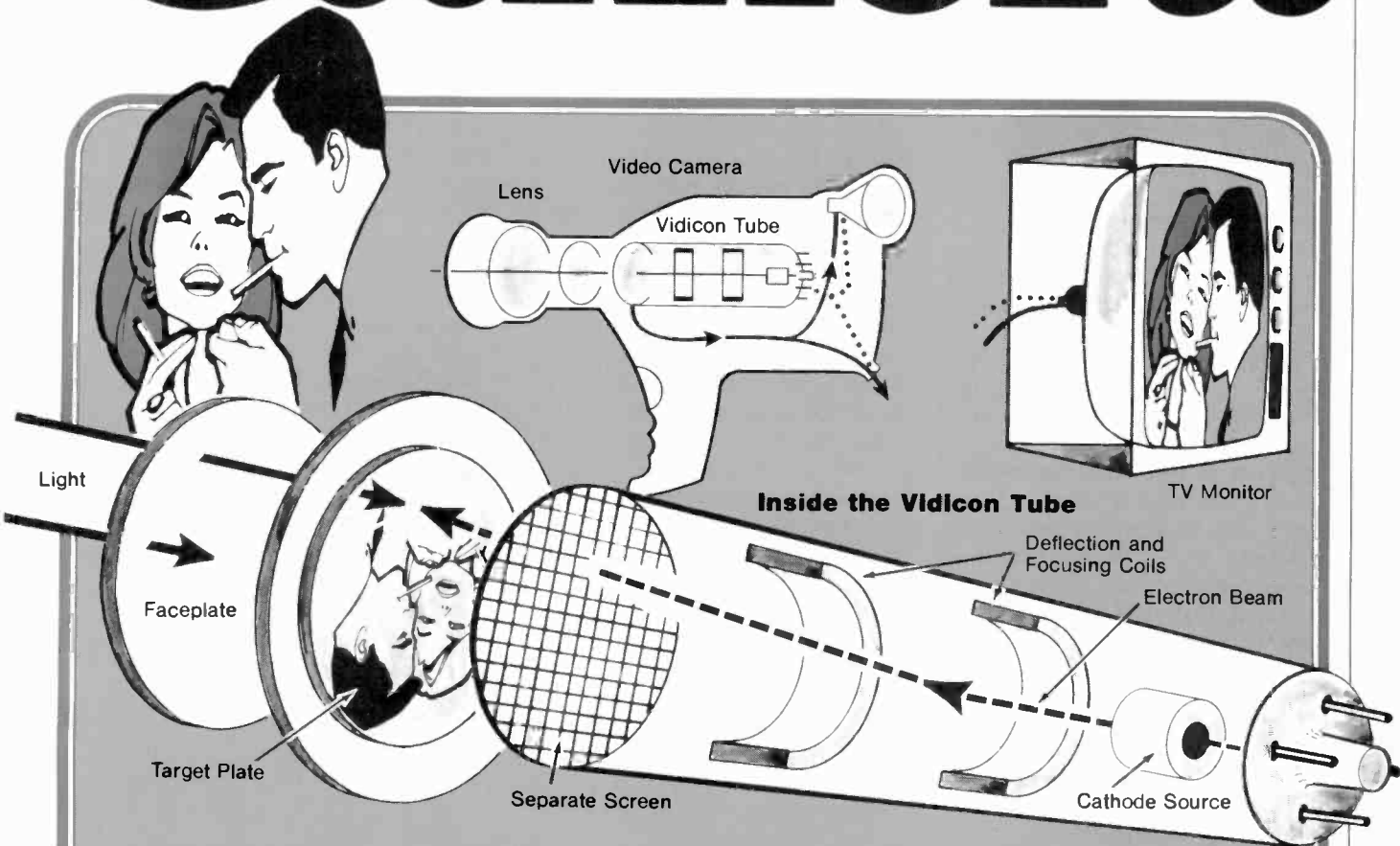
This lightweight marvel, while not in the same league as more elaborate broadcast cameras, still delivers a decent image; recent designs produce a remarkably good picture considering the limitations involved. The usual choices in such a device are the 1-inch or, more commonly, 2/3-inch vidicon and its variations. Basically, it works this way: Filter stripes across the face of the tube interpret color; the camera's circuitry converts this color and light information into an electronic signal, which is sent to the circuitry in your television. The signal is there reconverted into the light and color information that appears on your TV screen as the final image.

Recent variations on the single-tube theme — Akai's Tri-Electrode system and Sony's Tricon tube, among others — have refined and improved color rendition. While processing circuitry is more complex and costs are higher than the simpler

(continued on page A6)

by Tony Galluzzo

Camera

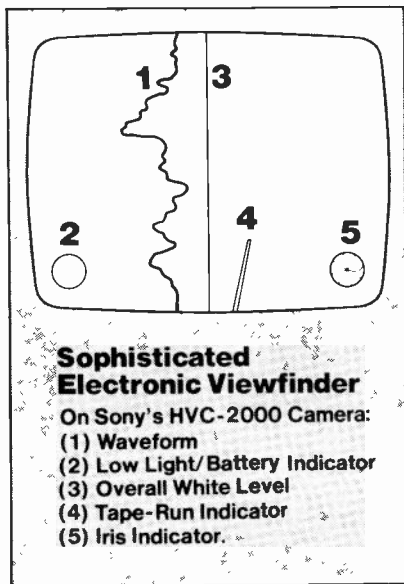


Capture an Image on the Tube?

Here's the chain of events: Light reflected from your subject is focused through the camera lens onto the target plate of a typical vidicon tube. The inner side of the faceplate is coated with a light-sensitive transparent conductive layer. This faces a photo-conducting layer on the target plate, which increases in conductivity as subject illumination increases. The electron beam, emitted from the cathode source, is deflected by coils for vertical and

horizontal sweep, to "read" the light intensity as voltage (the stronger the light, the higher the voltage). The electron beam, as the name implies, deposits electrons on the positively charged areas of the target, and a signal is generated and sent to your TV set. The Cathode Ray Tube (CRT) in your TV essentially does the reverse of the camera tube, this time scanning the face of the picture tube to convert electronic information to light an image.

Does the maze of high-tech hardware baffle you? Don't despair. It's easier than it seems.



designs, the end result may be worth it for the discerning user, especially the photo enthusiast who expects fine color and definition.

While the quality of the lens set before the tube certainly affects the limits of resolution and contrast, the camera tube itself defines the degree of resolution possible with each system. (Your television set is another variable, and so is the video cassette recorder in between — but let's not muddy the issue further at this point.) Just as 16mm film will provide more and finer picture information than, say super 8, a 1-inch vidicon should deliver superior definition to that of a 2/3-inch vidicon. But, again, improved designs of the smaller tube may tend to blur that distinction.

When you start comparing cameras and reading manufacturers' specs, you will undoubtedly notice that only horizontal resolution is mentioned. That's because the scanning pattern of the tube is on the horizontal, so the horizontal plane will provide better resolution — and a higher number — than the vertical does.

A typical spec sheet for Sony's new HVC-2000 color camera reads: "Horizontal resolution: 300 lines." (Resolution in this context means "sharpness." The ability of the system to "resolve" fine detail is measured in so many lines per given area as imaged from a TV resolution chart.) One for JVC's 3350 camera, using a two-tube system, gets even more specific with "Horizontal resolution: more than 400 lines at center." As with any photographic system, lens resolution is generally better at the central portion of the image than at the edges. Your camera's ability to delineate fine detail, therefore, hinges not only on lens selection and color system selection, but on the best combination of both.

As video technology progresses and redefines the limitations of color rendition, resolution, luminance, and portability, the tube system will eventually be replaced by the CCD (or charge-coupled device). Unlike

the camera tube, the CCD is rugged and measures only a few square inches. It's a solid-state device, sensitive to light, and offers low voltage operation and low power consumption. CCD's are already used by scientists and the military, most notably in black and white cameras manufactured by RCA and Fairchild.

Not long ago, RCA even displayed a color CCD camera that has since been used underwater for *National Geographic's* TV special *Dive to the Edge of Creation*. Another of the CCD's virtues, by the way, is that — combined with an amplifying circuit — it will produce an image at extremely low light levels. The main drawback, at the moment, is manufacturing a fine enough CCD circuit array to image full-resolution color at a reasonable cost. When the day arrives for mass consumption — and it's not far off — we'll have small, self-contained units that both receive and record the image without the need for a separate VCR. (See "In Focus," page A2, this issue.)

Though the imaging system — whether tube or CCD — is the most critical element in a video camera, you should consider



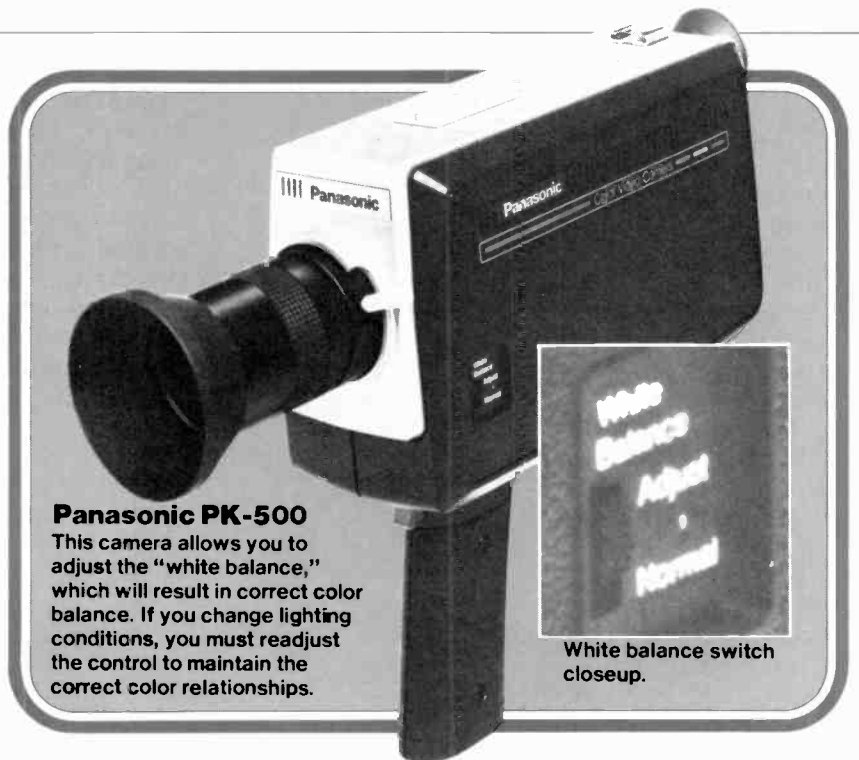
some other important features. As with home movie cameras, video cameras usually have a filter switch to select the proper color temperature depending on the type of light being used. The normal balance for daylight ranges between 5,600 and 6,500°K (degrees Kelvin), indoors about 3,200°K (the balance is rated for standard studio tungsten).

Fluorescent lighting is a problem, just as it is with film. For one thing, the light wavelength composition varies among different types and makes of fluorescent tubes. For another, fluorescents produce a discontinuous spectrum that cannot be rated at a specific color balance. Special filter combinations can sometimes be used to correct the problem. But the daylight setting on your camera usually provides a more pleasing color rendition than the tungsten setting.

Some cameras have a hue control normally preset at the factory to further augment the shade of color. All color cameras should have a white-balance control, which electronically determines the purest white possible whether indoors or out. Once this is set, colors should fall into line, but you must readjust the control each time you change lighting conditions.

In some cases, color cameras employ a separate camera control unit for finer color tuning than is possible with built-in controls. In addition to the outdoor/indoor switching, you can set color balance for morning/evening (when lighting tends to be warmer). But you may not care to lug that extra component around — even around your living room — without a go-cart.

When selecting a color camera, you should also pay particular attention to the *quantity* of light needed. Specs often show that the minimum light requirements are about 9 footcandles (or 100 lux) but that 70 or even 200 footcandles is required for “optimum” lighting conditions; i.e., for



Panasonic PK-500

This camera allows you to adjust the “white balance,” which will result in correct color balance. If you change lighting conditions, you must readjust the control to maintain the correct color relationships.

White balance switch closeup.

a good clear image. (Specifically a footcandle is the light of one so-called international candle spread on a 1-square-foot surface at a distance of 1 foot. In practical terms, the footcandle optimum level may mean setting up a few hundred watts of quartz or photoflood lamps to achieve an acceptable image.) Recent designs have improved the performance possible at low light levels, but you should personally check out several different models before you purchase a particular camera.

What else should you look for when scanning the video camera scene? Let’s make a quick list: Is the built-in microphone sufficient, or will you require a separate mike closer to your subjects? Are mike inputs on the camera, the recorder, or both? Does the camera accept interchangeable lenses, or are you limited to a built-in zoom? Is the shape of the camera and position of the handle or grip sufficiently

comfortable for handholding? How’s the weight? Some of the newer color models go as low as 4 pounds, but that’s before adding a zoom lens and possibly an electronic viewfinder. And, finally, do you really need an electronic viewfinder that provides a true video image as you shoot but jacks up the cost considerably? If not, does the camera have through-lens viewing and focusing (as with super 8 cameras), and is it bright and clear enough to be practical? Does the viewfinder offer you helpful information such as a light-level indicator to check proper exposure?

The answers to these and other questions should be firmly in your mind as you check out different cameras. Once you know the rules of the game, you’ll find creating your own video vignettes more fun than simply recording TV programs off the air.

Tune in in January for a closeup on video cassette recorders and what makes them tick.

Recent camera tube designs produce a remarkably good picture, considering the limitations.

Video Fronts

Several advanced features are incorporated into a new, lightweight (11-pound, 6-ounce) portable VHS VCR from JVC. The HR-2200U has low power drain, solenoid controls, remote-control capability, and four separate motors for stable tape transport. Besides its standard (2 hr.) running speed, the VCR can be operated in the freeze-frame, single-frame advance, or variable-speed ($1/6$ to $1/30$ normal) modes. An Edit Start Control is said to allow you to begin a second video segment at the end of a previously recorded one without intergap noise. A "Shuttle Search" lets you advance or rewind the tape at 10 times the normal speed while viewing the picture. LEDs indicate tape motion and low battery.



You can program up to 7 selections on any channel during a 14-day period with the 8372 VHS VCR system from Magnavox. This lightweight portable deck (13 lbs.) comes with a companion tuner/timer and costs \$1,495. Features include speed selections of 2 or 6 hours and freeze-frame, single-frame advance, or slow-motion advance. The deck has a separate remote-control device, a battery-strength meter, and a special circuit to protect the programmed memory during a power failure. The tuner section display shows the time and day of the week.

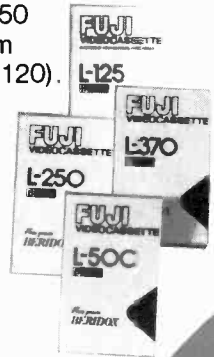


Viewing of the picture at 9 times normal speed in either fast-wind mode is permitted with Sylvania's new two-speed (2 hr./6 hr.) VHS home VCR. The VC-3100 (\$1,395) features remote control of pause, channel change, and scan.

A choice of three speeds (2/4/6 hours) is offered on Quasar's 5160 home VHS VCR (\$1,400). It will record up to 8 different programs over a 14-day period. Thirteen functions, including high-speed search, slow motion, freeze-frame, single-frame advance, channel change, stop, and play, can be operated by remote control.



What is termed a "third-generation" series of video cassettes is being introduced by Fuji. The new "fine grain" Beridox® VHS and Beta tapes have an improved binder and were designed to withstand the extra wear imposed by slow-speed modes such as freeze-frame and frame-by-frame advance, as well as to enhance the tape's chroma (color) characteristics. Beta tapes range in price from \$11.95 (L-125) to \$17.50 (L-500), and VHS tapes from \$15.50 (T-30) to \$25.50 (T-120).



10 Exciting New

Versatile operation is possible with Panasonic's PK-750 color video camera (\$1,000). Weighing only 4 lbs. 8 oz., this unit has a 1 1/2-in. electronic viewfinder, which can be located to either side of the camera body, and a 6:1 motorized auto-iris zoom lens. Features include a standby power switch for low power consumption, a three-position switch for different lighting conditions, preset white balance, a built-in electret condenser mike, and three-way (AC/battery/external 12V DC) power capability. A shoulder pad is also provided.

Increased playing time means increased demand on the video tape. TDK's new line of Super Avilyn HG (high grade) 6-hour VHS video cassettes were designed with this in mind. The company says that it has reduced the size of the Avilyn particles by 40% for the new tape, thereby preserving video output levels and S/N at LP speed. High-frequency video output characteristics are also claimed to have been improved. The T-60 cassette costs \$23; the T-120, \$31.50.



The top-of-the-line Betamax SL-5800 from Sony has Double-Azimuth heads, which are said to dramatically improve picture quality. This new home VCR, a Beta II/Beta III design, can also play Beta I tapes. The Remote Commander Control operates such functions as variable BetaScan, which allows advancing or rewinding at from 5 to 20 times the Beta III speed while viewing the picture. One can choose from either of the two standard speeds, freeze-frame, single-frame advance, or variable slow motion (stop to 1/3 normal). This deck can also be used with Sony's BetaStack, a programmable video cassette automatic changer that allows up to 20 hours of record and playback time.

A front-loading "basic" home VHS VCR is available from Sharp. The VC-7400 (\$899.95) has 6 hours of record/play capability and such features as solenoid controls, tape-remaining LEDs (in minutes), and 24-hour clock with automatic stop. A dew-warning indicator also is included.

One of the newest Beta format VCRs is Sanyo's VCR-5050 (\$1,195). This unit is a Beta II/Beta III machine (with respective tape times of 3 hours, 20 minutes and 5 hours), and incorporates BetaScan, which allows viewing of the picture at 15 times Beta II speed. Freeze-frame and single-frame advance are among the seven functions that can be controlled with a remote device. You can preprogram for one show in any 24-hour period.



Video Products

**Special
Report**

Home Video Today

Important facts about VCRs, video discs, and large-screen TVs

by the Editors



Beta and VHS Cassettes

Fuji's VHS cassette and Sony's Beta cassette show the main difference between the formats — tape length. Maximum recording time with VHS is 9 hours; with Beta, 5 hours.

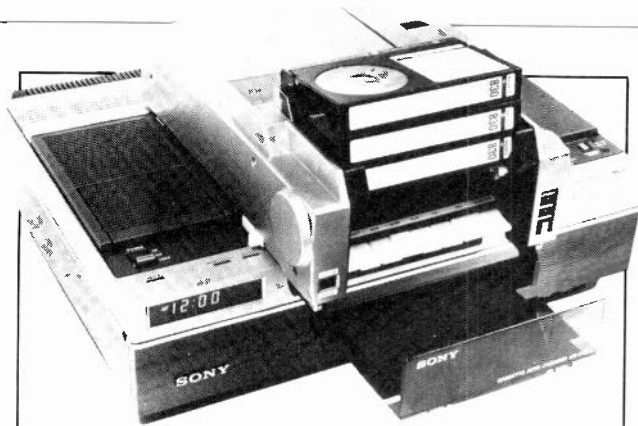
Home video today is many things. It's a supplement to off-the-air TV, a substitute for home movies, a new way to show your existing slides and movies, and an information system or computer display.

In terms of hardware, it's cameras, programmable home decks, lightweight portables, video disc players, large and mini-size TV screens, and backyard satellite dishes. And whether you're a camera buff or audio freak, you'll find that, once you've experienced home video, it will be hard not to become addicted to it.

Involvement with video can take many forms. It's a lot like getting a second lens or adding a phono cartridge; sure, you can get by with the basic system, but you always want to try new and different things.

The basic video system for most people is a video cassette recorder (VCR). At the moment, you have a choice of two, mutually incompatible tape formats — Beta and VHS — with a possible third one, LVR, expected by the end of next year. Technically, Beta and VHS are quite similar; the main differences lie in the cassette size and tape path.

Cassette size mainly affects maximum recording time. The Beta system, which was available commercially first, uses the smaller cassette, and its tape runs at a slightly higher speed. As a result, VHS has an edge in maximum recording time: Using the thinnest tapes and slowest speeds available for each format, VHS can pack 9 hours of program onto a tape, while Beta can manage only 5. But changers that can hold four cassettes for recording or playback are now available for Beta decks, increasing the maximum capacity to 20 hours with just three short (10-second) breaks.



Sony's BetaStack System

Sony's solution to the shorter Beta format playing time is a four-cassette changer. Recording time is increased to 20 hours, with only three short breaks.

Longer recording time means lower cost, too: At slower speeds, a given length of tape plays longer — and double-length cassettes are usually less expensive than two single-length ones. On the other hand, a 5-hour or 9-hour recording tape with 10 to 18 half-hour programs on it can be an inconvenience due to the long wait while you fast-forward to the program near the tape's end. Extended tape length is most useful in taping a multipart series or for programs you'll miss during a long absence from home.

In both systems, the tape is pulled out of the cassette and wrapped around a rotating head drum for recording and playback. The moving head drum provides a sufficiently high tape-to-head speed for good video recording without requiring that the tape itself move rapidly; thus video frequencies of several megahertz can be recorded on tape that moves at a speed slower than that of an audio cassette tape.

Toshiba's LVR has very little in common with Beta and VHS. Instead of getting the necessary tape-to-head speed by moving heads rapidly against a slowly moving tape, it takes the more straightforward path of moving the tape rapidly over stationary heads. Moving at 5.5 meters (18 feet) per second — about 115 times as fast as an audio cassette — the tape would soon come to its end, if it had one. Instead, it's an endless loop, 25 seconds in duration. The LVR switches tracks at the end of each loop just as audio's eight-track system does, except that it switches 299 times (instead of 4) for a total recording time of just over 2 hours.

LVR has both advantages and disadvantages when compared to the Beta and VHS systems. It offers fast access to any part of the tape, since the head has only to move across the tape's width, rather than through its entire length, to get from one end to the other. Still-framing could be a problem, but repeating a single, 25-second track indefinitely would not be. And its mechanism will be smaller, lighter, simpler, and cheaper than those of the VHS or Beta decks. Toshiba's target price is \$500 for an LVR recorder,

\$300 for a play-only deck. Prerecorded tapes would be far cheaper too, because all 300 tracks could be recorded in a single pass for a total duplicating time of only 25 seconds for a 2-hour tape, compared to the 2 hours required for head-drum systems.

The disadvantages are two: shorter maximum playing time (2 hours, as opposed to 5 or 9) and the availability of far fewer commercially recorded programs, at least in the beginning.

Toshiba originally planned to market a home LVR this year but has postponed it until 1981, choosing instead to go ahead with one for computer data storage and other industrial uses. (BASF's LVR system, which uses longer tape and fewer tracks and which reverses at the tape's end, was placed on hold last summer, apparently indefinitely.)

Philips' Video 2000, now sold in Europe, may appear here before long. It's a head-drum system with servo-track control for higher track density and better tape economy. Like today's audio cassettes, it's recorded on two sides; early versions require the user to flip the cassette over to play Side 2, but auto-reverse models undoubtedly will be offered. Both LVR and Video 2000 have higher tape speeds than Beta or VHS, which would indicate the potential for superior audio quality.



Toshiba's LVR

Longitudinal recording formats, such as Toshiba uses in this prototype, may be sold in the U.S. sometime next year. Maximum recording time is 2 hours.

No current video disc system can record. Yet the disc format still looks promising. Picture and sound quality (at least on the laser-scanned discs used by Magnavox and Pioneer, the only ones now in production) are generally superior to those of tape. This is especially important to owners of the new big-screen projection sets.

Discs offer dual-channel sound. Separation between channels on the current Philips/MCA laser disc is sufficient for bilingual applications as well as stereo. The JVC/Matsushita VHD system will start out with stereo (and presumably bilingual) capabilities too. And while initially RCA's Selecta-Vision disc will be strictly mono, RCA has indicated that a two-channel version will follow.

So far, only Pioneer has issued a spec sheet detailing the sound quality of a production unit: It claims 40 Hz to 20 kHz response, 55 dBA S/N, and (continued on next page)

Pioneer's Laser Disc

Video disc players, such as Pioneer's, are playback-only units. But picture and sound quality generally are superior to those of tape.



less than 0.3% THD — far better than video tape can offer.

Pioneer's VP-1000 illustrates some special conveniences of the laser-scanned system: There's a 3X fast-motion mode; slow motion variable from normal down to 1 frame per second; still-framing with virtually no noise or jitter; the ability to step forward or backward one frame at a time; and a fast-scan mode that zips through the entire disc, forward or backward, in about 30 seconds, with the image visible on the screen.

Another advantage of the disc format is lower replication costs; because the entire recorded surface is exposed at once, a disc can be stamped out like a high-precision cookie. In contrast, tape must run, inch by inch, through a duplicator; with current technology, a 2-hour tape takes 2 hours to duplicate, making the process quite expensive.

The players are less expensive too. At about \$700, the Magnavox and Pioneer laser-disc models cost about the same as the cheapest video cassette recorders, while offering elaborate scanning and slow-, still-, or fast-motion modes. SelectaVision and VHD are supposed to sell for about \$500 (which is doubtful, considering the inflation rate), or lower than any VCR to date.

With so much to offer, disc systems would seem to have an easy pathway into our homes, if they weren't all totally incompatible. It's possible that a system could be made that would play all three types of video discs. But it wouldn't be easy or cheap. A single, omnibus player would probably cost about the same as three separate ones, with space being the only saving. And don't expect any of the originators of these systems to encourage such a multimode player.

That makes video discs very much a gamble. Should VHS and Beta tape be superseded next week by a truly sensational new tape system, VHS and Beta owners wouldn't quite be out of luck. Blank tapes would still be made for some years, and people could record programs off the air or from cable TV. But disc systems make sense only so long as program material is available for them: You can't make

your own, as you can with tape. So for now, at least, VCRs would seem the best way for most of you to get your feet wet in video.

No matter what you choose as a source, you'll find that you don't have to watch video programming on the 19- or 23-inch TV screen that you're accustomed to. Projection, or big-screen, TV is invading the viewing room. Until recently, these systems were all front-projection, which meant that you had to "hide" the projector, usually as a piece of furniture such as a coffee table. GE, the first major company to offer a home rear-screen projection system, this year has an "improved" version with a much brighter picture. One advantage of rear projection is that both projector and screen are generally in a single unit, so that nothing can come between them. Screens are usually 4 to 5 feet wide and 3 to 4 feet high. Several companies currently offer these large-screen systems.

**Panasonic CT-4500**

Today's large-screen projection TV systems, like Panasonic's, are overcoming their major drawback — dim pictures.

But with the enlarged screens has come a problem, and that is one of clarity. It's analogous to blowing up a film negative — at some point the grain becomes a problem. The picture on your TV screen comprises 540 separate lines, or electron-beam scans. If you view your TV from next to the screen, you can easily see them. Home video recorders employ a recording and playback system that essentially reduces the scans by half (to 260 lines for black and white, 240 for color). Thus each scan line becomes more visible on the screen. Now multiply your screen size by 12 (to increase it to large-screen size), and you literally can see the

(continued on page A16)

Portable

Generally, this denotes a lightweight VCR specifically designed for live, in-the-field recording. Including a rechargeable battery, these units weigh under 15 pounds and some even less than 10 pounds. They accept the standard VCR cassette and generally have both normal and extended recording capabilities. As the batteries last for only about an hour, you'll probably want one or two in reserve. Companion plug-in programmable tuner/timer modules are available for most portable decks.

Speeds

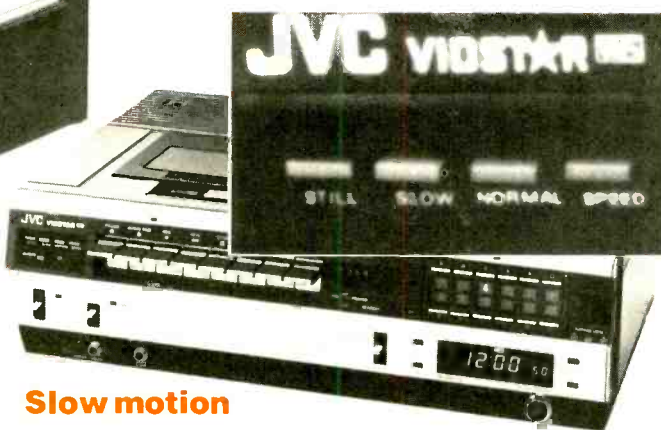
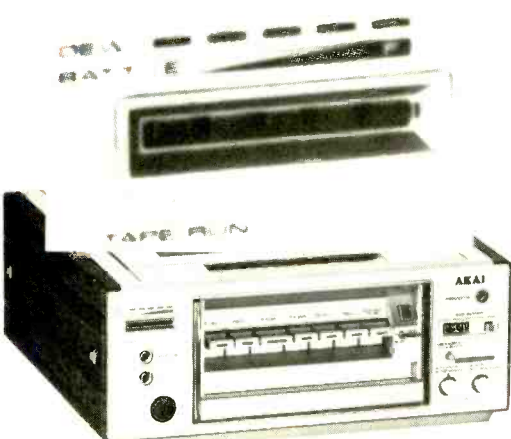
Fast or slow speeds are available on both formats of VCRs. Beta calls its speeds Beta II (or X2) and Beta III (or X3), which allow maximum recording times of 3 and 5 hours, respectively. VHS decks have either two or three speeds. All have the original SP (standard play), which provides up to 2 hours of recording on a T-120 tape; LP (long play) and EP (extended play) permit 4- and 6-hour recordings on the same length.

Slow motion

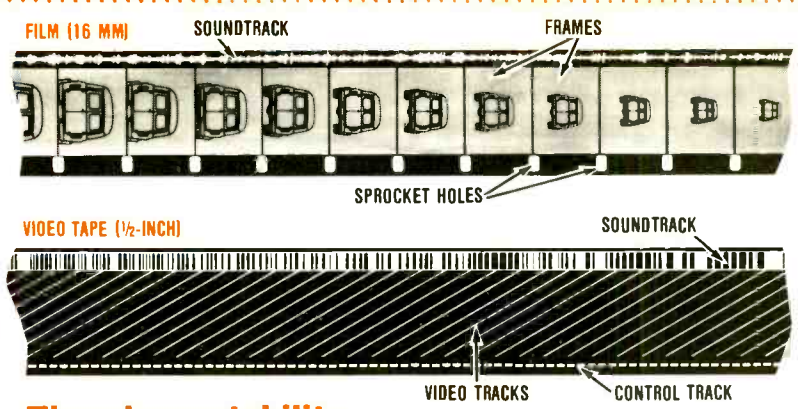
This term generally describes several slower-than-normal speed functions on a VCR, including still-frame, frame-by-frame advance, and slow motion. Still-frame allows you to continuously view a particular frame, much the same as with a motion-picture projector. Single-frame-advance will show you successive frames at a very slow speed, and slow motion adds a little more speed and fluidity to the picture. Picture stability has been a problem at these slow speeds, but stabilization circuits have been added to some of the newest VCRs.

Dew-warning indicator

Rapid cooling of the air often produces dew, or condensation. If, for example, you have been using your portable VCR outside on a hot day and walk into an air-conditioned house, condensation may form on the VCR head drum. As a result, the tape may stick to the drum and break. A dew-warning indicator shows when the moisture level is too high. At least one portable deck has an internal "heater" to prevent this condition.



Glossary



Time-base stability

The stability of motion-picture film is linked to its sprocket holes: A revolving sprocket wheel turns and advances the film at a constant speed. Video tape must rely on electronics, which take the form of a "control track" on the tape. A separate head lays down this track of synchronization pulses during recording and reads it during playback. Tapes recorded and played back on the same deck usually are very stable. But because the head-to-tape relationship varies minutely among VCRs, instability can occur when a tape recorded on one machine is played back on a second one. "Tracking controls" restore the proper relationship.



Indexing

This is the ability to locate a particular spot on a video tape or video disc. VCRs, for example, have tape index counters similar to those found on audio tape decks. Most of these have a "memory" rewind that will stop the deck when the counter reaches zero. ■ A slightly more advanced form of indexing is available on some new decks. It allows you to put cue signals on the control track of the tape, and the VCR will stop at these cue signals in either fast-wind mode. This principle has been adapted to a few portables, enabling you to obtain "glitch-free" edits while recording live: The deck automatically reverses the tape a short distance, then advances the tape, switching to the recording mode as the cue point is reached. ■ Video disc machines, such as Philips' and Pioneer's laser-scanned systems and Matsushita/JVC's VHD system, permit access to a particular frame by keying in its number.

Burn

In video, "burn" has a negative connotation. Remember what happened when the astronauts were on the moon, and one of them pointed the portable camera toward the sun? Zap. No picture. The sun had severely "burned" the sensitive TV tube. The same thing can happen in your backyard (or even inside, if the lens is pointed toward too bright a light). To avoid burn, never point your camera toward the sun; always cap or close the lens (video lenses usually have a "close" position in which no light can pass through); and refrain from carrying the camera angled upward. Minor burns show up as tiny black spots.



Programmable

Essentially this means that you're not stuck with recording what's on the TV at the moment — or for that matter, with having to watch what you're taping. ■ VCRs are composed of two sections, a tape recording/playback deck and a tuner/timer. Home decks have both functions in a single unit; portables have a separate plug-in tuner/timer. In either case, the tuner/timer is responsible for the programming. ■ A wide variety of programming capabilities is possible. The simplest (and least expensive) allows you to watch one channel while taping from another. More sophisticated ones have 12- or 14-pushbutton tuning whereby you can assign channels to each button. Some will record up to eight programs in any 14-day period unattended.

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THE PRIZE (continued)

less, too). The deck, which connects to standard video cameras, should already be available in many areas. (See "New Video Products" next month.)

Meanwhile, RCA has apparently abandoned its "all or nothing" approach for "part of something" and is taking steps toward securing a strong position for its SelectaVision video disc system. At the moment, the MCA/Philips system (under Pioneer and Magnavox brand names) has the market to itself. SelectaVision and the VHD's system developed by JVC/Matsushita are scheduled for introduction next year.

RCA has sacrificed "brand share" of the video disc market for *format* share by signing up both Sears, Roebuck & Company and J. C. Penney Company to sell its SelectaVision machines as the "store brand." The fact that these two chain stores are major factors in the sale of color TVs is seen as a major marketing advantage for RCA as it launches its format against established competitors.

Perhaps the corporation believes that the prize will go to the format with the greatest quantity of machines on the market. There are those who are convinced that dominance will depend instead on the relative value (interest) of the software programs for this play-only medium. But then, that's a subject in itself.

HOME VIDEO TODAY (continued)

problem. Still, the large images possible with the projection TV are impressive, and most people seem willing to pick a viewing location far enough from the screen so that the picture is clear, if not crisp.

When a backyard satellite TV receiving antenna was offered a few years ago in a specialty store's Christmas catalog for \$35,000, it was a conversation piece. Similar antennas are becoming a reality for some people; in a few years, they may be commonplace. During the summer, the consumer electronics press was shown a 9-foot antenna dish costing \$3,000 from American Value, Inc., of Rolling Meadows, Illinois. Though you need another \$2,000 in equipment to hook it to your TV, it still is an indicator of how quickly the cost of these devices is falling.

Why would you want a dish? Well, two Satcom satellites are circling the earth, providing a 24-hour communications link for business and industry. A satellite antenna allows you to tap the same sources for free (at least currently). Live sports and 24 channels of pay TV are among the things you can receive.

As we said earlier, "home video" today is many things, and an increasing number of people are finding it an exciting new area of interest.

EDITORIAL (continued)

on the pros and cons of competing video disc and tape systems; valuable insights into how to make quality home video movies; accurate and thorough buying guides to video cassette recorders, cameras, and projection TV; a monthly cut-out-and-save section ("VideoFile") of useful tips; and authoritative in-lab and in-the-field test reports.

VIDEO TODAY is prepared primarily by editors of HIGH FIDELITY and MODERN PHOTOGRAPHY magazines, who include:

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And giving ever valuable guidance will be **Herbert Keppler**, publisher of MODERN PHOTOGRAPHY and internationally known camera expert.

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Record Care, Part 1:

Aqueous Cleaning vs. Organic Solvents

Electron microscopy (Figure 1) shows the principal cause of record wear: small particles of microdust, deposited from the air by gravity, are ground along the record groove by the stylus. Surface noise goes up. Sound quality goes down.



Figure 1

In some record care products, organic solvents are used rather than water. Organic solvents such as ozone-gobbling chlorofluorocarbons, petroleum distillates (hexane, heptane) and alcohol concentrates are indeed speedy extractors and delivery solvents. They evaporate fast. Some organic solvents can dissolve vinyl stabilizers. Organic solvents may leave a "slick" looking record by treating the disc with other compounds carried in the solvent mix. In doing so, record contamination may also be dried back onto the disc in a nice even layer. Dust is often "held" to the record surface by "treatment."

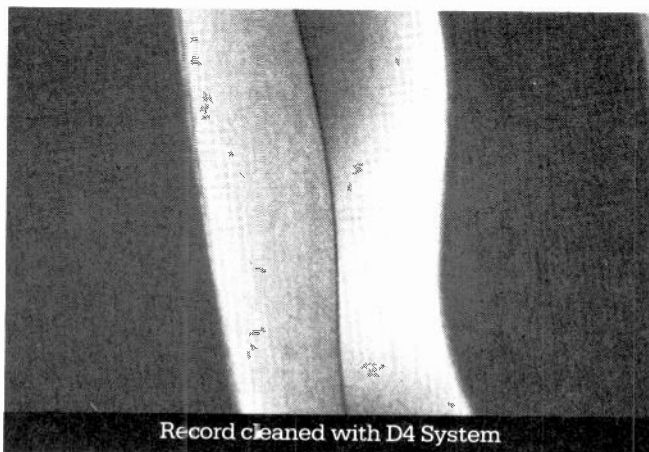


Figure 3

Electron micrograph (Figure 3) shows a record cleaned with the Discwasher D4 System. High technology record care leaves only a clean surface.

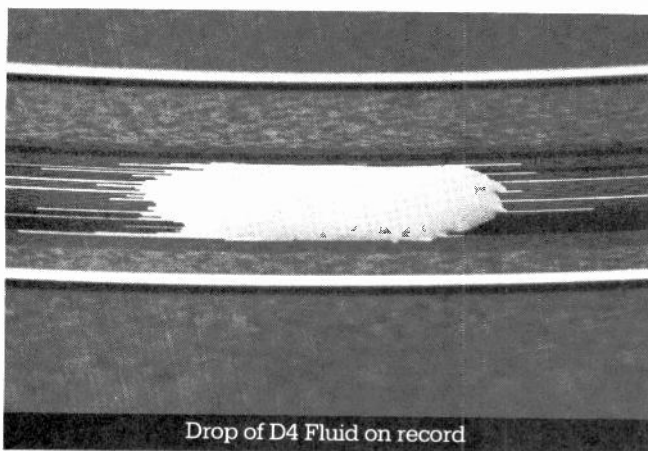
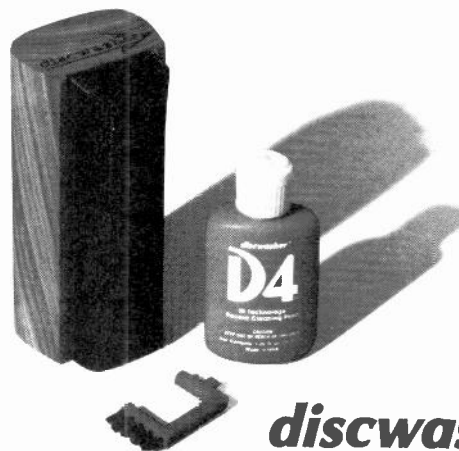


Figure 2

Figure 2 shows a drop of the aqueous Discwasher D4 Fluid, literally lifting dust and contamination out of record grooves. The extraordinarily complex D4 Fluid uses water pure enough for kidney dialysis, along with eleven chemically engineered additives that still results in lower dry-weight residue than most tap water. This formula is amazingly high in cleaning activity, uniquely safe for vinyl and vinyl additives, and preferentially "carries" contamination into the new Discwasher D4 pad.



discwasher®
PRODUCTS TO CARE FOR YOUR MUSIC

Discwasher, Inc., 1407 N. Providence Rd., Columbia, MO 65201

**JVC has brought you a lot of
cassette deck technology...**



Now, it's priced so you can bring it home.

While a lot of companies were calling their flashing lights and elaborate memory systems "break-throughs," JVC was exploring ways to make cassette recordings sound better.

As a result, we've not only come up with important ways to improve cassette fidelity; we're also able to offer them in affordable decks.

The KD-A33, for \$299.95,* is a perfect example. Naturally, it's metal-compatible, as are all eight decks in JVC's line. But more important, it delivers everything that metal promises: stunning clarity, especially with high-energy musical transients. Very low distortion. Superb deep-bass extension. Accurate frequency response.

How do we achieve this kind of fidelity? It's mainly in our heads.

SA heads. Comprised of a sendust alloy in a laminated structure, these JVC heads were the first to take advantage of sendust's electromagnetic and physical superiority, while avoiding the high-frequency limitations of conventional sendust. So they're perfect for recording and erasing metal tape, as well as any other kind of tape.

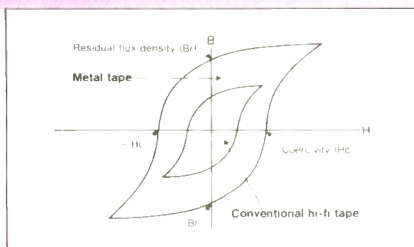
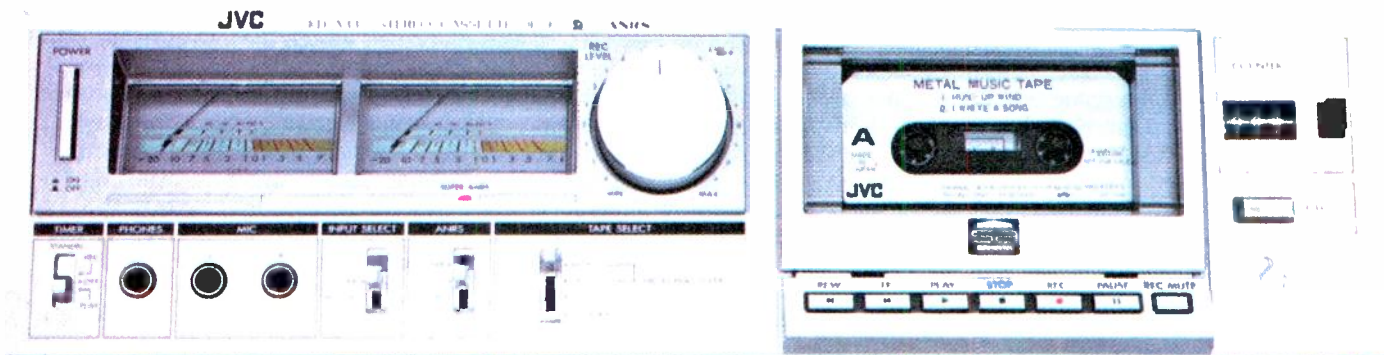
Our Super ANRS contributes a lot of fidelity, too. Years ahead of its time, Super ANRS combines noise reduction and headroom extension. That means improved dynamic range with both metal and non-metal tapes.

We also offer the professional convenience of full-logic, solenoid controls. Unlike stiff, mechanical switches, solenoid controls are activated by a light touch. And you can switch directly from mode to mode (like "record" to "rewind") without damaging the tape or the deck itself. The KD-A33 also provides accurate VU meters with readings to +7 dB and provisions for optional remote control.

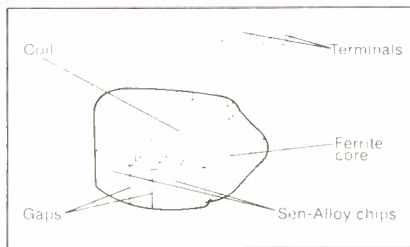
The specs are no less impressive. Frequency response is an honest 30-16,000 Hz \pm 3 dB. When you use Super ANRS, it will sound even wider because of added high-frequency headroom. Wow and flutter are 0.04% WRMS. Signal-to-noise ratio is 70 dB with ANRS in.

Metal-compatible KD-A33 cassette deck

*Manufacturer's suggested retail price



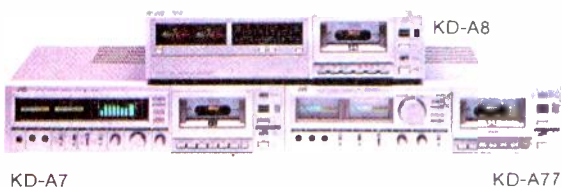
Hysteresis curves: metal vs. conventional tape



2-Gap SA erase head

800-221-7502

Just dial this toll-free number for the location of your nearest JVC dealer. (In New York State, 212-476-8300.) While you're there, you can also check out our KD-A7, metal-compatible deck with built-in spectro peak indicators, for \$499.95.* Our KD-A8, with a built-in B.E.S.T. computer. Or any of five other JVC decks that were built with only one goal in mind—to give you quality cassette performance for your dollar.



KD-A7

KD-A77

JVC®

US JVC CORP

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Circle 22 on Reader-Service Card

CrossTalk

Q. I own an Akai GX-4000DB open-reel deck. It works just fine, except that during playback it has a tendency to bring in some of the bass from the program running in the other direction. It's doubtful that this is caused by print-through since I use quality tape (Maxell LN) and run it at 7½ ips. What's the problem, and what can I do to remedy it?—Jeff Davis, Cottage Grove, Minn.

A. The condition you describe is sometimes called "fringing," and nothing can be done about it. The longer wavelengths of low-frequency music have a tendency to "reach out" from the track they were recorded on and thus are picked up in quarter-track playback as "leakage" from the adjacent tracks, recorded in the opposite direction. (Cassettes, incidentally, suffer less from this phenomenon because the tracks for the two directions of tape travel are not interleaved and a relatively wide guard band is left between them.) Print-through, which manifests itself as leakage from one spot to another on the same track, has no relation to overall tape quality nor, essentially, to transport speed.

Q. After applying Sound Guard [the record preservative/lubricant], I noticed a swishing noise with each rotation of the record. I thought that this was probably the result of my own inadequate buffing of the Sound Guard in one part of the disc. I then attempted to mitigate the problem by cleaning the treated record with the Discwasher D-3 system. After two cleanings, the noise disappeared. But now I'm concerned that I have removed the Sound Guard altogether, leaving my record unprotected. Have I?—Robert Wildman, New York, N.Y.

A. According to information supplied by Sound Guard, Discwasher will not readily remove the thin coating of the chemical lubricants. For an even application, Sound Guard recommends buffing the treated record immediately after application of the fluid. It does seem as though you missed a spot, allowing a heavy deposit to remain, and that the Discwasher cleaning removed the extra Sound Guard (whose molecules don't adhere to each other as

strongly as they do to the record vinyl) from the unbuffed area.

Q. Since storage space seems to become more of a problem in my apartment all the time, could you please tell me just how far from a loudspeaker recorded tapes should be stored to prevent their damage by speaker magnets?—R. S. Tiesler, New York, N.Y.

A. In an ideal loudspeaker, all of the magnetic flux would be concentrated in the voice coil for maximum efficiency. Real-world magnets, however, generate enough stray magnetic fields to damage taped music if it gets near enough. So while we've never experienced even partial erasure attributable to a speaker, we're unwilling to chance it with treasured tapes. Since the internal volume of speaker systems, their magnetic design, and the materials used in their construction are so variable, no single prescription can be offered. If you have an appropriate oscillator, record a standard (say, Dolby-level) tone on both sides of a series of tapes and store them for a few days beside and above your speakers. If the playback level then is measurably lower than it was before storage—and particularly if the tracks nearest the speakers show the most loss—you have reason to worry.

Q. I recently purchased a Blaupunkt 2001 car stereo unit. Despite its good overall performance, I am disappointed in the cassette player's handling of high frequencies. The high-end cut is quite noticeable when I switch on the Dolby decoder. A friend suggested that my home deck was not good enough to make quality Dolby recordings, but since then I have changed to a Nakamichi 1000. Is loss of highs typical of car setups with the Dolby on? And is there a way to improve the response without creating a false sound by fooling with the bias/EQ switches when making the original recording?—Robert DeAgazio, Parma Heights, Ohio.

A. We have encountered the problem in car stereo playback and believe it to be chiefly attributable to the acoustics of the automobile. You don't supply us with information on speaker location, type of car, and so on, but interior padding, high ambient

noise, and poor placement of speakers can alter perceived high-end response. We've actually had very good results playing Dolby-encoded cassettes on car decks with no Dolby decoding. The "false" high-end response thus generated is then naturally rolled off by the car interior. We have even been surprised by the quality of playback when a metal-alloy cassette is played back through a car deck not equipped with the proper equalization for this most premium of tapes. The trick in getting good sound in a car is to forget some of the rules that govern home listening: Considering the variables of audio on wheels, creative experimentation should be the rule. Or you can always add an equalizer to your car system.

Q. I'm sure you've been asked about pre-echo before, but one more time for my benefit, please! It seems to be almost impossible to buy a record these days that isn't so afflicted. I've heard various theories as to its cause, including the claim that it is deliberately introduced in the record-cutting process. If so, why? Is there any remedy?—Richard McChesney, Colorado Springs, Colo.

A. When a record is cut, the pliable lacquer of the master is subjected to extreme pressures. In a loud musical passage, the cutting stylus can deform the lacquer surrounding the groove, even as far away as the wall of the groove preceding that actually being cut. If the master is plated and a record pressed that way, the deformation will allow you to "hear through" into the next groove—pre-echo.

You cannot "remedy" it, but record companies can prevent it by two basic methods: Spread the grooves farther apart (reducing the maximum playing time and/or running the inner grooves closer to the label, where distortion is higher) or cut the disc at a lower level (and hence with a poorer signal-to-noise ratio). Either approach may be avoided deliberately for obvious reasons, but to say that pre-echo is deliberately created is nonsense.

We regret that, due to the volume of reader mail we get, we cannot give individual answers to all questions.



If lately your favorite recordings sound like they're gradually unrecording, it could be the tape they're on.

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

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

So with Maxell, even if you play a tape over and over, the music won't disappear before your very ears.



IT'S WORTH IT.

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The secret of Onkyo.

Let Onkyo transport you to a world beyond electronics . . . to a world of more perfect sound. Where you'll hear music of such stunning purity and sensual richness, that you'll forget you're listening to an audio system.

That's the secret of Onkyo . . . and Onkyo's dramatic success. The unique ability to take you several steps beyond pure technology . . . to experience more exciting sound. And you'll find it in all our components . . . including all four of our new stereo tape decks.

The Onkyo TA-2050 is an outstanding example. It goes further than other tape decks . . . to harness the full performance potential of new metal tapes. One reason is Onkyo's exclusive "Accu-Bias" control system, which guides you to far more precise tape bias adjustments. Brighter, cleaner high notes are the reward.

The Onkyo TA-2050 also utilizes a full logic direct drive motor transport for extremely high reliability with minimum wow and flutter. A second motor handles fast forward and rewind functions. A special Hard-Permalloy record/playback head . . . and a ferrite erase head . . . provide optimum performance

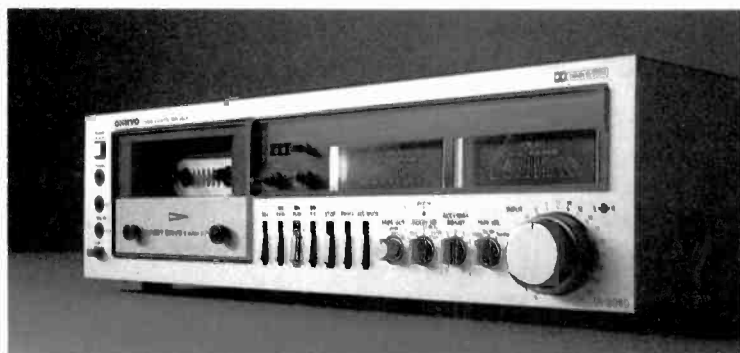
with all types of tape . . . both metal and conventional.

The Onkyo TA-2050 also provides a rich and important array of other high performance features . . . soft touch controls with IC logic . . . a Dolby* noise reduction system with switchable MPX filter . . . large, illuminated "peak-hold" meters for greater precision and convenience . . . a memory-stop/memory-play system . . . a timer mode selector . . . and full remote control capability when used with the optional RC-5 remote control unit.

Two valuable features of the TA-2050 are its instant muting and automatic fade in/fade out control systems . . . which permit far more professional recording effects. Musical passages can be "cut-in" or "cut-out" instantly . . . or "faded-in" or "faded-out" smoothly. And cassettes can be recorded right to the end . . . then rewound a short bit to overlay a professional "fade-out" effect.

Styling is superb. Brushed silver metal with elegant appointments . . . in a dramatically handsome new slim-line design.

And the TA-2050 is just one of four important new metal tape-compatible stereo cassette tape decks from Onkyo. Onkyo USA Corporation
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The Onkyo TA-2050
A remarkably advanced stereo cassette deck
that harnesses the full potential of new metal tapes.

Digital vs. Analog vs. Direct-Cut Discs

Can you hear the difference? Does one come out on top?
A distinguished panel judges.

by Leonard Marcus and R. Derrick Henry

You are a record company executive. You have just managed to sign one of the world's most glamorous maestros to conduct one of the most marketable symphony orchestras in one of the most popular warhorses inhabiting the symphonic stable—say, Leonard Bernstein leading the Chicago Symphony Orchestra in Beethoven's Fifth. Will it be a hit? These days, the answer would seem to be yes—if you jack up the price and put "digital" on the record jacket.

It is no secret that whatever aural advantages the new audiophile techniques may have, the buzzwords "digital," "direct-to-disc," and "audiophile" itself are almost more important to a serious recording's commercial success than either the music or the performers. These discs become hot sellers despite the fact that they usually cost more.

Are they worth the money? Can you even hear any difference? If so, which technology is preferable? And what, if any, audible merit can be ascribed to these new techniques? Engineers and other theorists have long argued the pros and cons of digital and/or direct-to-disc procedures vis-à-vis the traditional recordings—made from analog tapes—we all know and love. But can the listener tell? All these questions bothered us, as they have so many record collectors, and we decided to find the answers.

Certainly there have been some extraordinary-sounding "audiophile" discs released during the past few years. But there have also been extraordinary-sounding discs that didn't proclaim themselves as anything especially audiophilic. So how much of any benefit discernible on certain "superdiscs" has been due to a particular technology and how much to the companies' care throughout the production? Granted that "A Digital Recording!" makes for a catchier record-jacket slogan than "We Were Especially Careful with This Recording's Plating Process," what, we wondered, do the glamorous technologies actually contribute?



Pianist Frager comparing keyboard recordings: "This sounds very much like a piano."

The Recordings

Obviously, what was needed was a pair or trio of recordings in which nothing varied except for the process being judged; in other words, a single recording session picked up by one set of microphones, the control booth being supplied with a standard professional analog recorder, a digital recorder, and a cutting lathe to take the music directly onto a master disc. The same lathe would then be used to derive masters from the tapes. Finally, the rest of the manufacturing process would be the same for all the pressed discs.

Pressed discs were essential. It is all very well to compare digital with analog master tapes, or either with direct-cut masters or mothers, but that is not what the record-buyer finds in the store. Besides, the manufacturing processes might mask, and thus make irrelevant, any original advantages.

About a year ago we received

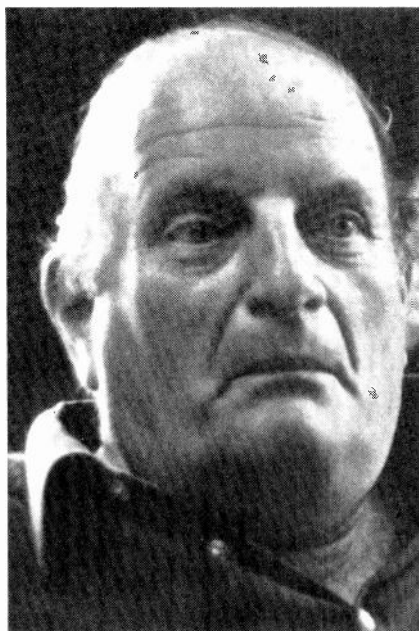
from Golden Crest a recording made not for public distribution, but for industry demonstration. It was of a concert by the Michigan State University Wind Ensemble playing Karel Husa's *Al Fresco*, the composer conducting. On one side was the concert recorded via the company's Telefunken Series 12 (analog) tape recorder using Telefunken's Telcom noise-reduction system. On the other side was the same concert, picked up with the same microphones but recorded on a Sony MC 100 digital tape recorder. Almost best of all for the purpose of making a fair comparison of the two sides, the label did not reveal which was analog, which was digital. With a fillip of humor, Golden Crest simply marked one side "?" and the other "??". As we pointed out last March (in "The Great Ego Crunchers" by Daniel Shanefield), for an A/B test to be valid it must be "double blind"; that is, not only the person appraising the variables but the one conducting the test must be ignorant of which is A and which is B. (For those records that did identify the technology employed on each disc or side, we "blinded" the tester by one of two means: Either the label was obliterated by a second one—coded by a nonparticipant—or a nonparticipant placed the discs on the turntables and, after setting them spinning, left the room before the tester began the experiments.)

Golden Crest also released two "comparison" sets of piano recitals by Grant Johannesen, the first made in 1977, the second last year. In the earlier set, Johannesen recorded Schumann's Six Intermezzos, Op. 4, via the Ampex ATR-100 (analog) tape recorder using the same Telcom noise-reduction system and simultaneously onto Neumann computer lathes through Westrex 3D II-H cutting heads/amplifiers, the same equipment with which the tape-recorded master would be cut. Side 2 of both discs consisted of Debussy's *Masques* and *L'Isle joyeuse* and Copland's *Piano Variations*, but the noise-reduction system for the taped version, recorded on the

Telefunken Series 12 machine, was Dolby A. Golden Crest used Neumann FET-47 and 84 microphones. The more recent Johannesen recital comprised Fauré's *Ballade*, Op. 19a, Schumann's three *Fantasiestücke*, Op. 111, Mozart's *Variations on a Minuet by Jean Pierre Duport*, K. 573, and Poulenc's *Thème varié*. One disc was recorded by the Sony digital system, the other cut directly by the Neumann lathe. The mikes this time were the newer Neumann FET-89s. Thus the record company was giving us four procedures to compare: direct-to-disc, digitally recorded tapes, analogically recorded tape with Telcom, and analogically recorded tape with Dolby A.

More recently, Vanguard issued a comparative disc of Haydn's *Symphony No. 100 in G (Military)*, with Johannes Somary conducting the Mostly Mozart Festival Orchestra. On Side 1, the symphony is heard as picked up by Neumann KM-86 mikes and recorded through an MCI JH-110B analog tape recorder that Vanguard says has wow and flutter of .035%, a frequency response of 30–24,000 kHz, +0.5, –2.0 dB, and a dynamic range of 78 dB. For the flip side the recording system was the Sony PCM-1600 digital processor coupled to Sony's U-Matic video cassette recorder BVU-200A, with wow and flutter claimed to be "beneath measurable limits" and rated frequency response of "20–20,000 Hz, +0.05, –1.0 dB," and a dynamic range "greater than 90 dB." Except for one splice just before the drum roll at the end of the introduction to the first movement, which by error was made in slightly different spots on the two sides, Vanguard says the versions are exactly the same.

And finally, in November 1979, the Welsh record company Nimbus made a four-way comparable recording of Beethoven's *Piano Sonata No. 29, in B flat*, Op. 106 (*Hammerklavier*), as performed by British pianist Bernard Roberts. Three systems were used simultaneously to capture Roberts' performance on discs that, to attain better quality, were cut at 45 rpm. This meant that each *Hammerklavier* took three sides instead of the usual two. For the analog version, Nimbus used an Ampex ATR-104 four-track half-inch tape recorder running at 30 ips with Ampex 456 Grand Master tape and Dolby A noise reduction. The digital equipment was the same as Vanguard's: the Sony PCM-1600 with a BVU-200A video cassette recorder. A



H. C. Robbins Landon listening to Haydn disc: "Imagine that! Not Landon's edition!"

Neumann stereo valve cutting amplifier system, SX-74 stereo cutter head, and lathe both made the direct-to-disc version and cut the masters from the tapes. To complete the particulars, Nimbus used a Calrec Soundfield microphone and amplifier and UHJ stereo encoder.

The leftover side of the five-disc album was given over to the final movement recorded in yet a fourth technique: 78 rpm, unspecified, but presumably analog. At any rate, we did not use this side in our comparison listening tests. The Nimbus package is not available in the U.S. and our copies arrived from Wales after our listening sessions were under way, so only a few of our listeners got a chance to make that comparison. Like Golden Crest on its band recording, Nimbus did not identify which sides were which, and after the sessions, we had to call Wales to decode the symbols.

Listening Setups

We actually used two setups, one of excellent quality that might be found in a serious audiophile's home, and the other of such state of the art that we had to visit a professional audio company to hear it. We set up the first system at our headquarters in Great Barrington, Massachusetts. For speakers we used the top of Acoustic Research's line, a pair of AR-9s. The amplifier, which permitted A/B switching from one turntable to the

other, was the most sophisticated integrated amp Yamaha ever placed on the market, the recently discontinued CA-2010. This was fed by two Technics belt-driven manual turntables, an SL-B1 and an SL-B2 (the only difference being the automatic return of the arm on the latter), each supplied with Shure's top cartridge, the V-15 Type IV. Still, using a pink-noise test record and sound pressure level meter, one turntable/cartridge combination read about 1 dB louder than the other, and that had to be taken into account. In order to offset this and any other variations in the two record-playing systems, during our listening sessions we switched the cartridges, as well as the recordings, between the two turntables.

Each listener went through the same series in the same order. To avoid psychological clues, the tester, who here was the Leonard Marcus component of this article's "we," sat behind the listener and, of course, did not himself know the identity of the discs. To counteract the variable of mental fatigue or "ear aging" during each session, the recording played first (the Grant Johannesen Schumann/Debussy/Copland recital, direct vs. tape-to-disc) was repeated at the end. Panelists could listen as long as they wished to each selection and could request switching at will.

The state-of-the-art system was that of audio designer and musician Mitchell A. Cotter, manufacturer of some of the most sophisticated phono equipment in the industry, at his establishment in Mount Vernon, New York. We opted for a one-turntable arrangement. While this precluded instantaneous A/B comparisons and introduced a possibly fickle aural memory of specific passages, it meant that the playback equipment remained *exactly* the same. Here a Bedini 25/25 Class A amplifier drove a pair of Quad electrostatic loudspeakers, while a Janis W-1 subwoofer was powered by Janis' own Interphase 1 bass amplifier. The platter, motor, and electronics (but none of the mounting mechanism) of a Technics SP-10 Mk. 2 direct-drive turntable was joined to the Cotter B-1 turntable base. A pickup of a classic low-impedance moving-coil design incorporating a line contact stylus on an experimentally developed cantilever was mounted in a Fidelity Research FR-66S tonearm.

This disc playback setup fed equipment entirely of Cotter's manufac-

ture: a Mk. 2 moving-coil pickup transformer, a PSC-2 phono signal conditioner (the RIAA equalization preamp stage), a CU-2 control unit, and an NFB-2 noise filter/buffer to feed the Bedini and Janis power amps. The entire system was grounded through a GS-2 ground strip and plugged into a PW-2 power supply. Triaxial cables were used for all interconnections. The Cotter pickup's lateral and vertical tracking angles were meticulously aligned for each record played, with one significant exception, about which more later. A Platter Matter turntable pad and Orsonic record clamp completed the ensemble. If any differences among the various technologies were discernible, they should have come out all the more strongly in this extraordinary system.

The tests here were conducted by R. Derrick Henry. Because of scheduling difficulties, it was not feasible to duplicate the one-person-at-a-time listening tests of Massachusetts. Instead, three sessions were held, each with two active participants. It should be noted that each panelist, even the fussiest, expressed satisfaction that the setup was perfectly adequate for its intended function of making subtle sonic comparisons among the various recordings. In neither New York nor Massachusetts were they told what audio techniques they were comparing, and indeed, in one felicitous goof, the same version was compared to itself.

Listening Panel

Without doubt, the most important components of all were the ears—and the perceptive brains between each pair of them. We decided that the panel had to represent different types of experienced listeners: musicians, record producers, audio engineers, "golden ears," audio and music commentators and/or editors—including women, who are reputed to have keener hearing, particularly of highs, than men. We were fortunate in being able to assemble this remarkable panel:

IN MASSACHUSETTS

H. C. Robbins Landon, musicologist, former record reviewer for *HIGH FIDELITY*, and beyond question the world's most prominent Haydn authority;

Joseph Silverstein, concertmaster and assistant conductor of the Boston

Symphony Orchestra;

Malcolm Frager, concert pianist and Telarc (digital) recording artist;

Gunther Schuller, composer, conductor, Grammy winner for his Scott Joplin recordings, artistic director of the Berkshire Music Center, former president of the New England Conservatory, and now president of the National Music Council;

Richard Kaye, general manager of Boston classical radio station WCRB and producer of the broadcast transcriptions for the New York Philharmonic and Boston Symphony Orchestra;

Robert Long, audio-video editor of *HIGH FIDELITY* and a classical music buff;

Peter Dobbin, associate audio-video editor of *HIGH FIDELITY* and a rock music buff;

Edward J. Foster, audio engineer and president of Diversified Science Laboratories, the audio testing firm.

IN NEW YORK

Mitchell A. Cotter, president of the audio company of that name, equally at home with tensor calculus, quantum mechanics, electronic circuitry, and music (he has been an orchestral conductor and is a pianist); a pioneer in digital technology since the 1950s;

Peter Aczel, editor and publisher of a "golden ear" journal, *The Audio Critic*;

Randi Halling, now Cotter's service manager, formerly with Mark Levinson Acoustic Recordings, and (identification for scientific reasons only) female;

Teresa (Tracey) Sterne, record producer and for fifteen years the innovative director of Nonesuch Records;

James R. Oestreich, classical music editor of *HIGH FIDELITY*;

Bruce I. Zayde, physicist, electrical engineer for Cotter, and a professional organist and trombonist. Zayde actually "worked" the turntable in New York and was present (along with R. Derrick Henry) at all three sessions there.

Biggest disappointment: that through a confusion in scheduling, we missed Aaron Copland, who had been inclined to participate in Great Barrington. Copland's ears may now be eighty years old, but his reaction to different technologies used in recording his music would have been unforgettable.

The Results

I. Grant Johannesen Piano Recital—Golden Crest

PLAYED—Schumann: Six Intermezzos, Op. 4

Direct-to-disc vs. analog tape-to-disc with Telcom



This comparison was made only in Massachusetts; and Schuller, who heard the Nimbus piano comparisons instead, did not audition any of the Johannesen piano performances. There was consensus that the surfaces were bad and pre-echo annoying on both versions. Landon and Long noted that they were worse in the tape-to-disc version, but each consistently preferred it anyway. Long complained about the top end in both. The direct-cut, whether favored (Silverstein, Foster, Frager, and Kaye) or not (Landon, Long, Dobbin), often elicited similar descriptions that implied it sounded "less direct" (Landon's words) than the taped version. It was "more mellow, muted, flatter highs," to Dobbin, "slightly softer" with "less mechanical noise" to Silverstein, "more tightly focused" to Long, and Foster commented that it "sounds like a good piano with a little more 'hang-on,' a bit longer decay, better ambience." Frager consistently preferred all the piano recital discs directly cut. Here he called the taped disc "too tinny. Don't like this one at all"; the direct, "in comparison, is what I like to hear."

The taped-with-Telcom version was heard as "better etched" or "too hard," depending on whether the quality was liked or disliked. Landon found it "drier," Dobbin "more etched, more percussive" in louder passages, though "not so different" in softer ones. Foster, who thought it "hard and cloudy," also complained that it went "over the top . . . pretty badly distorted" in some loud passages, as did Kaye. (Additionally, Kaye pointed out "a nice trick. Low frequencies on the left, highs on the right—I've done it myself. It's the only way you

can get a piano to sound in stereo.") Finally, Silverstein detected in it "a tiny little bit of flutter on the resonance of long notes" that was less marked in the direct.

II. Grant Johannesen Piano Recital—Golden Crest

PLAYED—Debussy: *Masques*

Direct-to-disc vs. analog tape-to-disc with Dolby A



This side was even more roundly condemned for its surface noise and general sound. Landon described it as "lots of racket," which was felt to be worse on the taped-with-Dolby version. Again, he heard the direct as "less direct," as did Long, who said that it was "like putting a pillow over your head . . . no high end." The taped version was characterized in comparison as "sharper, more etched" (Dobbin, echoing himself), "harder" (Foster), "cleaner" (Silverstein), "more live" (Kaye), and "richer in bass, but clangorous on the top end" (Long). Preferences, however, followed a shotgun pattern. Frager and Kaye invariably opted for the direct, and with special insights. The pianist commented that "the piano is brighter on top than on the lower notes. It's more pronounced in the one I don't like." The broadcaster thought the extra "liveness" in the taped version was due to "a little more distortion in louder sections. With distortion, there is more information on the record." That "distortion" he consistently perceived as a "high-frequency something—beyond my threshold of hearing, but something is there."

Long, Dobbin, and Silverstein generally preferred the taped version, Silverstein changing his opinion more readily as the music changed character. Foster's and Landon's preferences related more to the record-playing equipment than to the disc it was playing. The musicologist complained of the same "curious sound" in auditions an hour apart, but the softer phonograph was the constant, not the disc. Foster, on the other hand, leaned toward the softer

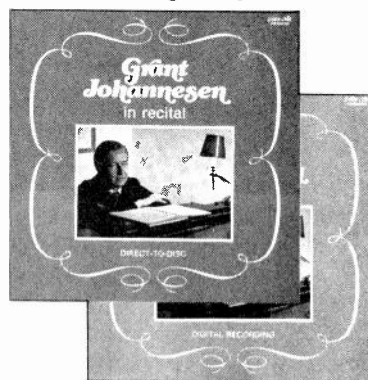
phonograph when he made a choice at all. With the louder setup, the direct was "hard" and the taped "not quite so clean." To be sure, much of the time most panelists expressed no preference. In fact, the only listener who maintained one consistently—whether the music was high-pitched or low, loud or soft, heard via this turntable or that—was Frager, who seems to have a direct-to-disc meter built into his perception.

New York listeners heard similar qualities. The direct-cut was "rounder, better balanced" (Zayde), "clearer, more transparent" (Aczel), although with a "clangy upper register" (Oestreich), or "cleaner but with a clicky, unreal edge" in the treble (Cotter). In comparison the taped version was "more forward, more irritating . . . hard, funnier transients" (Cotter), "pingy and generally unpleasant" (Oestreich), or "much brighter" (Sterne). Here all listeners chose the direct, sometimes for strange reasons. Sterne did so because the taped version "highlights the recording's flaws, distortions, peaking." Echoing Kaye, she preferred the direct because "it masks some of the problems evident in the [taped] version."

III. Grant Johannesen Piano Recital—Golden Crest

PLAYED IN MASSACHUSETTS—Fauré: *Balade*, Op. 19a; Mozart: Variations, K. 573

PLAYED IN NEW YORK—Schumann: *Fantasiestück*, Op. 111, No. 1
Direct-to-disc vs. digital tape-to-disc



In Massachusetts the panelists were given their choice of the Mozart or Fauré to hear first. (They would then later be presented with the other.) Whatever the significance, all the musicians chose Mozart. Again, most of the panelists were annoyed by excessive surface noise and pre-echo, the latter generally worse on the direct-cut version this time. Massachusetts listeners were bothered

in the digital by a "bass rumble at the modulated groove" (Landon) that Foster and Kaye guessed might be 120-cycle hum. Kaye also noticed it on the direct-cut disc, where "you have to listen to find it," while on the digital "it comes and grabs you. It really is annoying. I'm shocked!" At both locations, preferences were split, but, as Aczel put it, each disc was "so poor you don't really care which is better."

During the Mozart, the direct garnered complaints of more distortion from Landon and Foster, "more horrible and noisy" from Dobbin, and "a lot more extraneous sound" from Silverstein. It was again "less direct" to Landon and "sometimes a bit washed out" to Long, who still, or perhaps for that reason, preferred it in the Impressionistic Fauré. Dobbin too—in a left-handed compliment reminiscent of Sterne's in New York—favored it precisely because its noisiness, along with the music, was "more distant." Silverstein additionally perceived "a waver. Do you hear the waver on that D?" The digital, however, was "much cleaner—that D natural just lies there." Frager, characteristically, found the direct (which, to be fair, he heard only on the louder phonograph) in the Mozart "closer to the piano, and you have more echo. This sounds very much like a piano. More presence. But this time I like both. The [digital] is more pleasurable here than the one I didn't like [analog] in the previous comparisons." In general, the digital evoked such responses as "brighter, richer, fuller, even if gimmicked, sometimes a bit larger than life" (Long) and "more presence, closer" (Landon), just the opposite of Frager, but an observation made independent of time, music, or phonograph).

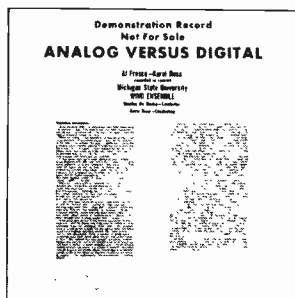
The New York panelists all listened to the first Schumann *Fantasiestück*. Aczel, Zayde, and Sterne preferred the digital version slightly, the others the direct. Both Aczel and Zayde characterized the digital as "rounder," the former adding "more natural—maybe," qualifying his judgment by stating that both recordings were "woolly and neither fully etched." Sterne thought the digital had a more "up-front" quality with stronger bass response, as did Oestreich, who deemed it far clearer but less natural and pleasing. Neither he nor Cotter could sense much warmth in the digital, and they complained of a harshness, particularly at the top. Cotter described it as

"hard, gargly, fuzzy, irritating." What Aczel heard as a bit more emphasis on transients on the direct band, Cotter heard as "more incisive, more piano-like." Halling generally agreed with Cotter, but then added, "I would not have thought we were listening to the same take."

IV. Michigan State University Wind Ensemble, Karel Husa, cond.—Golden Crest

PLAYED—Husa: *Al Fresco*

Digital vs. analog tape-to-disc with Telcom



This album had to bear a special plague: All New York panelists and several in Massachusetts strongly disliked the music and/or performance. Still, it had one advantage over the piano discs, a wider range of timbres and dynamics (starting *pppp*, it gets very loud in spots) that might show one or the other technique to advantage. To be sure, Dobbin remarked, "I must compliment them on their dynamic range on this one," after one dramatic crescendo heard in digital. But switching back to analog, during a passage of moderate level, he couldn't "tell any difference." In another typical left-handed compliment, Dobbin expressed a preference for the analog at one point, but "if it were music I enjoyed, or in a less quiet room, I might have preferred" the digital, perceived as louder.

Also in Massachusetts, comments of "cleaner" or "louder" sometimes followed a switch of turntables, sometimes of disc, and sometimes the same disc on the same turntable was heard as "cleaner" and "not so clean" or even "louder" and "softer" depending on what the music was doing. Silverstein made an astute observation about the perceived dynamic levels, which later would be echoed by Schuller and which is an insight probably only a musician—and only one with great orchestral experience—would have. Hearing the digital at the very soft beginning, he noted,

"That soft note in the marimba is much cleaner, more audible. It's not so much a difference in loudness as in clarity." A high, soft flute solo was also "cleaner" in digital. As the dynamic level rose, "there is very little difference" until, at a full, loud section, the digital was "a little brighter, has a little more snap to it." At times, though, Silverstein's sense of clarity changed with the turntable, as did Landon's and Frager's.

As Frager seemed to possess a built-in direct-cut meter in previous piano recordings, Schuller apparently had one sensitive to analog in large-ensemble albums. He alone invariably reported the analog as "cleaner. Not necessarily louder, but clearer—more purity of sound. The timbre is more accurate," the same judgment as Silverstein's but via the opposite technology (and on a different turntable). The opening instrument he thought might be a marimba or perhaps "a xylophone recorded five rooms away."

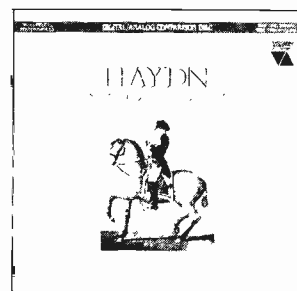
Foster preferred the analog in loud passages, the digital in soft ones, and Kaye the digital throughout. Long and Dobbin heard most of the music "the same" in both versions. From a statistical point of view, it appeared to one tester that a similar pattern of perceptions and preferences would have been achieved if the judges had tossed dice instead of listening to the recordings.

However, the Massachusetts panel underwent an additional experiment that may be significant. Each listener was asked to drop his arm when he heard the soft opening. First the passage was played so that he would know what to listen for. Then it was repeated in each version and timed to a transient that would be noticed anywhere from 13 to 20 seconds later. The musicians did better than the audio people here. But more significantly, whenever there was a discrepancy, the digital recording was heard a shade earlier than the analog—with one exception: Schuller, who consistently dubbed the analog as "clearer," also demonstrated that he heard the analog entrance slightly before the digital—and before anyone else did.

New York panelists disliked the music so intensely that they had to be cajoled into sitting through the second version long enough to obtain a valid comparison. (Remember, they could not make continual instantaneous A/B comparisons.) Nor did they have anything kind to say about the recordings per se.

The total aural experience was so distasteful that some of the participants stated that their preferences were meaningless. But within this context, Oestreich and Sterne slightly favored the digital side, the former commenting, "The sound here is slightly drier, not inappropriate for this music . . . not really a lot of difference, perhaps a bit more presence and clarity." Sterne wrote that the analog "sounds as though there's a screen between player and listener," slightly less intrusive in the digital, which had "more presence." Cotter, on the other hand, characterized it as "strangely dull and dead . . . unnatural." Halling found the analog recording "less offensive," and Aczel and Zayde had mixed reactions similar to Foster's in Massachusetts. During passages of low to moderate levels, the digital recording seemed, in Aczel's words, "more transparent, more immediate, better delineated. . . . I didn't hear that air on the flute before." But when the volume increased and the high-frequency energy intensified, they—and Cotter—perceived a distinct downgrading of the sound. To Cotter, the instrumental timbres took on "an extra edge, buzziness, and hardness." For all three of these listeners the advantages heard on the digital side in the presentation of "nonstressful information" were obliterated by its aberrant behavior in climactic passages.

V. Mostly Mozart Festival Orchestra, Johannes Somary, cond.—Vanguard
PLAYED—Haydn: Symphony No. 100 in G (Military), movements I and II
Digital vs. analog tape-to-disc with Dolby A



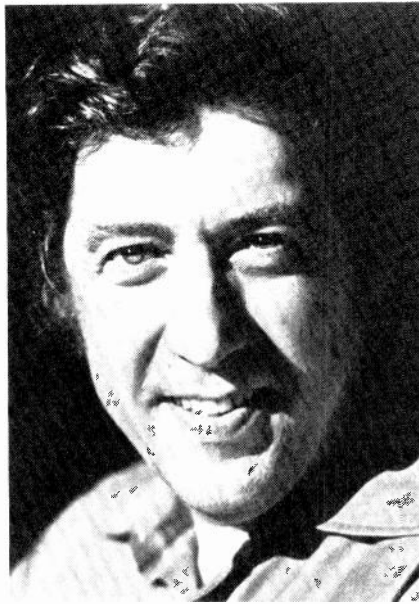
After what came before, this Vanguard disc afforded both musical and sonic pleasure and was, as Oestreich put it, "like giving the ears a bath."

We may have blown our chance at Copland judging Copland discs, but having H. C. Robbins Landon judge Haydn was almost as satisfying. It did bring forth the experiments' most memorable

incident. During the second movement, whose battery of percussion gives the symphony its nickname, Landon suddenly burst out with, "Imagine that! Not Landon's edition!" Then, "That's interesting. All full of wrong notes. Amazing!" A moment later he turned to his disc jockey and added to the recorded music, "Ting, ting, ting—the triangle, *which is not there!*" As for the matter at hand, during the first movement's slow introduction he thought for a moment he heard "more presence" in the analog, then added, "a shade, almost no difference," as the turntables were switched back and forth. His conclusion: "no difference in sound that would be of concern to a musician." Kaye and Dobbin also found the versions indistinguishable.

Nor did most of the other Massachusetts panelists hear much difference in sound that was consistent from one musical passage to another or even in the same passage at different times. Differences reported at the beginning ended up as "no differences," the most common reaction in Massachusetts. Yet in collating all the comments, characteristics emerged that were now becoming familiar. In the first movement, Long heard "something a little bit odd on top, a stringier top end" in the digital, "more bass . . . more impact in tutti, but the tone is colored." In the second movement, the digital again had "more bass . . . this must be that first turntable." (It wasn't.) Silverstein again found a "little more pep to" the digital in both the first movement and percussion entrance of the second, but "not much warmth" in the first. Yet it sounded "warmer, with more resonance to it" in a soft passage in the second movement, while the analog was "cleaner."

Foster consistently favored the analog in both movements, commenting that the digital had "a longer decay, but more distortion. The strings are silkier, but bad—raw silk" in the first movement, where the analog demonstrated "better string tone . . . goes down to lower levels, more open; . . . not as much difference in wind sound." He deemed the digital to be louder in both movements, on each turntable. In the second movement, the analog was still "cleaner, better depth, lower intermodulation distortion," the digital "not as clean" and at the percussion invasion, "with every thump on the drum, the triangle drops out." Yet it had "better depth, better stereo imaging, bet-



Composer/conductor Schuller concentrating on band sonics: "More purity of sound. The timbre is more accurate."

ter phase coherence between the two channels."

Schuller heard "a filminess to the sound, as through a light scrim. It detracts from the timbral quality" in the digital first movement. He was just saying, upon auditioning the analog, "I prefer this," when the drum roll entered, whereupon he added, "or I did until I heard this." He called the analog "a more real sound," but "when it's loud, they're more equal. Maybe the percussion is obscuring the sonic differences."

We made a fortuitous mistake with Frager, ending up with the analog recording on both turntables. During the soft introduction, he couldn't hear any difference; during more eventful music he found one turntable brighter, commenting that "for some pieces I'd prefer this, for others I wouldn't." At the percussion entrance, he remarked, "This is the sound they probably made, but I enjoy the other (turntable) more." After we had caught the mistake, Frager didn't like the first movement in digital on either turntable; whenever we switched to the analog it was not only preferred, but by comparison even "very beautiful" in some spots that he formerly did not like at all. In the second movement, he found the digital slightly more pleasing in the soft string passages but invariably preferred the analog when the percussion battery exploded.

In New York, the three double sessions produced radically disparate

but enlightening results: At the first two sittings the analog version was much more popular than its digital counterpart, but at the final session this preference was completely reversed. The first auditioners were Sterne and Oestreich, whose notes contained virtually identical observations. The digital disc was "more etched" (Sterne) and "a bit dry and edgy, without the mellowness and warmth" (Oestreich) of the analog side. Both said they could live with either recording but faulted the digital side, particularly in the second movement when the percussion entered. "A trifle imposing and off-putting . . . the cymbal clashes register as 'events' rather than music" (Oestreich), and "The percussion instruments seem much more present—aggressively so . . . but out of proportion and almost seem to distort" (Sterne).

In the next session, the percussion section likewise provided Aczel and Zayde with the clue that something was wrong with the digital version, and so did the brass. Percussion instruments stuck out unrealistically. The triangle entrance "sounds like a telephone" (Aczel) and "inhabits a different sound world" (Zayde). A later unaccompanied trumpet signal assumed an "oboelike" coloration (Aczel), as if it were "paired with a double-reed" (Zayde). Both noted that as the music got louder in the tutti passages of the digital recording, the strings also developed a "glassy" or "buzzy" coloration, and the sense of space began to collapse.

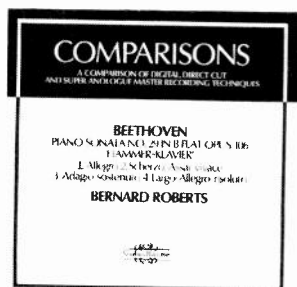
Oddly enough, the third team, Cotter and Halling, had the same response to the disembodied percussion, rough trumpet sound, and high-level strain on the digital side, yet each thought it far more convincing, on the whole. Cotter heard the analog side as "buzzy strings, fuzzy reeds, wiry, irritating sounds" and the digital side as "less electronic, far clearer, much better sense of space and depth, strings that almost sound like strings" in the soft passages.

At this point, "we" should step in—Marcus in Massachusetts, Henry in New York—since we had been present at all sessions, and try as we might, there was no way we could shut our ears. In New York, Henry (and Zayde, who manned the equipment) preferred the analog during the first two testings; now they found themselves in complete agreement with the contradictory observations of Cotter and Halling. In Mas-

sachusetts, Marcus was often (though not always) conscious of the characteristics described by the panelists, even when these were contradictory, or even self-contradictory within the same session.

In New York, the reason for the conflicting reactions was apparently vertical tracking angle. The procedure was to set VTA optimally for the Golden Crest recordings and then, before the Haydn, to reset it for the Vanguard disc, whose VTA was deemed to be higher. On this final occasion, another serendipitous goof took place: Nobody thought to reset the VTA. As a result, expert listeners changed their preferences, and what Oestreich had described as "the wonderfully mellow" sound of the analog was transformed into something Cotter called "wiry, buzzy, and very irritating—notable high frequency distress." Even more paradoxical, the wrong VTA seemed to "improve" the sound of the digital, possibly by muting some of the defects previously heard.

VI. Bernard Roberts, pianist—Nimbus PLAYED—Beethoven: *Hammerklavier* Sonata, movement I, exposition
Digital tape-to-disc vs. analog tape-to-disc vs. direct-to-disc



At 45 rpm, these discs were the only ones that could truly be called "audiophile." Surfaces were clean as a whistle, and dynamic range could presumably have been whatever the company wanted it to be. Again, though, there was notable pre-echo. The boxes arrived in Massachusetts after all non-staff panelists there and in New York, except for Schuller, had sat in judgment. Long and Dobbin were called in again. Marcus originally intended to make up in part for the smaller panel by joining it himself, but upon hearing the opening of the three versions in the first session he conducted, he noticed a musical error in one of them (caused not by the pianist, since these were all the same performance, but by a signal starting late); he

would have been able to spot it immediately and thus might have been prejudiced by what he had heard others say of it. So Schuller, Long, and Dobbin it was.

We conducted three tests with each: direct vs. digitally taped, direct vs. analogically taped, and digitally vs. analogically taped. The psychoacoustic factor was more complex here, and we continually reminded the panelists that there was no way for them (or us) to know which two technologies were being compared. Dobbin, listening to the third comparison, astutely realized that "maybe I'm trying to listen to what I heard before, and I shouldn't do that." Shortly afterward he remarked, "Can't say there is a difference. They all sound as if recorded inside a refrigerator." But while listening, he reacted strongly each time the piano in the analog-tape version hit a high pitch at the top of a loud scale: "Goes right to the ear—makes my fillings vibrate." In soft passages he could discern little or no difference, but in loud, high-pitched sections, while all were "strident," he usually found one more disagreeable than the other. Comparing analog tape to digital or to direct, he preferred whatever was on the softer turntable; comparing digital to direct, he preferred whatever was on the louder one; but independent of turntable, the digital was characterized as more "up-front" and the analog as more "spacious." The direct was referred to as "glassy in the high, loud notes" in several comparisons, but with high, soft notes: "Boy, are they close!"

Schuller didn't like the sound of any either, but for him the turntable was irrelevant. In some passages, he consistently preferred the direct but kept changing his mind with others. Comparing the direct to the analog-taped, he echoed his Haydn comment, "Every time I want to say this is better, a note comes along that changes my mind—like that one" (the same note that vibrated Dobbins' fillings). His response to that passage later in digital: "There it goes again!" He found that at low dynamic levels, the digital, compared to the direct, picked up "extraneous sounds" but "'enhances' the tone. (Put that in quotes, because I don't think it does enhance.) At higher levels it sounds worse. They complement each other, perhaps, but this is not what music sounds like to me." He blamed the "too close" mike placement. In the analog-taped, com-

pared with the direct, Schuller found the chordal notes "not in balance. The clarity of the chord is being obscured. In a complex piece, say an atonal one, you'd just get a jangle of notes. In softer passages, this phenomenon is not so obvious." His conclusion: "The difference is not consistent."

Long voiced similar reactions. The direct had "annoying highs. If I were orchestrating this, I'd do it all with tin horn, cymbals, and kazoo." Though all three versions were "hard," both the analog and the direct elicited the comment that "the bass is rounder" when compared with the digital, while the highs were "tizzier" and "buzzier" in either taped version when compared with the direct but "tizzier" in the digital than the analog, which still had "disastrously edgy highs. Not much to choose from in the highs." This, too, regardless of turntable.

Conclusions

It should be pointed out, if it is not self-evident, that we did *not* compare and judge "analog" vs. "digital" vs. "direct-cut" discs per se. These are generic abstractions. What we heard were particular discs that, among their other characteristics, were recorded with these techniques. We did, as well as we could, remove the other variables, so there would be no extraneous matter to judge.

At each installation, however, two variables did intrude: the human and temporal. Different people listening to (or tasting or smelling) similar things may have different reactions; the same person listening to the same thing at different times may have different reactions. Different people (read also: the same person at different times) will actually listen for, and listen to, different characteristics. Musicians, apparently, heard things that other listeners may not have perceived, as witness the results of the arm-drop test or the fact that the one person who consistently preferred the direct-cut disc in the piano recordings was pianist Malcolm Frager, and the one who invariably preferred the analog ensemble versions was Gunther Schuller. The audio engineers, on the other hand, heard things the musicians were not trained to listen for. Cotter, Zayde, and Aczel consistently spotted what we might call a "digital sound"—but, remember, on unusually sensitive equipment.

Also, we must differentiate be-

tween people's characterizations and their preferences. Two listeners may sense a sound as "hard," yet one may prefer it and the other not like it at all.

What conclusions can we draw? Several—some obvious, some less so. First, many factors other than the recording techniques themselves determined how any differences among them were discerned—everything from the mike placement to the musical character, from the listener's psychological disposition to the record-playing equipment. An inexact tracking angle itself made two experienced listeners change their preference from analog to digital, which raises one practical consideration: Do you have a means of adjusting that angle appropriately from disc to disc?

Several panelists questioned whether there was even any validity to those tests in which the record quality was generally poor. Cotter compared it to judging two excellent wines when they had been mixed with chocolate pudding, an even more apt metaphor than one may at first realize. For what we were judging was not the wines, but what is actually on the market: the chocolate pudding mixture. Will one wine noticeably benefit the taste of the pudding more than the other? Will either even be noticed? Or, back from the metaphorical: Does the fact that a recording is taped digitally or cut directly mean that it will be a good record? No.

In the excellent, but possibly more forgiving, more homogenizing Massachusetts setup, very often no differences were heard, and when they were they seldom remained constant throughout a disc as the music changed. At times, even the subtle differences between record players seemed to engage some listeners' ears more than any differences between two recording technologies, and whatever was heard often influenced preferences. Further, the preferences frequently varied depending on the relationships among the disc, the record player, and whatever was happening in the music. Which brings up the rhetorical question: Are you able to change your record-playing equipment from musical passage to musical passage? On the other hand, with as revealing equipment as the Cotter installation, comments and preferences were more consistent.

While preferences could range all over the place, characteristics did show



Record producer Sterne hearing digitized orchestra: "Percussion instruments seem out of proportion."

patterns. It appeared odd how many times a direct-cut disc was described as less "direct" than either analog or digital taped discs. Also, in one comparison with tape, both pre-echo and intermittent distortion seemed worse. (If that puzzles you, note that pre-echo is not synonymous with tape print-through: A cutter can overmodulate a groove to the detriment of its neighbor. When running from tape, a preview head can spot an oncoming traumatic signal so that the space between those grooves can be widened in time. A direct-cut disc forgoes this option.) The direct discs were also sometimes heard as having "greater distortion" and "more extraneous sound," and most often characterized as "duller" and having "less life" than the tape-recorded album. Yet when praised, the quality was described as "rounder," "more musical," "more mellow," "better ambience," and "cleaner." One direct-cut disc was overwhelmingly preferred to its analog-taped counterpart, and another split preferences in a digital comparison.

The digital versions followed a more uniform pattern of distinctions—when there were any. Particularly in the more revealing New York installation, some peculiarities were quite pronounced and especially noticeable to the engineers. More often than not, however, the responses of the scientifically trained listeners were negative; they often spotted audible defects when the

digital technology attempted to capture "stressful" information—say, loud, high notes.

These characteristics were described as "a lack of warmth," "disembodied" percussion, "edgy" or "irritating" highs. Even through the Massachusetts equipment, differences heard often mirrored these descriptions. Loud, high notes were perceived as "more etched," or condemned as "harsher," "more grating," or having a "stringier top." At the most stressful moments, condemnation, though not unanimous, was common. In easier passages, while some listeners at times heard "coloration" or an "enhanced" sound, the digital version more often was described as "cleaner," "more transparent," and having "better bass." At softest levels it was often preferred, and the few times a wider dynamic range was noted (always in the Husa), the listener was hearing the digital version.

To the question, can you hear the difference in technologies, the answer must be sometimes, and depending on your components.

To the question, does one technology sound better than another, the answer must be no—it depends on the recording.

To the question, is one technology worse than another, a tentative answer would seem to be yes at least when reproduced by the most unforgiving equipment. The digital technology heard on the records at hand may have been inadequate to capture the most intense musical climaxes. It almost seemed as though the system had run out of digits. If, as some engineers have suggested, the lost information is unrecoverable, let's hope that those record companies putting their efforts into digital productions are at least accompanying them with analog backups so that future generations don't look back with regret on the recordings of the 1980s.

The final question has already been answered, at least by implication. For many reasons it may be necessary and right for the record industry to raise its prices. Carefully made, expertly produced, splendid-sounding records could easily command a premium. But should a consumer choose, and pay extra bucks for, a company's recording just because it is direct-cut or digital?

In some cases, at least, it would seem more appropriate for them to charge you less. **HF**

DIGITAL AUDIO: A REVOLUTION RECONSIDERED

by the editors of High Fidelity

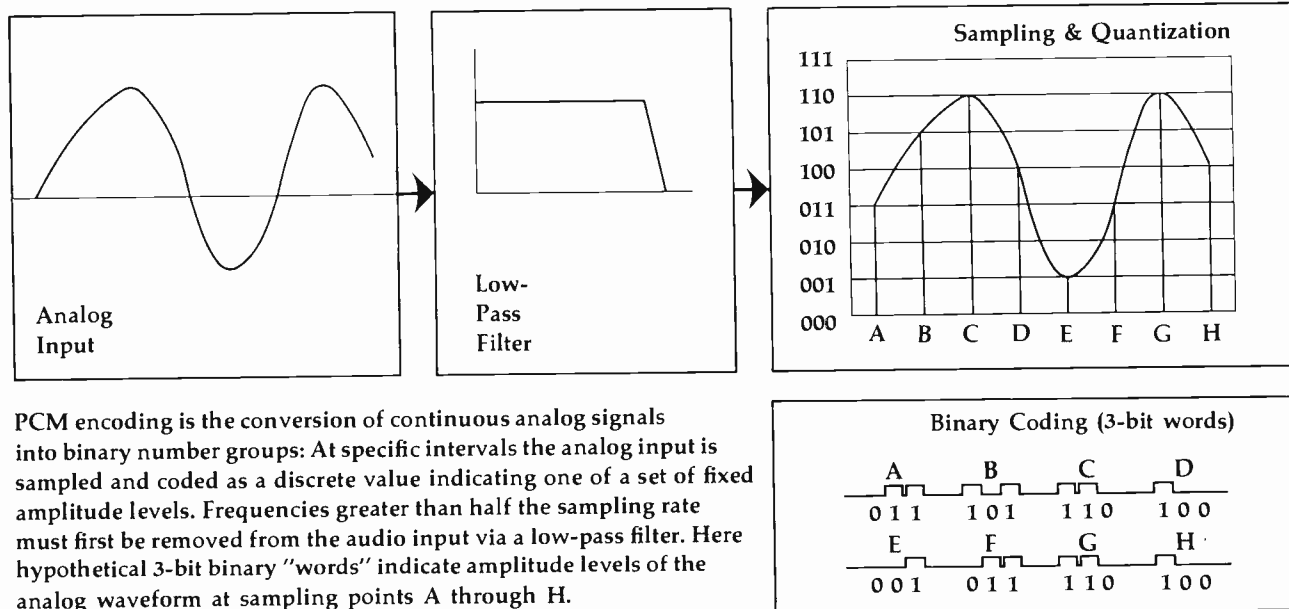
Audio writers really ought to know better. Faced with the promise of digital audio reproduction—dynamic range of up to 90 dB, no surface noise, vanishingly low distortion, and all the other touted benefits of this “computer-age” technology—they have fallen over each other with pie-in-the-sky predictions of affordable consumer players and software (discs and tapes). It’s a “don’t start the revolution without me” scenario reminiscent of the furor generated by the first announcements of stereo recordings and of quadraphonics.

The net effect is confusion for the consumer, who must make his buying decisions in light of what he fears will be the rapid obsolescence of analog audio

Someday we may look back on the modern LP with the same nostalgia we feel for acoustic recordings and “morning glory” horns. The digital future, however, is still uncertain, though prototypes like the Philips Compact Disc system (shown in foreground) may point the way.



Analog-to-Digital Conversion



PCM encoding is the conversion of continuous analog signals into binary number groups: At specific intervals the analog input is sampled and coded as a discrete value indicating one of a set of fixed amplitude levels. Frequencies greater than half the sampling rate must first be removed from the audio input via a low-pass filter. Here hypothetical 3-bit binary "words" indicate amplitude levels of the analog waveform at sampling points A through H.

reproduction. After all, why invest in a new \$500 cassette deck with a maximum signal-to-noise ratio of some 60 dB, when it will be outperformed by next year's digital version? (Yes, rumors are circulating that a "standard" cassette recorder running at 1½ ips and capable of making digital recordings is on at least one Japanese drawing board.) The simple reality is that affordable, fully digital audio equipment faces a long, hard road before it ever shows up on dealers' shelves, and even then the wary consumer must decide whether the benefits really outweigh the negatives. For, despite the hype surrounding this "perfect" reproduction technique, there are still tradeoffs and compromises involved that may very well prove objectionable to serious music listeners.

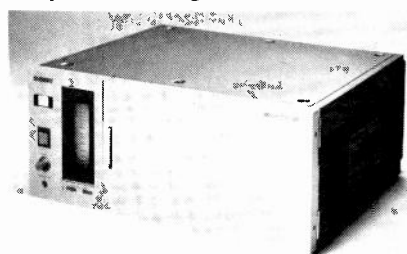
As of this writing, there is only one way for the consumer to make his own digital recordings—with a PCM (pulse code modulation) adapter and video cassette recorder. Sony was the first to introduce such an adapter; the PCM-1 back in 1977, for \$4,400. A newer version, the PCM-10, is even more expensive—\$5,500.

But prototypes abound from such companies as Akai, Hitachi, Kenwood, Mitsubishi, Sanyo, Technics, and Toshiba. Each year we are presented with two or three more PCM adapters; Toshiba has even combined an adapter and

Beta-format VCR in one housing. Demonstration machines, all; for the typical home recorder they are absurdities. Unless you are making live recordings or can get your hands on a digital master tape for copying, you are limited by the frequency response and dynamic range of your program source. Despite whatever sterling qualities these machines might have, the tapes they produce can be nothing more than very accurate copies of the source material (tape, disc, or radio), tarnish and all.

It is generally acknowledged that the future of consumer digital audio lies with discs. Yet even here the picture is uncertain. Growing out of the technology invented for video discs, digital audio discs seemed on the way several years ago. Unfortunately, the video disc market is largely unknown, and only the Philips-developed optical system is now being sold (by Magnavox and Pioneer, and still on a test-market basis). To re-

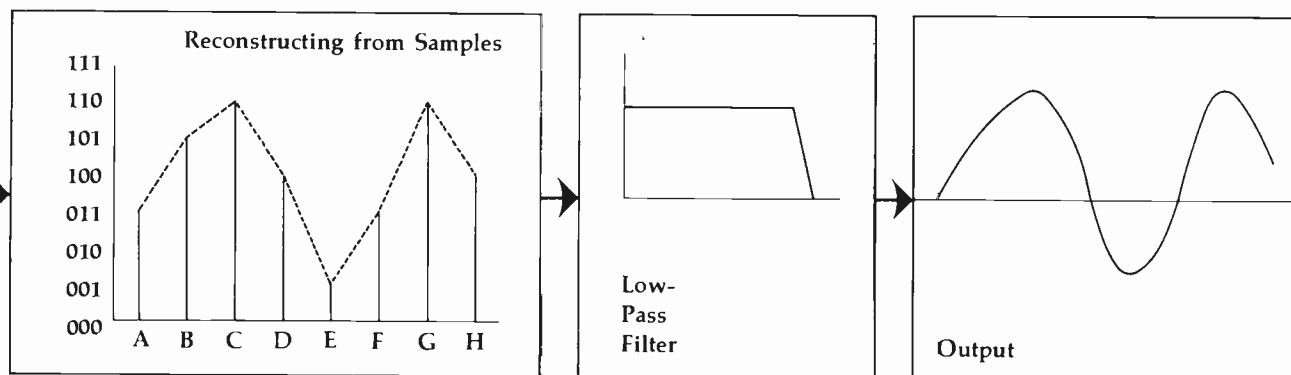
Sony PCM-10 digital adapter



produce a digitally encoded audio program on a video disc player necessitates the use of a separate PCM decoder. So far only Pioneer has demonstrated such an add-on device, and only in prototype. No figures for the price of the decoder are available, but some sources estimate it at almost the price of the video disc player itself. JVC acknowledges audio reproduction in the naming of its capacitance system: Video High Density/ Audio High Density (VHD/AHD), now espoused by Matsushita, GE, EMI, and others. But, again, a separate PCM decoder would be required to play digitally encoded audio programs, and nobody is saying when it will be available or how much it would cost. RCA, whose Selecta-Vision video disc system was originally planned with a mono-only soundtrack, has promised stereo reproduction but has been mute on the possibilities of digital audio.

Philips never seems to tire of teasing the market with glimpses of the future and the promise of its Compact Disc system—a ½-inch record capable of one hour of fully digital audio per side reproduced through its own optical player with built-in PCM adapter. It has led some readers to balk at buying a new turntable on the premise that the digital disc will be introduced at any moment. The facts, however, point to a much longer timetable. There simply are no

Digital-to-Analog Conversion



Stored on tape or disc, the digital data must be converted to analog waveforms for amplification and playback. In this process the binary codes are fed back through a logic network that translates each numerical "word" into its amplitude equivalent. Depending on the original sampling rate, however, the restored waveform will appear more squared off than the original. To correct this, a steep low-pass filter at the output rounds out the waveform by removing high-order harmonics.

standards yet covering digital audio on disc. Philips (in conjunction with Sony) has proposed that the Digital Audio Disc Standardization Conference in Japan accept its system as the standard, but it would be naive to assume that the major Japanese electronics companies would sit idly by and let this Netherlands-based manufacturer win a battle they have yet to start fighting themselves.

The Japanese companies are investing heavily and just now tooling up for a major marketing effort in video disc technology. Since television-related products promise a much larger market than esoteric audio, it's only logical that the next five to ten years should see a major push into video, with audio trailing at its heels. There are spokesmen at Philips who take these considerations seriously: One feels that the Compact Disc cannot possibly be marketed before the mid-Eighties; others continue to talk glibly in terms of 1982. (In this business, forecasters seldom talk of delays of more than two years. It's just long enough: Few outsiders can prove the timetable unrealistic, and fewer still will remember the forecast when the time has elapsed.)

One system that holds some technical promise but has received little publicity is Teldec's piezoelectric system. The technology of its now-abandoned video disc is the basis for a 5.3-inch

record capable of storing one hour of stereo or quadriphonic program material per side. In this scheme a piezoelectric crystal responds to the shock waves generated as it rides across vertical modulations in the disc surface, producing a voltage that is decoded as digital data. If pressed with a conductive substance, the discs could even be made compatible with other mechanical/capacitance systems. Will it ever come to market? No hint of marketing plans has yet emerged in the U.S.

A Bridge of Sorts

One harbinger of the audio revolution is a hybrid: digitally mastered analog discs. The original performance is recorded via a digital processor and tape transport, edited with digital equipment, and then converted back to analog waveforms and cut as a standard LP. What you take home from the record store is therefore a traditional analog record: The little wiggles in the grooves are a model—an analog—of the sound pressure levels generated in the original performance. With almost all analog discs, some compression of the waveforms is applied in cutting the master—lest, for example, the cutter should burn up trying to reproduce 20 kHz or too much disc space be lavished on loud bass notes. Despite about 90 dB of dy-

namic range on a digital master tape, reproduction at home is limited by the cutting process, the quality of the pressing, and the analog turntable on which it must be played. Considering all that, a figure of about 60 dB seems the most one could hope for. Do digitally mastered discs sound better than analogically mastered ones? The preceding article, "Digital vs. Analog vs. Direct-Cut Discs," tackles that question.

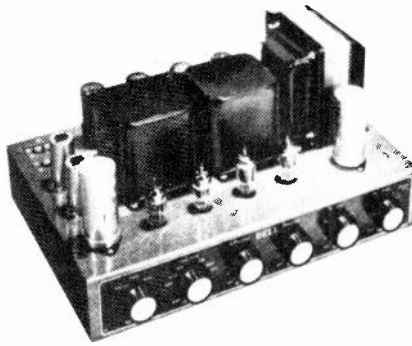
Why have digitally mastered discs emerged on the marketplace at all? It's no secret that classical record sales have been soft this year and that record executives, attempting to pump some fresh excitement into the field, have turned to the word "digital" as necessary promotional hype. At the same time, of course, these record companies are building libraries of digital master tapes that can be reissued when (and if) fully digital media are commercially available.

What Price Perfection?

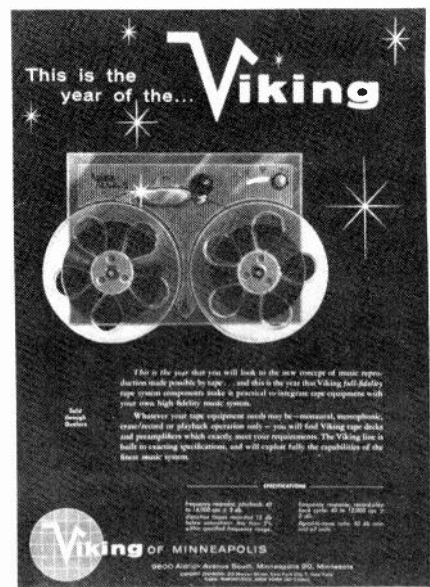
Digital audio techniques offer new opportunities to rub elbows with perfection; no one seriously disputes that. The problem lies in fixing a price/performance ratio that will satisfy both the audiophiles who are the driving force behind the digital revolution and the relatively cost-conscious music lovers whose support will be needed for com-

The Trauma of Change

Through most of the Fifties, stereo's gestation vexed audiophiles much as quadraphonics would in the Seventies and, it appears, digital sound will in the Eighties. There were many false starts toward the stereo technology we know; some had a distinctly Rube Goldberg quality, while others were quite straightforward. Among the latter, the Bell 3D integrated amplifier shown in the first illustration paired two tubed amps on a single chassis to become, as of our 1954 review, one of the few stereo (we still called it "binaural") components from a major non-specialist producer. Continuing to the right, Viking was in the stereo vanguard (as it was to be with quad); by the time of this ad in 1956, "in-line"



had replaced the "staggered" heads that had allowed an add-on head for stereo's second track, but quarter-track stereo was yet to come. The Madison-Fielding tuner (opposite page) was one of several with independently tunable FM and AM bands for early stereocasts with one channel on each band. This was in 1958; the following year, the company jumped the FCC gun and of-



ferred the first multiplex adapter for FM-only stereocasts—using the Crosley system, which the FCC turned

mercial success. With analog audio discs, both segments of the market can play the same record on systems of vastly different quality. The sound each hears is, therefore, determined by his home setup—and with a high-quality analog system, that reproduction can be very good, indeed. Analog recording techniques are also relatively cheap (at least compared to digital prices), and a few cents more for better quality vinyl and extra care in the processing of disc masters can make a vast improvement in the sound of a standard LP. And digital's most touted benefit, extended dynamic range, can be duplicated right now with DBX-encoded discs and a \$100 DBX decoder.

In other words, in order for digital playback to be successful in the home it has to be price competitive with present analog systems, the vast majority of which cost from \$600 to \$800. Will it ever be possible for digital technology to compete with and sound at least as good as analog recordings? Perhaps not.

Great stock has been put in the ability of complex solid-state devices to solve all the number-juggling problems, including those of retail prices. It certainly is true that the vast information-processing field has laid all the essential groundwork, theoretical and technological, for digital audio. This suggests a parallel with the immensely suc-

cessful hand-calculator industry, which began with existing industrial/commercial microprocessor technology and, as both cause and effect of a downward price spiral, built an ever-widening consumer market on it. Ten dollars' worth of calculator, at today's prices, cost closer to ten times that amount only a few years ago. Why can't digital audio do likewise?

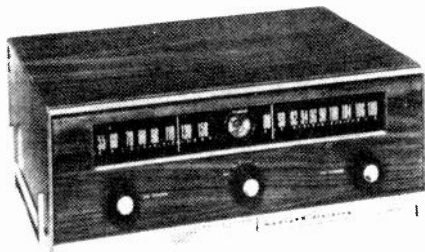
There are a number of reasons. Let's begin with market base. Virtually every household in the country has to work with numbers (to balance the checkbook or prepare the income tax if nothing else), while quality music reproduction is a high-priority consideration only in a minority of households. More important, the calculator's competition—the adding machine, abacus, and slide rule—had never attracted mass interest, leaving the field wide open for the calculator. The analog phonograph and tape deck already are deeply entrenched in the American home, however, and digital audio has no comparable void into which it can step unhindered.

And this brings us to the area where competitive and technological considerations overlap: The relationship among cost, market size, and performance. The lower the price can be kept, the more people will be interested in buying. But audio quality costs money, in digital systems as in analog ones, and

nobodys knows for sure where the points of diminishing return will be in this respect—at what level of excellence digital systems will be pricing themselves out of the market or, conversely, at what level of affordability they will lose any potential sonic appeal.

The most important single factor in the cost/performance equation is the word length: the number of digits that will be set aside to express any of the binary numbers in which the audio information is stored. Each time you add one digit, you double the value that can be expressed (which means, among other things, that you add 6 dB to the dynamic range) and you increase the bandwidth required of the transmission medium proportionately (which means that you use up more tape or disc space for a given maximum packing density, or information capacity, in each).

The price of the chips necessary to process the data will certainly decrease, but not necessarily to the point of being negligible. The packing density of discs has been increased immensely (by comparison to the LP) by the Philips, JVC, and Teldec technologies so that more music can be accommodated on smaller discs and ultimately at lower manufacturing cost per listening hour. Tape already is pushing its own packing-density limits, however, and can be expected to cost more per listening hour than its



down in 1961 in favor of that sponsored by Zenith and GE. Adapters remained important, however, in weaning mono systems to the new medium. A "classic" of the late Fifties was the Scott, whose switching could turn two mono systems into a true stereo rig. When Tandberg introduced the quarter-track format, it offered the essentially mono Model 5 with an add-on adapter for the second-channel record-

HERE IS HOW YOU CAN CONVERT TO STEREO...

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• Update your present H-H Stereo System for Stereo records and tape.
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Just add the Stereo-Daptor and a new H-H Stereo amplifier to your present H-H Stereo system and you can play the new stereo records, tapes, tapes, tapes... and still use your present H-H Stereo System.

The Stereo-Daptor permits setting of the separate channels to match existing H-H Stereo System tone controls when the output of both records... (text continues with technical details)

24

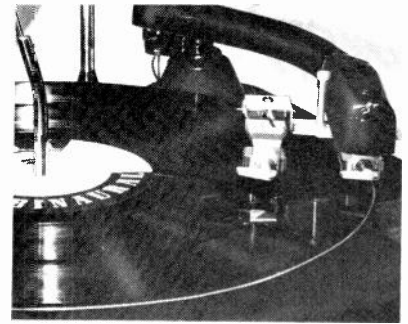
TANDBERG

The Quality Answer For Tape-Disc STEREO

A tape recorder with built-in stereo tape playback equalizer is offered only by the Tandberg... (text continues with product features)

STEREO RECORDING

... (text continues with recording details)



them—using the 45/45-degree Blumlein matrix—had made their appearance. Until they did, the only disc system was that of Cook Laboratories, with a separate groove for each channel. Posh systems played them with a Livingston two-headed arm; the budget-minded could adapt a mono arm with the Cook "sidecar" shown here and a second (preferably, but not necessarily, identical) cartridge.

ing and playback electronics, as shown in a late-1958 advertisement. By that time stereo discs as we knew

analog rivals, either because more tape must be used (higher tape speeds or more tracks in simultaneous use) or because only premium magnetic coatings (like the metal alloys) can be used.

A number of digital systems employ 14-bit quantization; that is, each number by which they encode the audio waveform runs to fourteen binary digits, for a differentiation scale of more than 16,000 steps. Some experts consider this rather extravagant for the consumer market, much of which seems perfectly happy with AM radio, Dolby-less cassettes, and discs pressed with noisy reclaimed vinyl. They wonder how a 14-bit digital system can hope to compete for a mass market that apparently doesn't care about improvements.

If anything, far more experts lean in the opposite direction, believing that the capabilities of digital audio must exceed present demand, to allow room for growth. Most also seek broad compatibility to avoid fragmenting whatever market there may be for this "ideal" system. Carried to its logical extreme, this would suggest interchangeability of professional (possibly, 16-bit) and home equipment, which would almost certainly rule out general affordability.

Sampling rate, too, is a subject of debate. The higher the sampling rate, the greater the demand on the storage density of the medium, though the demand

does not go up exponentially the way it does with bit rate. Sampling rates as low as 40 kHz (that is, 40,000 times per second) are possible, but only if the audio bandwidth is kept below 20 kHz. Some tests indicate that listeners—expert and otherwise—can't hear the difference when a very sharp 15-kHz filter is inserted into an otherwise broadband musical signal. And with such a filter, a 40-kHz sampling rate will be adequate.

But is the filter itself adequate? Some engineers are convinced it is not. If the medium is indeed to be kept ahead of present demand, a bandwidth of 20 kHz would seem minimal, raising the sampling rate above 40 kHz even with very sharp filtering. But even worse than the bandwidth restriction, some believe, is the sharpness of the filter that is required. Sharp filters are given to ringing, due to the phase perturbations they impose far below their cutoff frequencies; to prevent ringing in the audible band, their knee frequencies should be raised or their slope rates lowered or both. But, in order to keep any audio at more than half the sampling rate from reaching the digital encoder and thus causing spurious products called "aliasing," the sampling rate then would have to be increased drastically.

These are the major areas where disagreement remains, but there are still more. Even if these problems can be

solved to everybody's satisfaction, the "perfect" medium will be perfect only as long as every bit (pun intended) of the encoded information is recovered exactly; when wear or damage become severe enough to compromise recovery, audible quality disintegrates much more rapidly than with analog media. As a hedge against mistrackings, dropouts, or whatever problems a given digital transmission may be prone to, some form of error-correction code often (but not always) is built into the system.

This requires some form of redundancy (another demand on the medium's packing density) so that the digital-to-analog converter will be able to tell when an error has occurred and possibly correct it. There are many approaches to error correction, making it yet another factor contributing to the mutual incompatibility of digital systems. Some proposed consumer media (including most of the discs) include some form of code.

These days we frequently hear predictions that digital equipment will come to the home market in about five years, and it does seem likely that within that period there will be offerings that make today's prices look ridiculous. At least some of those products doubtless will prove premature. It may be that all will—that the ideal system remains out of reach. **HF**

"I Will Not Stop to Vork Until It Will Not Be More Beautiful!"

by Leonard Bernstein

On June 18, Leonard Bernstein temporarily emerged from his year-long self-imposed exile from the music world to address the American Symphony Orchestra League's annual convention in New York. His sermon—for that is what it turned out to be—took as its text Gunther Schuller's 1979 Tanglewood welcoming speech and subsequent article in last June's *HIGH FIDELITY*, "The Trouble with Orchestras." You may remember that the article described symphony orchestra players' apathy, board members' ignorance, conductors' abdication of their artistic and community obligations, and administrators' usurpation of musical decisions.

If Schuller's statements, in Bernstein's words, have "caused an enormous amount of excitement . . . in the American orchestral world," so too did Bernstein's speech. Here it is, virtually untouched.

My dear friends:

I greet you most warmly, but with curiously mixed feelings. On the one hand, I am very pleased to see you all and to touch base with so large and significant a segment of our American musical life. I am also flattered to have been asked to make this so-called keynote address, whatever that may mean these days when keynotes become increasingly hard to come by. On the other hand, I cannot help asking the question: Why me? I am somewhat puzzled that in this of all years—this special, precious 1980, which I have reserved exclusively for composing, in which I am not lifting a baton—that in this very year I should have been selected to address the problems of the symphony orchestra.

Ladies and gentlemen, you see before you a nonconductor—which I must emphatically point out does *not* mean a body through which no electricity can pass. On the contrary. But it does mean that my mind is not continually occupied with the issues that concern *this* body. A strange thing happens when a conductor

transmogrifies himself into a composer—at least, to me. There is a drastic change of persona; the public figure becomes a very private person. There are very few if any public appearances (this being one of the few); there is a lot of solitude and deep inner searching. First there is a transitional period in which one tries to clear the mind of everybody else's notes—Beethoven's, Mahler's, Stravinsky's, Druckman's—all those notes one has been studying and conducting and hearing day in, day out; then follows the period of agony and ecstasy, searching for and finding one's *own* notes. This is what I have been doing. I hardly ever go out, socially or professionally; I have attended very few concerts; I have become a reclusive introvert. It is, in short, a very odd time for me to be making this speech.

Now, having made all my disclaimers, I hope I can talk with you freely. In the course of this period of reflection and reading and re-reading, I have come across that remarkable speech made by my esteemed friend and colleague Gunther Schuller at last year's opening exercises of the Berkshire Music Center. I am sure you are all more than familiar with that Tanglewood address and with Mr. Schuller's follow-up piece in *HIGH FIDELITY* magazine; they have both caused an enormous amount of excitement and controversy in the American orchestral world, which is practically synonymous with the occupants of this room. I should say at once that I place myself firmly in his camp: With very few exceptions, every point he has made is true, all too true, as I know from long personal experience.

The early years of my musical activity coincided roughly with the last years of the great tyrants of the podium: Koussevitzky, Reiner, Rodzinski, Toscanini, Stokowski, Szell—those great names that forged, by supreme authority and will, the great American orchestras. I have also lived to witness the apathy and joylessness of which Schuller speaks

and which seems to inhabit so many of those same super-symphony-orchestras today. Of course, back in those Glorious Bad Old Days (or should I say those Grisly Good Old Days?) life was not by any means all joyfulness in the orchestral ranks. There were moans, groans, and mutterings; there were laser beams of resentment aimed at the podium, even semiaudible wisecracks or ill-concealed infractions of discipline, all related to prolonged rehearsal time and authoritarianism. But none of this was the result of *apathy*. On the contrary, it had a vehement force behind it; there was a cause being fought for, a valid cause. It is true that in those days orchestral musicians were grossly overworked and underpaid and had few, if any, guarantees of permanence or economic stability. But such was the dedication and charisma of those glorious tyrants of the baton that music triumphed over all. Came the performance, and the ill feelings vanished magically, to be replaced by a radiant glow of pride—pride in the knowledge that perfection was the goal, the perfect serving of the *composer*, not the conductor, and that they, the players, were with each new performance coming closer than ever to that goal through bone-hard work and the consecrated guidance of their maestro.

Even as I say these words, the memories rush back to me with a new vividness. I can see my beloved master, Koussevitzky, a high priest at his altar, raging through an endless rehearsal, indefatigable. I can hear him now: "I will not stop to vork until it will not be more beautiful!" "Ve will play again hondred times until it will not be in tune!" "Kinder, you most *soffer*, *soffer* for die musical art!" And suffer they did, but to what glorious ends! And I see Fritz Reiner, my other great teacher, with his impeccable ear and fearsome eye, suddenly stopping a rehearsal to nail the fourth desk of violas and make them play a passage by themselves—two trembling figures suddenly made to audition before their col-

leagues. And not infrequently such a scene culminated in that terrifying monosyllable, "OUT!" And in those days, "out" could mean *out for good*. But what performances there were, what Mozart, Bartók, what *Rosenkavaliers* came out of that *suffering*. Everybody suffered, including Reiner himself, who we are told was on at least one occasion physically attacked in the stage-door alley by some of his players.

What feverish days they were! When in 1943, I became Artur Rodzinski's assistant at the New York Philharmonic, I was appalled to find that his first official act in office was to proclaim 25 arbitrary dismissals. Those were the days.

I need not prolong the tale with mention of other revered friends and mentors such as Toscanini, who was not above hurling epithets like "Shoemaker!" at a given musician, or George Szell—but, as I say, not to prolong the tale. Suffice it to say that all that is over, ancient history.

The artists who comprise our present-day symphony orchestras are recognized as artists, respected and rewarded accordingly. They now have a voice in the choosing of a new maestro, in the conditions of a tour, even in the replacement of retiring colleagues. Then why the apathy, the joylessness of which Gunther Schuller speaks? The explanations have been given most eloquently by Gunther himself, and there is no need for me to repeat them here. But there is something to be added, a kind of historical or philosophical underpinning to this whole dilemma, which may help to clarify some of our problems—not necessarily to solve them, but perhaps illuminate them.

Let's ask ourselves: Whence cometh this remarkable phenomenon, this *monstre sacré* known as the Symphony Orchestra? Was it born full-blown, like Minerva from the head of Jupiter? Not at all; it grew and developed concomitantly with the growth and development of a musical form called the symphony, a tonal and dualistic conception which, along with its allied forms of concerto, symphonic poem, and the rest, traversed a fantastic arc from Mozart to Mahler. This is a piece of deterministic history, if you will, visible to us on an imaginative graph as discernibly as feudalism or the Holy Roman Empire—nascent, ascent, apogee, decline. And as the symphony grew in scope, size, and

complexity through Haydn, Beethoven, Brahms, Bruckner, et al., so did the orchestra for which it was written; each new demand by a composer evoked a complementary advance from the orchestra, eventually evolving into the orchestra of Mahler and Ravel—which is to say, the standard 100-piece orchestra that graced the beginning of this century.

The truth is that our present-day symphony orchestra is not basically different in concept or composition from that of 1910, say, in spite of the tripling or quintupling of wind instruments, or the addition or invention of the plethora of percussion instruments which sometimes these days seem to be invading the whole stage. Theoretically, one could say that the symphony, as a form, reached its ultimate possibilities with Mahler (certainly, Mahler thought so!), but in fact we know that major symphonic works of real significance continued to be written for another 35 years. There are those who consider these latter-day symphonies epigonic, and history may one day prove them right; but one cannot simply dismiss such symphonic masterpieces as have come from Sibelius, Shostakovich, Prokofiev, Hindemith, Schoenberg, Copland, Stravinsky, Schuman, Bartók. And there it seems to end, with an astonishing abruptness. Curious, isn't it, that the last really great symphony, in the traditional sense of the term, was Stravinsky's *Symphony in Three Movements*, date 1945, exactly coincident with the end of World War II? It is as though that apocalyptic bomb demolished not only Hiroshima but, as a side effect, the whole tonal symphonic concept as well.

And so, for the last 35 years we have had no real symphonic history. If you think that's too strong a statement, only consider those who make it 70 years, back to Mahler, or even those who are convinced that the symphony really began to decline with Schubert. All right; let's settle for 35 years; but in any case, where does that leave the symphony orchestra now? Obsolete? A doomed dinosaur? If the symphony orchestra grew hand-in-glove with the symphonic form itself, has it not declined correspondingly? The answer is *no* to all of the above. In fact, it is precisely in these last 35 years that symphony orchestras have had their heyday, have burgeoned and flourished as never before. How do we account for this striking paradox?

In two ways. First—and this brings

up a sore point: Because I have spoken to these matters frequently in the past, I have just as frequently been misquoted as saying that the symphony orchestra is dead. It infuriates me to read that misinterpretation. In fact, orchestras have never been more alive and kicking. What I *have* said is that they have become in part kind of museums—in part, mind you; remember I said there were *two* ways to account for the paradox. But yes, museums: glorious, living treasuries of art. And what, may I ask, is wrong with a museum, especially one in which we are dealing not with paintings and statues, but with live bodies, great performing artists, breathing and re-creating our priceless symphonic heritage, with a director who is no mere curator, but a veritable high priest in this sanctuary? Of *course* this symphonic gestalt is a museum, and we should be proud and grateful for it.

But that is only Part 1 of the answer. Part 2 involves the very important fact that, when the symphonic form disappeared 35, or 70, years ago (take your pick), it was not by any means the end of musical creativity for the orchestra; quite the contrary. The last 35 years have seen a creative ferment unprecedented in musical history; composers have struck out in any number of directions, producing a wealth of new works—not symphonies, maybe, but so what? Where is it written that what we have come to call symphonies must monopolize the repertoire of the symphonic orchestra? We have extraordinary new works from Carter and Berio and Crumb, Boulez, Stockhausen, Foss, Rorem, Corigliano—Schuller himself. And these works do make new demands on our standard orchestra of 70 strings and 30 winds and a handful of percussionists. There are new ways of grouping those 100-odd instruments, new divisions and dispositions, multiple small orchestras. There are new electronic instruments and the introduction of pre-recorded tapes. There are new instrumental techniques, like multiphonic wind sounds, or caressing the tam-tam, or blowing into the microphone. Some of these are minor variations or adornments of the standard Mahler orchestra, but others are of major significance.

Most important of all, these composers are compelling orchestral musicians to hear in new ways, especially in nontonal music, to listen much more attentively to one another (for example, in

aleatory music), and to be adventurous in much the same way as Beethoven compelled the Haydn orchestra to venture into new territory or as Debussy did with the orchestra of César Franck. In other words, the so-called "symphony orchestra" has developed an added function, distinct from its identity as a museum, and that is to provide the fertile soil in which new kinds of orchestral music can be cultivated. And here is where the problems begin to come clear: This rich new area seems to demand different schedules, different approaches, even, at times, different personnel from those serving at the altar of Brahms. And so the trouble begins. Can any one orchestral organization encompass both these functions and still maintain its Koussevitzkian goal of perfection, to say nothing of mere competence?

There are those who say no. Why not two museums, they argue. After all, New York has its Metropolitan Museum and its Museum of Modern Art, the Met and the MOMA—different strokes for different folks. Boston and Philadelphia have their fine arts museums and also their institutes of contemporary art. Why should the musical museum be different? Why not have twofold orchestras, double maestros, double subscription series? Bad ideas, all. Because an orchestral artist is a living being, a musician incorporating all the music that has preceded him and all the music informing his daily life. He is not a painting on a wall, nor is an orchestra an exhibition. A musical artist is a consecrated part of the world he inhabits; if he is fenced off, he will stagnate. So will the orchestra. So will the public. So will art.

Then where, you ask, is the time and energy to come from that will permit our artists to embrace the entire orchestral literature without its killing them with overwork or driving them mad with stylistic somersaults? Ah, that is where you come in, my friends: It is your imagination, your new inventive ideas, your flexibility, cooperation, and good will that can save the situation.

I realize that I am speaking to a highly diverse and composite group representing all aspects of the American symphonic world: conductors, managers, agents, composers, union officials, orchestral players, board members—all, I am sure, devoted music-lovers and, I assume, all gathered here at this great conference precisely to determine how to save the situation. I assume

further that you are all highly educated and sophisticated in your particular disciplines—which may be the whole trouble. Socrates would say to you: Experts, learn from one another; this is the moment to begin your education, an interdisciplinary education. And you can begin right now, here in New York. Use this week as a springboard, and then go on learning and understanding one another more and more deeply. It can no longer be Us against Them; it must be only Us. There is no Them, not if music is to survive the crisis.

I, alas, am not Socrates, nor even much of an expert on the national orchestral scene. But I have had long and varied experience both here and abroad, and perhaps I can drop a few hints, to some of you Us and Thems.

To the conductors I would say: Develop a keener understanding of your responsibilities to your art—in the most universal sense—to your colleagues within the orchestra, and to your specific community. Do not neglect American music; it is the lifestream of your repertoire, the constant refresher and rejuvenator of our musical life. Don't travel so much, and if you do, take your orchestra with you. There is much you can learn from them.

To the orchestral players I would plead: Cherish your love for music; don't ever let orchestral politics cause you to forget your joyful reason for having joined an orchestra in the first place; guard your standards of excellence, which mean much more than fluency of technique. Don't say to your maestro: "Just tell us if you want it louder or softer." That way lies perdition, that fearful hell where everything becomes louder and softer and little else. And a word of warning: Don't get too involved in management unless you want to incur its financial responsibilities as well. Which I'm sure you don't. Besides, the more active a part you play in management, the more inevitably you are going to find yourselves in conflict with your very own unions. Learn from the management, as well as from your maestro.

And to management I would say many things—more than this occasion will permit. But one strong hint: Remember the American conductor. He is out there, in quantity and quality, gifted, brilliant, catholic in taste, and spoiling for action. America has developed world-class orchestras; we all know that—some of the finest on earth, each

with its distinctive sound. But is that our true goal? Isn't it rather to have these same fine orchestras each capable of producing the distinctive sound not of itself, but of the *composer* being played? And this goal is more attainable in America than anywhere else; it can be one of the glories of our melting pot. But it is finally attainable only with an American conductor, who has comprehensive and international roots, not merely roots in the *conservatoire* or the *Hochschule*.

And a note to personal managers: You too are servants of music; serve it with all your powers, rather than seeking to derive power from it.

To union officials, only one little but loaded hint: Remember that a symphonic concert is not a gig. Enough said.

And what shall I say to trustees and board members? Again, *learn*; learn from all the others to whom I've already spoken. Educate yourselves to understand them, especially us musicians. It's not easy; we musicians are a peculiar folk. But we are not irrational, and we are full of love. Get your heads together with ours and *invent*: Find new ways of giving concerts, of de-rigidifying the common practice; invent new and imaginative divisions of labor. Keep chamber music always in mind, however small or large. Educate yourselves in ways to educate in turn those for whom you are responsible, especially the musical public. Whatever happened to Young People's Concerts? And why have orchestral telecasts surrendered their educational components to mere glamorous camera work? You must remedy that. Of course you must also find money, but you do that very well and need no hints from me in that department.

My friends, all of you together: Interdisciplinary education can do wonders. Understanding and flexibility can do wonders. Yes, even money can do wonders. But the *energy*, the energy to put all these wonders into action—where does it come from? It will come from where it has always come: from the love of music, the sheer aesthetic delight in this most mysterious and rewarding of all the arts; from the sporting sense, the instinct for continuity, and the joyful and total dedication of ourselves to the art we have sworn to serve. I ask you all now to swear that oath again with me: "I will not stop to vork until it will not be more beautiful!"

Godspeed, and thank you. **HF**

Letters



Not "Metal-Ready"

When metal tape came on the scene, it was billed as a major breakthrough, and signal-to-noise ratio improvements of up to 10 dB were rumored. After reading "Tape Tests: How the New Cassettes, Including Metals, Measure Up" [July], I ask where the major breakthrough is—in the price and the potential for selling new equipment?

Comparing some of the top-grade Type I ferric tapes (RKO Broadcast I, Sony SHF, TDK OD) with most of the Type 4 metal tapes, the improvement seems to be more on the order of 3 dB. I make this judgment from three key measurements: maximum high-frequency output, midrange S/N ratio (dynamic range), and THD. And considering that the metal tapes were of the C-60 variety, would there be any improvement at all if they were C-90s?

Unless the industry can come up with a more substantial breakthrough than this, I intend to keep my nonmetal compatible Teac and use the far less expensive tapes.

Scott Smith
Titusville, Fla.

The audio-video editor replies: The message here is that metal tape has been oversold. As readers of our test reports section should be aware, we too keep looking, essentially in vain, for that touted "10 dB of improvement" in the newer decks with metal tape. Just what quantitative improvement there is depends to a large extent on the properties you assume in the recorded signal and in the way it is recorded. Mr. Smith's analysis has given him 3 dB of improvement; working from the same data, we can see a reasonable argument for 6 dB—the approximate average difference in high-frequency headroom relative to the "chrome" group, whose identical playback EQ keeps hiss in the same frequency band at about the same level.

However the improvement is analyzed, we stand by our previous statements that it is small but significant to the serious recordist. Whether that justifies the hefty advance in tape price is a matter each recordist must decide for himself. But we can conceive no rationale by which it is justified with decks that, because they are engineered with insufficient care to satisfy serious recordists, fail to realize the potential of the metal tapes for which they are said to be "ready."

Nothing New Under the Sun?

In your final comments in the report on the Modular Acoustics Model 3000 speaker [July], you speak of the "innovative bass design." While these folks may be up-and-coming, the speaker is anything but innovative.

I refer you to a December 1961 *Electronics World* article by George Augspurger, who I believe designed similar enclosures for JBL in the 1960s. The enclosure shown with the article appears to be the spittin' image of the one described in your report, with a similar pattern for impedance. With the technology available today, I would think that any speaker design could be improved upon, but Modular's doesn't appear to be significantly different from Augspurger's 1961 model.

Don Nicol
Huntington, W. Va.

The audio-video editor replies: If one is to pooh-pooh any mold-breaking design that resembles something from the past, there would be hardly a loudspeaker left to admire. The Modular Acoustics Model 3000 does resemble George Augspurger's, though it's hardly a spittin' image of it, any more than either is the spittin' image of HIGH FIDELITY's own dual-port bass coupler from the 1950s. On reconsideration, however, we do agree that "innovative" was perhaps too strong a word. The innovation consists simply in adapting a bass-extending/flattening idea that has little currency at present. In the lead paragraph we used the word "unusual," which seems more precisely just under the circumstances.

More "How to Buy . . ."

Your May article "How to Buy a Turntable" by Michael Riggs, with its "Tonearm Geometry" sidebar, was the most complete and informative that I have come across. The manner of explanation and the diagrams were particularly valuable, especially to one of no technical bent and ten thumbs. More articles along this line about stereo equipment would be most welcome.

Frank Pedroja
Wichita, Kan.

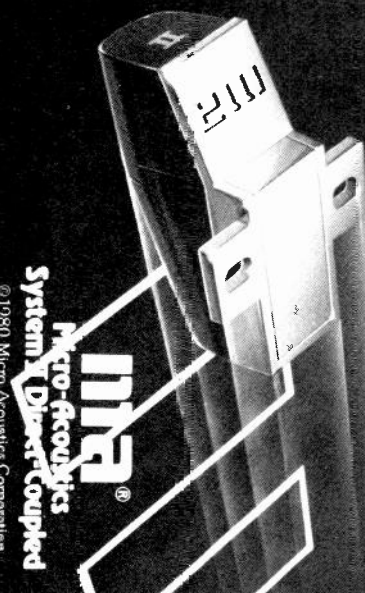
We are happy to oblige: The Riggs article cited is one of a series. Already published is "How to Buy an Amplifier" [March], and the next in line will deal with tuners.—Ed.

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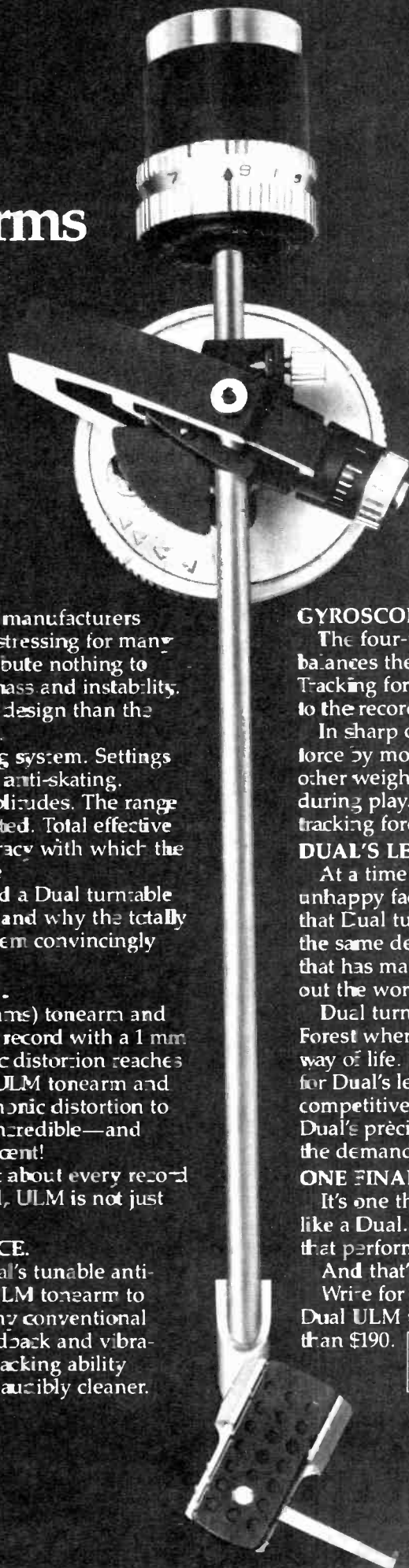
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Record Reviews

Is This Any Way to Conduct Puccini?

Levine and Karajan keep a tight rein on *Bohème* and *Tosca*, but they don't sing.

by Kenneth Furie



Dale Harris, who knows about these things, has patiently explained to me how the Cult of the Conductor took over at least the European opera festival circuit in the Seventies: As the supply of singers sufficiently glamorous to command those dizzying festival prices dwindled, it became necessary for all concerned to find their glamor elsewhere. More recently, he explains, the shortage of sufficiently glamorous conductors has given rise to the Cult of the Director.

Of course there are other reasons why conductors and directors have attained their current prominence, and some of them are legitimate. Conductors and directors are important. But we have to know what we're looking for from them; otherwise we fall into such absurd traps as imagining, for example, that conductors make operatic performances. This notion, I'm embarrassed to say, has been given widespread respectability by critics.

Now we pay the price. Having exalted conductors to so lofty a position without really understanding what they need to do, we're stuck with performances

that almost *can't* work. First, and most obviously, because however remarkable the conductor may be, however encompassing his world view and artistic perceptions, it doesn't count for much unless he can sing. Second, and in the long run perhaps more importantly, because the very idea of a stage performance being "created" and controlled by a person who himself produces no visual or aural output is antithetical to the *raison d'être* of stage performance.

Both problems are nicely illustrated by a pair of new Puccini recordings, both of which happen to be rather well conducted. But to the extent that they are "the Levine *Bohème*" and "the second Karajan *Tosca*" and not much else, they give me little reason to want to hear them again. In fact, I found Karajan's new *Tosca*—which is even more fastidiously thought-out and executed than Levine's *Bohème*—quite painful to get through a second time.

Which shouldn't be all that surprising when you consider that *Tosca*, calling for heavier voices, is harder to fake than *Bohème*. One telling indicator of how screwy

our perspective has become is the likelihood that many operaphiles will be discussing the relative merits of the two "Karajan *Toscas*" as if some reasonable comparison were possible.

The reality is that in 1963 Karajan had three principal singers—Leontyne Price, Giuseppe di Stefano, and Giuseppe Taddei—with adequate basic vocal qualifications for their roles; now he has none. (The contrast applies almost equally to the supporting casts, but this difference is less important to the overall success of the performances and doesn't involve actual vocal incompetence so much as temperamental bewilderment.)

Oh, Katia Ricciarelli scores some points along the way. The voice sounds more clearly focused than it has sounded in most of her recordings, and as long as *Tosca* is keeping her poise, she can maintain an appropriately steady line in a context of effectively simple dignity; by and large, the Act I scene with Scarpia goes pretty well. Of course what makes *Tosca* the title character of an opera is the range of emotional stresses that unpoise her, all of which is ex-

pressed in writing that pushes the singer into vocal extremes, writing that is regularly too high, too low, and/or too loud for Ricciarelli. She is—or would be, if her voice were working properly—a Mimi, not a Tosca.

Similarly, José Carreras should be a Rodolfo, not a Cavaradossi. However, considering the modest showing he made as Rodolfo in Colin Davis' *Bohème* (Philips 6769 031, September), the weakness of his Cavaradossi—his *second* on records—might have been predicted. Even when he's not straining for climaxes, there's just no lyric bloom or shape to his singing. Both arias are forced and unattractive, and any tenor who can't bring some caressing sheen to "Qual occhio al mondo" in the Act I duet shouldn't be singing the role.

PUCCINI: La Bohème.

CAST:

Mimi	Renata Scotto (s)
Musetta	Carol Neblett (s)
Rodolfo	Alfredo Kraus (t)
Parpignol	Paul Crook (t)
Marcello	Sherrill Milnes (b)
Schaunard	Matteo Manuguerra (b)
Alcindoro	Renato Capecchi (b)
Colline	Paul Plishka (bs)
Benoit	Italo Tajo (bs)

Trinity Boys' Choir, Ambrosian Opera Chorus, National Philharmonic Orchestra, James Levine, cond. [John Mordler, prod.] ANGEL SZBX 3900, \$18.96 (two discs, automatic sequence). Tape: 4Z2X 3900, \$18.96 (two cassettes).

COMPARISONS:

De los Angeles, Bjoerling, Merrill, Beecham	Sera. SIB 6099
Tebaldi, Bergonzi, Bastianini, Serafin/Sta. Cecilia	Lon. OSA 1208

PUCCINI: Tosca.

CAST:

Floria Tosca	Katia Ricciarelli (s)
Shepherd	Wolfgang Buntten (boy s)
Mario Cavaradossi	José Carreras (t)
Spoletta	Heinz Zednik (t)
Scarpia	Ruggero Raimondi (bs)
Sacristan	Fernando Corena (bs)
Cesare Angelotti	Gottfried Hornik (bs)
Sciarrone/Jailer	Victor von Halem (bs)

Schöneberg Choir Boys, Deutsche Oper Berlin Chorus, Berlin Philharmonic Orchestra, Herbert von Karajan, cond. [Michel Glotz and Günther Breest, prod.] DEUTSCHE GRAMMOPHON 2707 121, \$19.96 (two discs, manual sequence). Tape: 3370 033, \$19.96 (two cassettes).

COMPARISONS:

Callas, Di Stefano, Gobbi, De Sabata/La Scala	Ang. BL 3508
Price, Di Stefano, Taddei, Karajan/Vienna Phil.	Lon. OSA 1284

Ironically, Ruggero Raimondi, Karajan's unorthodox choice for Scarpia, brings more "baritoneal" substance to the fourth or fifth below the break—say, from B flat up to E and F—than did the prominent baritones (Manuguerra, Wixell, Milnes) who have sung in the unaccountable recent spate of *Tosca* recordings. By current standards, then, this isn't a horrible piece of singing. It's not an especially distinguished one either. Raimondi's chronically slithery mode of vocal attack becomes, intentionally or not, a prominent interpretive feature of his Scarpia, perhaps the prominent interpretive feature in the absence of any others. In combination with Karajan's choices, this produces a peculiar dramatic result that we'll have to talk about later.

Karajan's 1963 cast may not have produced wholly satisfying results, but it was consistently in the picture, and the conductor himself provided caring support with the lush assistance of the Vienna Philharmonic. A performance of *Tosca* took place, something that doesn't happen in the new set. (DG, incidentally, gives Fernando Corena equal billing with Ricciarelli, Carreras, and Raimondi. On nostalgic grounds, he's entitled; sadly, there's not much voice left. Well, we still have four good recordings of his Sacristan.)

The Angel *Bohème* isn't sensationally well sung either; lyric voices, after all, have to be developed; too—underdeveloped ones just aren't as painful to the ear as underdeveloped dramatic voices. Renata Scotto and Sherrill Milnes sound less pressured than has been the case on some recent recordings, but they don't sing all that well and they don't have much to say about Mimi and Marcello. Paul Plishka is in woolly form as Colline, and Matteo Manuguerra makes a drab Schaunard. Manuguerra would probably have made a more positive impression as Marcello, and it's a shame Allan Monk wasn't hustled to London for Schaunard—Levine, after all, seems to be the only major conductor who knows of his existence.

There are two interesting, though not necessarily successful, pieces of casting in the *Bohème*. Alfredo Kraus's prickly tenor isn't a sensuous instrument, and his age does show in the difficulty he has sustaining even that penetrating sound on held notes higher up in the voice. From a technical standpoint, however, the degree of control he exercises above the break is in most regards superior to that of the current competition. And his technique and intelligence enable him to articulate words and sentences, a feat that other tenors no longer even attempt. Some of his scenes, notably the Bohemian bantering of Acts I and IV, contain glimmers of dramatic life.

Carol Neblett is an uncommonly big-voiced Musetta, thereby giving the role some automatic stature, which it can certainly use. What it can also use is the kind of interpretive seriousness Josephine Barstow brought to her Met performances a few seasons back. Why must Musetta be treated as a tramp? Barstow proceeded from the assumption that the character can be accorded measures of intelligence and elegance, and even though most of what she tried to do clunked into a dramatic void on the Met stage, she gave Musetta a continuing sense of life that suggested how important a role she might play in a serious *Bohème*.

Barstow was half-interestingly partnered by Vicente Sardinero as Marcello. Since he too knows his way around a stage, for the first time in my consciousness *Bohème's* "second couple" had a dramatic function; the perspective of the drama expanded beyond the personal tragedy of Mimi to larger questions of the physical and personal support systems necessary to sustain life. Neblett, alas, sings the frumpiest of frumpy Musettas, and the size of her voice only magnifies the frumpiness.

What, then, of the conducting? Both Karajan and Levine have things well under control, which is both good news and bad.

Karajan doesn't seem to me to have drastically changed his tempo range since his 1963 *Tosca*, in which he already tended to gradualism. The feeling of the performance, however, has changed a lot. Much of the difference may be attributable to the very different sounds produced by the Vienna Philharmonic and the Berlin Philharmonic: The playing in the new set has an almost inhumanly cold quality, which is accented by the sheeplike acquiescence of the singers.

Except Raimondi, who as noted makes a somewhat different impression. Karajan's severe monumentality coupled with Raimondi's slightly sleazy-sounding slithering yields a Scarpia of inhumanly cold, unbridled Nordic sadism. When Scarpia, thinking himself on the verge of conquest, observes to Tosca, "How you hate me," this Scarpia appears to be having a swell time, the implication being that the more she loathes him, the more pleasure there is in forcing her submission.

Why do I find this so bothersome? Maybe because it seems too inconsistent with the outwardly aristocratic and pious Scarpia we have seen so far. But this won't wash; one of the valuable functions of art is to explore such gaps between public and private selves, between "normal" behavior and behavior *in extremis*. Wouldn't it seem, though, that Tosca should recognize what she's up against, somehow sense that the more violently she opposes Scarpia the

more pleasure she gives him, and react in some way? Perhaps, but even so there must be more bothering me.

Part of the problem is my bias against two-dimensional portrayals. Since I don't believe in the existence of pure evil in the real world, I don't find it especially interesting or illuminating on the stage. I consider it important to try to understand the human origins of vile behavior, and so I tend to resent artistic depictions that deal with virtue and evil as simple, fixed commodities, rather than as shifting, ambiguous products of complex human circumstances. Isn't it more useful to see what there may be of us in Scarpia than to insulate ourselves by seeing him as a monstrous aberration?

But even this doesn't explain why I have such trouble with the Raimondi/Karajan Scarpia, which is, I suppose, a valid conception. And maybe that's what's wrong: It remains a conception, not a person. And in a sense this is inevitable when the conception is external, unabsorbed by the actual performer. Only Scarpia can perform Scarpia; the conductor can contribute in various ways, but he can't take any direct part in the one-to-one communication between actor and audience.

This is going to be a problem as long as the conductor thinks he can *shape* an operatic performance—determine where it's going, why, and how. If you believe in such possibilities, Levine's *Bohème* is admirably conducted. It's well paced and played, with less of the manic quality I recall from his Met performances. And yet, for me, it remains stubbornly inexpressive.

During an intermission of the 1977 Met *Bohème* telecast, Levine talked to Tony Randall about conducting the opera: "In Puccini you have to be tremendously flexible, because everything is dictated by the pace of the speech, and whereas Mozart is famous for that statement, 'The word must always be the obedient daughter of the music,' by the time the nineteenth-century style came around, it was quite the opposite, and the word really dictates everything." Except for the part about Mozart, this strikes me as very sensible. Now if only Levine could heed his own advice.

It's not that he conducts inflexibly; there really is considerable bending of tempo in his *Bohème*. But it's all so damned premeditated, and the more completely you try to preplan behavior, the more certain it becomes that the behavior won't be believable. In this set, except sometimes

when Kraus is singing, "the word" doesn't dictate anything, doesn't communicate anything.

I don't mean that conductors can't have strong views about operas; on the contrary, why perform them if they don't? We just have to understand that those views can be communicated only through the agency of an appropriate and congenial cast. To cite only the most pertinent examples, the Beecham and Serafin recordings of *Bohème* and the De Sabata and Karajan's own earlier *Tosca* are all strongly and individually conducted, and they are all well sung by casts compatible with the performances' overall objectives.

In reviewing Karajan's *Pelléas et Mélisande* (Angel SZCX 3885, April), Conrad L. Osborne voiced the suspicion that the maestro was aspiring to the Maeterlinckian ideal of a theater without actors. This has been a dream of certain theater people for eons—mostly strong-willed playwrights and composers. Unfortunately, it doesn't work very well. Without performers, what kind of performance can you have? In his Maeterlinckian aspirations, Karajan seems to me only a bit more extreme than his contemporaries. Which makes him only a bit more surely doomed.

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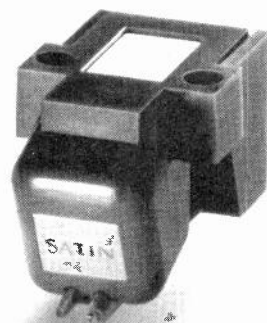
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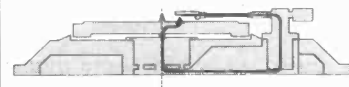
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BACH: Keyboard Works.

Martha Argerich, piano. [Rudolf Werner, prod.] DEUTSCHE GRAMMOPHON 2531 088, \$9.98. Tape: 3301 088, \$9.98 (cassette).

Toccatà in C minor, S. 911; Partita for Harpsichord, No. 2, in C minor, S. 826; English Suite No. 2, in A minor, S. 807.

BACH: Toccatas, Vol. 2.

Glenn Gould, piano. [Andrew Kazdin, prod.] COLUMBIA M 35831, \$8.98. Tape: MT 35831, \$8.98 (cassette).

Toccatas: in C minor, S. 911; in E minor, S. 914; in G minor, S. 915; in G, S. 916.

The problem with playing baroque music on a modern grand piano is not so much what happens to the music—although there are, of course, some real questions here—as what happens to the piano. An instrument capable of great power, range, and nuance is made to tinkle along like an effete music box. Some performers are more successful than others, but in general the piano sounds uncomfortable—and even absurd.

By employing a wider dynamic range than we're accustomed to hearing in Bach these days, Martha Argerich attempts to overcome one aspect of the problem, but this is not enough. Her crescendos and decrescendos tend to appear in oddly disconcerting places anyway, and her sotto voce effects are just too precious. (What's more, at any level above mezzo-forte her instrument produces the brutal metallic clang all too typical of modern pianos.) Lacking, despite a tendency toward brisk tempos, are real rhythmic buoyancy and variety in articulation; tempos are far too



Martha Argerich
Technical tour de force; musical flop

metronomic, and touch alternates between a monotonous legato and a monotonous staccato, with none of the combinations and groupings so essential to the performance of baroque music. Then there are the patent perversities: the allemandes pushed to breathless speeds, thematic restatements so forcefully emphasized that counterpoints are completely obliterated, and *all* trills started on the main note. Most perverse of all, in the partita and the *English Suite*, is the manifest stupidity of splicing one movement directly to the next, without so much as a single beat's pause. This technical tour de force is a musical flop.

Glenn Gould has his perversities too, of course, including the predictable (and predictably out-of-tune) vocal continuo. He also has some decidedly wayward ideas about articulation (as in the opening section of the C minor Toccata) and a fondness for playing slow sections (notably in S. 911 and 916) at the most ponderous tempos imaginable. In contrast his wonderfully lively allegros spring along with engaging energy. Here are those life-giving nuances of phrasing and articulation that I so much miss with Argerich, and in his better moments Gould manages a really effective reconciliation of harpsichord music and piano. Were it not for the pervasive moaning and those dreadful slow movements—the Adagio in S. 916 is so inert that generous ornamentation proves necessary just to keep some sound going—this might be a record worth owning. S.C.

BACH: Suite for Orchestra, No. 4, in

D, S. 1069; Brandenburg Concerto No. 5, in D, S. 1050.

English Concert, Trevor Pinnock, dir. [Andreas Holschneider, prod.] ARCHIV 2533 440, \$9.98. Tape: 3310 440, \$9.98 (cassette).

Last November I was full of enthusiasm for the new Pinnock/English Concert recordings of Bach's first three orchestral suites, performances that still strike me as the finest anywhere. I'm delighted to welcome the completion of the set, which in every way lives up to my highest expectations. As before, the playing is wonderfully alive, both in tempo and in subtleties of articulation and expression, and apart from occasional lack of unanimity among the violins, the sound of the original instruments is thoroughly gratifying. The trumpets are played with daunting precision, and the darkly sensuous timbre of the oboes is enchanting. The recorded sound, moreover, is suitably detailed, yet spacious, with a nice sense of depth.

But the performance of the Fifth *Brandenburg Concerto* inspires less enthusiasm. It's not by any means bad, just a bit tight-lipped rhythmically—the basically metronomical pulse is curiously at odds with violinist Simon Standage's elegant *mesa di voce* swells. I find myself wanting greater rhythmic flexibility, à la Harnoncourt's more recent recordings, and especially in the slow movement, a more rhapsodic freedom could have made this easily the best Fifth on record. Even in the first-movement cadenza, Pinnock seems self-conscious about his use of rather generous rubato to define the larger sections, as if he can hardly wait to set the metronome going again. (I must also note in passing that Pinnock's trills tend to be so fast as to become absolute blurs.)

The effect of the concerto is further compromised by a different recording venue—much drier than that used for the suite—and by a disagreeably flat recorded perspective. The strings sound starved for life-giving resonance, and the tone of the harpsichord is decidedly tinny. S.C.

BOITO: *Mefistofele*: Prologue—See Verdi: *Pezzi sacri*.

DVOŘÁK: Symphony No. 7, in D minor, Op. 70.

Philadelphia Orchestra, Eugene Ormandy, cond. [Jay David Saks, prod.] RCA RED SEAL ARL 1-3555, \$8.98. Tape: ARK 1-3555, \$8.98 (cassette).

B Budget
H Historical
R Reissue
A Audiophile
(digital, direct-to-disc, etc.)

Critics' Choice

The most noteworthy releases reviewed recently

AVISON: Concerti Grossi after Scarlatti (12). St. Martin's Academy, Marriner. PHILIPS 6769 018 (3), July.

BACH, BRAHMS: Chorale Preludes (arr. Busoni). Jacobs. NONESUCH H 71375, Aug.

BARTÓK: Bluebeard's Castle. Varady, Fischer-Dieskau, Sawallisch. DG 2531 172, Aug.

BEETHOVEN: Symphonies (9). Vienna Philharmonic, Bernstein. DG 2740 216 SKL (8), July.

BEETHOVEN: Triple Concerto, Op. 56. Mutter, Ma, Zeltser, Karajan. DG 2531 262, Sept.

BERNSTEIN: Serenade; Fancy Free. Kremer, Israel Philharmonic, Bernstein. DG 2531 196, June.

DUKE: Songs. Bogard, Duke. CAMBRIDGE CRS 2776, Aug.

ELGAR, WALTON: Cello Concertos. Kirshbaum, Gibson. CHANDOS ABR 1007, Sept.

GRIEG: Olav Trygvason; Landkjenning. London Symphony, Dreier. UNICORN RHS 364, June.

HANDEL: Ariodante. Mathis, Baker, Lepard. PHILIPS 6769 025 (4), Aug.

HANDEL: Concerti Grossi (6), Op. 3. Northern Sinfonia, Malcolm. NONESUCH H 71376, Oct.

HAYDN: Paris Symphonies (6). Orchestra of Naples, Vaughan. ARABESQUE 8047-3 (3), Oct.

HAYDN: Symphonies Nos. 97, 98. New York Philharmonic, Bernstein. CBS M 35844, Oct.

JANÁČEK: Fate. Hajóssyová, Příbyl; Jilek. SUPRAPHON 1112 2011/2 (2), Oct.

MAHLER: Symphony No. 9. London Philharmonic, Tennstedt. ANGEL SZB 3899 (2), Oct.

MOZART: Symphonies (11). Academy of Ancient Music, Schröder, Hogwood. OISEAU-LYRE D 169D3 (3), May.

PALESTRINA: Song of Songs. Czech Philharmonic Chorus, Veselka. SUPRAPHON 4 12 2141/2 (2), Sept.

RUGGLES: Complete Works. Thomas, Kirkpatrick. CBS M2 34591 (2), Oct.

SCHUBERT: Symphony No. 7, in E. (arr. Weingartner). Berlin Radio, Rögner. SPECTRUM SR 116, Aug.

SCHUBERT: Works for Violin and Piano. Luca, Kalichstein. NONESUCH H 71370, Sept.

SIBELIUS: Symphony No. 2, Op. 43. BBC Symphony, Beecham. ARABESQUE 8023, Sept.

ARTHUR FIEDLER: Forever Fiedler. RCA CRL 3-3599 (3), Sept.

ANDRÉS SEGOVIA: The EMI Recordings 1927-39. ANGEL ZB 3896 (2), July.

KING'S ROW. Film score by Korngold. CHALFONT SDC 305, Aug.

London Philharmonic Orchestra, Mstislav Rostropovich, cond. [Suvi Raj Grubb, prod.] ANGEL SZ 37717, \$8.98.

DVOŘÁK: Symphony No. 8, in G, Op. 88; Carnival Overture, Op. 92.

Philharmonia Orchestra, Andrew Davis, cond. [David Mottley, prod.] CBS MASTERWORKS M 35865, \$8.98.

DVOŘÁK: Symphony No. 8, in G, Op. 88; Slavonic Dance, Op. 46, No. 8, in G minor.

Berlin Philharmonic Orchestra, Herbert von Karajan, cond. [Michel Glotz, prod.] ANGEL SZ 37686, \$8.98. Tape: 4ZS 37686, \$8.98 (cassette).

DVOŘÁK: Symphony No. 8, in G, Op. 88.

Sydney Symphony Orchestra, José Serebrier, cond. [Eric Clapham, prod.] RCA RED SEAL ARL 1-3550, \$8.98 (recorded in concert).

DVOŘÁK: Symphony No. 9, in E minor, Op. 95 (From the New World).

▲ Vienna Philharmonic Orchestra, Kiril Kondrashin, cond. [Christopher Raeburn, prod.] LONDON LDR 10011, \$10.98 (digital recording).

DVOŘÁK: Symphony No. 9, in E minor, Op. 95 (From the New World)*; Scherzo capriccioso, Op. 66*.

Berlin Philharmonic Orchestra*, Royal Philharmonic Orchestra*, Rudolf Kempe, cond. [Fritz Ganss* and Robert Andry*, prod.] ARABESQUE 8019, \$6.98. Tape: 9019, \$6.98 (cassette). [*From SERAPHIM S 60098, 1969.]

One might have expected the Philadelphia Orchestra, with its characteristic heavy tread, to deal effectively with the dark scoring of Dvořák's Seventh Symphony, and it certainly does not disappoint. From the ominous pedal-point opening (Dvořák's biographer Sourek called it "heavy as a black cloud hanging low on the horizon"), the ensemble is masterly in every way—unanimous of attack, homogeneous in tonal blend (both within and between sections), and, for all the appropriate heft, admirably transparent in texture. Patently, this is a great orchestra.

Under a great conductor, Ormandy is habitually taken for granted, and—admittedly—more than a few of his interpretations, especially of works he has performed and recorded often, have tended toward the safe, the brusque, the generalized, and even the lackluster. Not this one. He and his orchestra, in their first rendition of this symphony that I recall, shape it with thorough mastery. Indeed, the lack of routine may contribute to the vibrancy and commitment of the performance.

Though the first movement's tempo is rather deliberate, the pulse is always firm

and clear, and the frequent shifting of gears (e.g., the sophisticated relaxation of tension for the second theme and the undulant shaping of accompaniments and ostinatos throughout) is unobtrusive. There is a pulsating energy (with some especially effective soaring portamentos from the violins) and a lot of realistic instrumental detail. The second movement, too, is authoritatively molded, the opening wind chords played with unanimity and continuity of phrase. Perhaps the last two movements are a shade less successful; other conductors, such as Talich (on 78s) and Monteux (London Treasury STS 15157), have managed a bit more lilt and spontaneity in the scherzo, but it can be argued that Ormandy's sobriety is more intrinsically symphonic. Aside from a slight edge on the strings, RCA offers well-balanced, honest reproduction. If Ormandy has ever made a finer record, I haven't heard it.

Rostropovich and the London Philharmonic are outclassed in every way. If Ormandy's first-movement tempo is leisurely compared to Szell's (newly reissued, Odyssey Y 35931) or Colin Davis' (Philips 9500 132), Rostropovich positively plods. He punches out the marcatos in a stentorian manner, but the ensemble sound is spongy and overblown. While the cellist-turned-conductor shows a generalized sympathy for this work with its brooding Slavic color, his overall conception is overdeliberate and uncertain, lacking Ormandy's complete surety and control. Nor does Angel's vividly acute, somewhat metallic reproduction help—indeed, it calls attention to the London Philharmonic's lax execution. The same orchestra fares somewhat better under Giulini (Angel S 37270), and that performance, genial and flexible, is another top recommendation. Davis and Szell are a bit perfunctory despite superb playing.

Andrew Davis offers a keenly etched and straightforward Eighth. The Philharmonia Orchestra responds with disciplined, incisive energy, and the airy, spacious recorded sound is especially kind to the score's felicitous instrumental detail. The punctilious dialogue between soft trumpets and timpani, for example, registers with fastidious clarity. While there is no untidiness or cheap emotion, neither is there much subtlety. Dvořák's exuberance sounds rather shallow and blatant when not cushioned by warm string tone. This interpretation, like that of the tautly paced *Carnival Overture*, seems a little too restless and extroverted in spite of the conductor's basic grasp of the idiom.

Karajan's Vienna Philharmonic Eighth will undoubtedly soon be returning to the catalog in London's Treasury series. Rehearing that earlier account alongside his

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new Angel recording makes me realize how much more absolute and subtle his command has become in the intervening years. Although the Vienna version was admirably played, it sounds plebeian and lumbering beside the Olympian purity of line and tautness of phrasing Karajan achieves today. In almost every instance, tempos are slightly faster and more propulsive now (a notable exception being the coda of the third movement, where the greater refinement of the Berlin winds adds point and acuity to a more deliberate interpretation). True, much of Dvořák's sentiment and earthy vitality is sacrificed in the quest for patrician purity, and concertante detail in the newer performance is pallidly, though beautifully, rendered.







Then there's the gimmicky sound: As the dynamics expand, one has the unsettling sensation that the hall is getting larger as well and that the brass and timpani, with their cutting edge and pointed clarity, are removed from the rest of the (somewhat overresonant) ensemble. All of this is especially objectionable in the bonus *Slavonic Dance*, which bristles with distracting inner-voice detail and often suggests an impeccably tailored suit turned inside-out. Despite my great admiration for Karajan's performance, the sonic oddities leave my preference for the Giulini/Chicago Eighth unchallenged (DG 2531 046, March).

I'm all for giving aspiring musicians their day in court, but RCA's new Eighth—an indifferently reproduced air check from Australia—amounts to a kangaroo court. Serebrier has shown in other performances that he possesses talent and temperament, but here he mauls the music with all sorts of overphrasings and unsettling tempo extremes. The Sydney Symphony sounds scrappy and raw of tone, with some notably subpar first-stand playing. (The flutist is agonizingly out of tune in the fourth-movement solo.) This recording is simply uncompetitive, and one wonders what prompted RCA to issue it.

Both of the *New World* releases have attractive features. Kondrashin's, despite a minor ritard in the first movement's flute theme and such occasional eccentricities as the willful hauling about of the scherzo's subordinate section, is basically a no-nonsense account, reminiscent of Toscanini's in its firm tempos and crisp ostinatos, its curt attacks and releases. Kempe's version, on the other hand, has an unassuming poetic ardor, with some affectionate rubatos and easygoing, yet always disciplined, playing. For all his Teutonic extravagances, he was a most elegant and civilized maestro, and this Ninth is sophisticated and artistic. The *Scherzo capriccioso*, with Kempe's own Royal Philharmonic, is even better—in fact, altogether superb. Kondrashin takes

Continued on page 68

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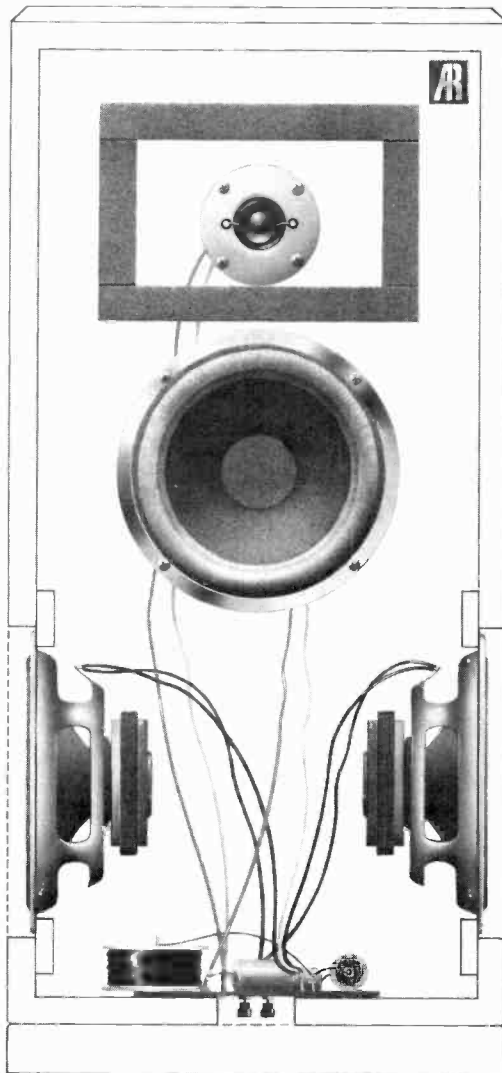
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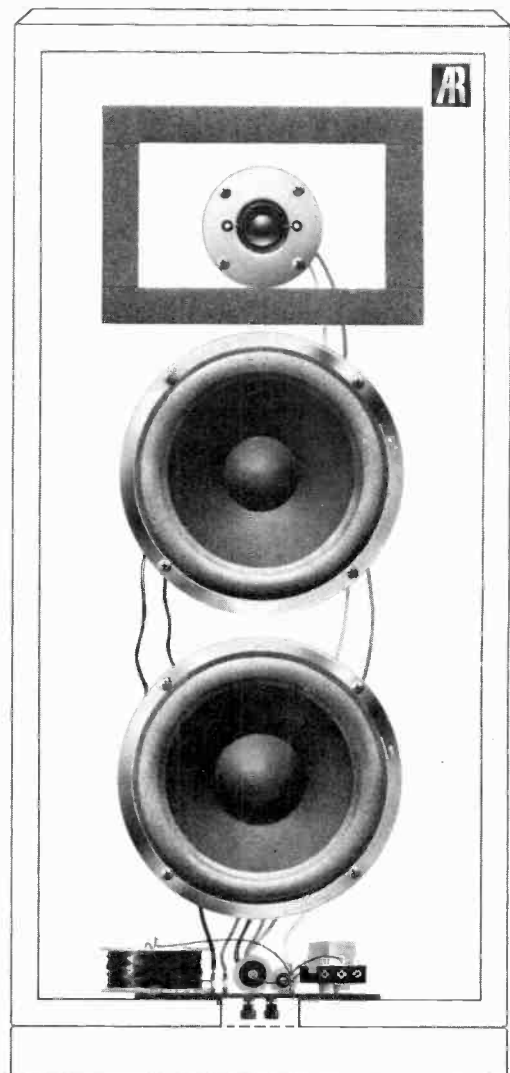
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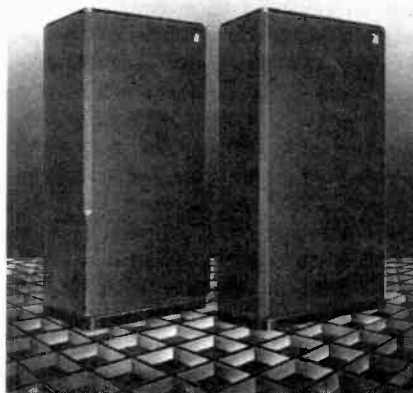
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From the Saloon to the Salon: Rifkin's Genteel Joplin

by Daniel Paget

By Permission from "The Collected Works of Scott Joplin"



Early sheet-music cover shows blacks in the swing, whites titillated.

Hallelujah! The revival rolls on. Roughly a century after the birth of ragtime in humble circumstances, more than a decade since its second coming, and several years since Joshua Rifkin's epochal series for Nonesuch, Angel blesses us with his latest Joplin disc, digitally recorded. Rifkin is hailed as a leading evangelist of the True Art of playing ragtime. Faithful fans of his reverent treatment of the resurrected Joplin may doubly rejoice: first, because he has added two good works to his ledger, *The Easy Winners* and *Heliotrope Bouquet*, and second, because the glorious sound of the record outshines its predecessors.

Hallelujah, for Scott Joplin was the King of Ragtime, as we all know since the media spread the word. From Sedalia to Sumatra, his star shines brighter than before, while artists such as Rifkin and Gunther Schuller bring us Joplin more echt than ever. But is his real message heard?

Opportunities seemingly abound. The past dozen years have seen reissues of

many early discs and piano rolls, as well as recordings by various contemporary performers. Countless ragtime concerts have been given, books and articles on the subject published. Joplin's complete oeuvre is now available, and many rags by other composers are reprinted; movies, TV programs, even the attentions of eminent music critics have focused on ragtime. But as the furor of rediscovery abates, certain points of interest emerge more clearly.

For one, it is a striking irony that, while ragtime before the turn of the century was created mainly by blacks and often decried by whites, its revival in the 1960s was largely spread by whites and ignored by blacks. The revival began primarily among college audiences and provided the besieged ivory tower with a convenient, even jolly response to the new call for social relevance. Ragtime, a once-spurned child of America's "peculiar institution," was embraced and a genuine black composer with popular roots but classical aspirations was acclaimed, at a time when newborn black and American studies programs were still wobbly-legged. Joplin was revealed to be a marketable "serious" Black Composer

cum forefather figure—in fact, the only one. Furthermore, to those seekers of the peaceful simplicity of alternate life styles, music of pre-World War I America had great appeal. Its original unsettling associations long forgotten, the lyrical side of ragtime in particular seemed attractive.

Then too, some classical musicians saw in it a delightful repertory and a bridge to new audiences, both apparently attainable without dropping a beat. In concerts, print, and films, Joplin was cast as a black Chopin in a familiar scenario: Genius discounted in his own time makes good in ours (dies poor and premature, natch). If you could play a mazurka, it was figured, you could surely play a rag. Likewise, though in lesser measure, some jazz musicians new to the academy found in ragtime a certain scholarly cachet.

All this has little to do with Joplin's compositions taken alone, of course, or with Rifkin's own credentials. (His interest in ragtime long predates the revival.) But it has much to do with the way the rags are played and heard. Ragtime was a particularly successful product of the cohabitation of Afro-American and European heritages; the question of which parent the child resembles most closely is naturally highly charged.

Does the answer affect performance style? Certainly. On one side, the music seems fully composed and notated, employing the harmonic and formal traditions of Europe. Joplin, its principal practitioner, composed two operas and is said to have envisioned a ragtime symphony. This suggests that a performer's approach to Chopin or Brahms ought to do for Joplin as well. On the other side, it was music of a demonstrative rhythmic character long associated with blacks. Furthermore, it was music that flourished in the sporting house, an environment in which Joplin spent much of his life. The lewd associations of ragtime were clear in the public mind and probably sparked its original interest. A rather different performance style is thus suggested.

It has been the misfortune of American popular music to be evaluated according to the musicological biases developed in the study of European practices. As a result, performers with a historical bent often emphasize harmony over rhythm, form over sound-color. Rifkin's playing is a good example of the classical approach, carefully weaving its long, contrapuntal lines (when possible), marking its subtle dynamic contrasts, dutifully articulating all the notes and projecting the overall structure—usually at the expense of the dance rhythm and the propulsive beat.

It was precisely in the area of rhythm, however, that Afro-Americans

Conductor, composer, and ragtime specialist, Daniel Paget teaches at John Jay College and the Manhattan School of Music.

made their outstanding contribution to the development of an American style during the nineteenth century. It was their rhythmic style that fascinated, scandalized, and ultimately overcame the dominant white culture. In fact, the American Federation of Musicians temporarily banned its members from playing ragtime in 1901. (That Brahms also used syncopation was not viewed as a mitigating factor.) Rhythm was the subject of Joplin's only treatise on ragtime, syncopation his motto and the essence of what he called "that weird and intoxicating effect intended by the composer." It is the infectious vitality of pulsating rhythm that period recordings, song lyrics, and descriptions trumpet to anyone with an ear to hear. It is rhythm that makes ragtime as different from a military march as gospel singing from Protestant chorales.

This is not to deny the cantabile element in Joplin, or to downplay his interest in matters classical. But this was zippy, toe-tapping music most of the time—a quality rarely projected by Rifkin. (Even Tin Pan Alley must be part of the mix—witness the surprising yiddishkeit of the second strain of *Magnetic Rag*.)

We come back to the fact that ragtime was music that thrived in the bawdy house, with Joplin one of its best "perfessers." While it is certainly possible for upright citizens to compose good rags, one naturally expects the music to reflect the purpose to which it was so congenial; that is, to create a stimulating ambience for the sporting life. Melancholy and the gentler moods may occasionally be included, but the dominant quality must be physical excitement, if not downright raunchiness. Such veins are there to be tapped in Joplin, but only the more refined qualities appear on this disc. There is precious little *raunch* in Rifkin's rags. He offers the salon, not the saloon.

The jacket notes (unattributed) make the heady claim of authenticity for these performances—not easily substantiated. Consider, for example, the matter of tempo. Joplin often warned against playing his rags too fast, fearing that the syncopations would lose their effect. Most often, he called for "slow march tempo," with an occasional tempo di marcia. Several times he defined the slower tempo with metronome markings ranging from 72 to 100 beats per minute; these make sense, as standard marches of the period were played in excess of 120. Thus, Rifkin's choices for *The Entertainer* and *Heliotrope Bouquet* are hardly authentic, no matter how beguiling they may be. Particularly the latter, played at a lugubrious 42 beats per minute, bears no discernible relationship to any march but

the most funereal.

Too often Rifkin ignores the dance character of the rags, even in quicker tempos. And when the dance is the notoriously lascivious tango (*Solace*), the absence of any suggestion of its earthy, slinky sexiness drains the music of its lifeblood. Alas, ragtime, that paragon of disreputability, has been removed from the whorehouse to the hothouse. Such a fate is not new in the history of dance music; the sarabande, galliard, and waltz all trod an earlier path from indecency to respectability.

These matters of rhythmic interpretation may be summed up by that elusive term of a later generation, "Swing." Each period in the course of Afro-American-influenced music (including most pop, rock, and jazz) has developed a particular style of playing rhythm that escapes literal notation yet is one of the most decisive of stylistic elements. Although the original ragtime period fell tantalizingly short of the age of widespread disc recording of piano music, there is still enough recorded evidence to suggest that, even in this early genre, it don't mean a thing if it ain't got its own brand of you know what. Authenticity in ragtime is more likely to emerge from careful attention to the "feel" rather than the look of the music.

Listeners familiar with Rifkin's work will find no major surprises here. Within his stylistic constraints, the playing is typically skillful, and his treatment of *Easy Winners* attractively jaunty. As for the digital recording, the sound is clean, warm, and natural, with excellent presence. The high quality of this disc alone merits attention, especially if your old Nonesuch grooves are showing wear.

Rifkin deserves much credit for his role in the ragtime revival. At the same time, those oft-maligned jazzmen and honky-tonkers who revved up the rags deserve a word of thanks as well, for they kept the stuff alive. Recent years have seen important efforts to restore Joplin's music to its former beauty. We must, however, beware of sanctifying it in the process. It's time to let the devil back into ragtime.

JOPLIN: Piano Works.

A Joshua Rifkin, piano. [George Sponhaltz, prod.] ANGEL DS 37331, \$10.98 (digital recording). Tape: 4ZS 37331, \$8.98 (cassette).

Maple Leaf Rag; The Entertainer; The Easy Winners; Gladiolus Rag; Pine-Apple Rag; Heliotrope Bouquet (by Joplin and Louis Chauvin); Paragon Rag; Solace; Magnetic Rag.

COMPARISON:

Rifkin None. H 71305, 73026

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Continued from page 64

the repeat in the symphony; Kempe does not.

London's sleek, warm digital sound, aside from deep-toned timpani and complete lack of distortion, is solid rather than spectacular. In the first two movements of the symphony, Arabesque's EMI-derived sound from the late '50s almost suggests electronic stereo (there is greater separation from the scherzo onward); the *Scherzo capriccioso*, dating back to the '60s, is crisper-sounding and has a range and solidity in this new mastering that I do not recall in the

older Seraphim transfer. But for all its reticence of detail, even the symphony sounds warm and pleasant. H.G.

GRIEG: Works for String Orchestra.

Norwegian Chamber Orchestra, Terje Tønnesen, dir. [Robert von Bahr, prod.] Bis LP 147, \$9.98 (distributed by Qualiton Records, 39-28 Crescent St., Long Island City, N.Y. 11101).

Two Elegiac Melodies, Op. 34; Holberg Suite, Op. 40; Two Melodies, Op. 53;

Two Norwegian Melodies, Op. 63; At the Cradle, Op. 68, No. 5.

No written review could possibly convey the attractiveness of this release as well as its engaging jacket photograph of fourteen of the nineteen youngsters who make up the Norwegian Chamber Orchestra. Their youth and smiling charm prepare one for the freshness and zest with which they capture both the folkish vitality and the melodic poignance quintessential to their compatriot's art. I have long argued that in strongly nationalistic music like this, complete conviction derives only from native interpreters—and here is new proof of that claim.

All the music is more or less familiar from concert and recorded performances, generally by much larger string sections of full symphonic orchestras led by non-Norwegian conductors. But I have never heard any of these lyric (and dance) miniatures sound so idiomatically "right," unpretentious, piquant, or movingly heartfelt as they do here. In producer/engineer Von Bahr's strong, quite close recording and a rather dry acoustical ambience, this relatively small ensemble commands a lucidity and vibrant sonority that befit the music far better than the lush tonal breadth of larger, more polished, but less enthusiastically involved performing groups.

For anyone of Norwegian birth or background—indeed for anyone who wants to hear Grieg speaking in authentic native accents—this "sleeper" release may well be one of the most disarmingly rewarding of the year. R.D.D.

HODKINSON: The Edge of the Olde One—See Persichetti: Concerto for English Horn and String Orchestra.

JANÁČEK: The Diary of One Who Vanished.

Libuše Márová, alto; Vilém Přibyl, tenor; Kühn Female Choir; Josef Páleníček, piano. [Jaroslav Rybář, prod.] SUPRAPHON 1112 2414, \$8.98.

One of the twentieth century's great song cycles, Janáček's masterpiece actually breaks the traditional boundaries of the form: When the gypsy girl begins to seduce the peasant-boy narrator, she materializes vocally and dialogue ensues, as an off-stage female trio takes over the storytelling for a while. Using relatively simple motivic materials, spare textures, and fluent harmonies, Janáček generates an astoundingly erotic ambience, and the consummation of this earthy passion is carried out to a terse and expressive piano interlude.

The *Diary* is unconventional in another respect: Unlike the classic German cycles, it calls for a voice of operatic caliber,

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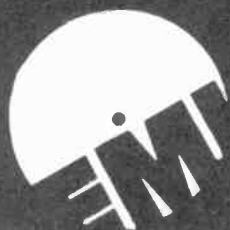
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a tenor who on the final page can rise to full-voiced high Cs and who throughout can handle forceful declamation above the staff. To my knowledge, downward transposition has never been tried in the *Diary*; almost certainly, it would make the already craggy piano part still more awkward, and it would significantly alter the tonal colors. I don't know much about the earlier singers of these songs, but after World War II, Beno Blachut, a singer of Patzak-like intensity and musicality, was the preferred interpreter, and during the 1950s he made a

recording—unforgettable and, alas, long unavailable. The Swiss tenor Ernst Häfliger, singing in Max Brod's German translation, was the *Diary's* most eloquent prophet in Western Europe, but his two recordings have also been discontinued; the second, in stereo, with Rafael Kubelik at the piano, was particularly impressive. A more recent version by Robert Tear, in an unconvincing English translation, seems also to have left the catalog, unlamented.

At last, we have available again in America a recording of the *Diary* in the

original Czech—and, praise be, a worthy one. Vilém Přibyl, the Laca of Angel's complete *Jenůfa*, meets the vocal requirements almost completely (the qualification refers to a slight excess of strain on the final page), and he makes the angular lines seem as natural and graceful as speech. The assisting singers are fine, and the pianist is the same Josef Páleníček who accompanied Blachut (and also Josef Váka, in a still earlier 78-rpm version of the cycle that I have never heard). The scale of the performance is not as grand as Blachut's, and Přibyl commands less range of color and dynamic contrast—a difference that Páleníček's playing reflects (although some passages, such as the less clear coda to the penultimate song, may reflect the passing of years as well). No matter; this is a strongly musical and deeply felt performance, a fine way to make the acquaintance of a work of unique truth and power.

A booklet contains full texts and a reasonable English translation. But don't believe everything the annotator says about the absence of leading motives, which any listener will spot all over the place! D.H.

JOPLIN: Piano Works. For a review, see page 66.

OFFENBACH: Suites for Two Cellos (2), Op. 54.

Etienne Peclard and Roland Pidoux, cellos. HARMONIA MUNDI FRANCE HM 1043, \$9.98. Tape: HM 40.1043, \$9.98 (cassette). (Distributed by Brilly Imports, 155 N. San Vicente Blvd., Beverly Hills, Calif. 90211.)

The nineteenth century was rich in "entertainment" or "light" music that did justice to those terms without compromising artistic quality. Needing no arrangers or orchestrators, well-trained composers did the work from beginning to end. The three main exponents, Johann Strauss, Arthur Sullivan, and Jacques Offenbach, are as various as they are attractive in their very personal talents, temperaments, and styles, and each offers a remarkably faithful picture of the qualities and spirit of the culture from which he grew. Strauss (like his son) exudes Austrian *Gemütlichkeit*, Sullivan well represents the comfortable English Victorians, and Offenbach lampoons murderously and piquantly the frivolous world of the Second Empire and its aftermath. All three had a marvelous sense of the theater—Strauss and Offenbach rising to the creation of genuine opera—but they engaged in other branches of music as well.

Offenbach began his career as a cello virtuoso; only after many successful tours did he settle down in Paris to produce operettas that captivated the Parisians—and cap-

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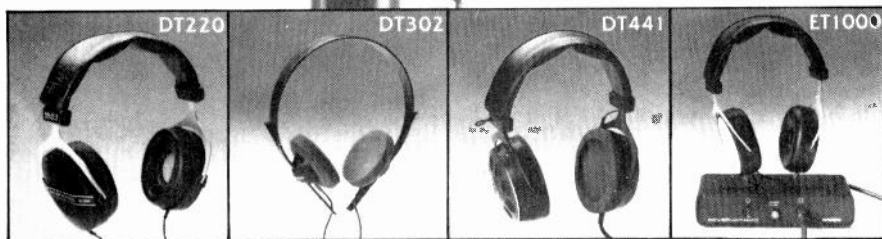
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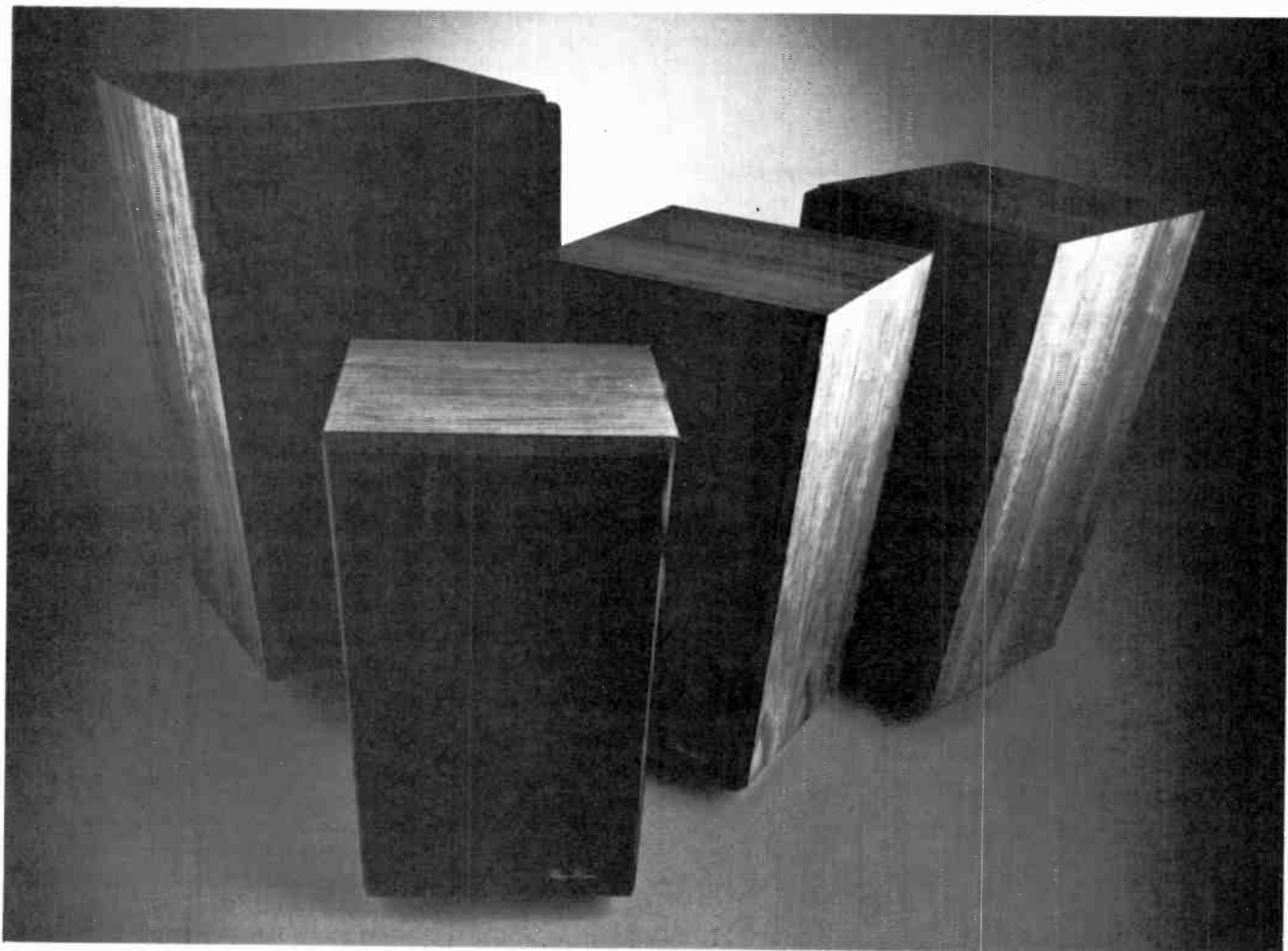


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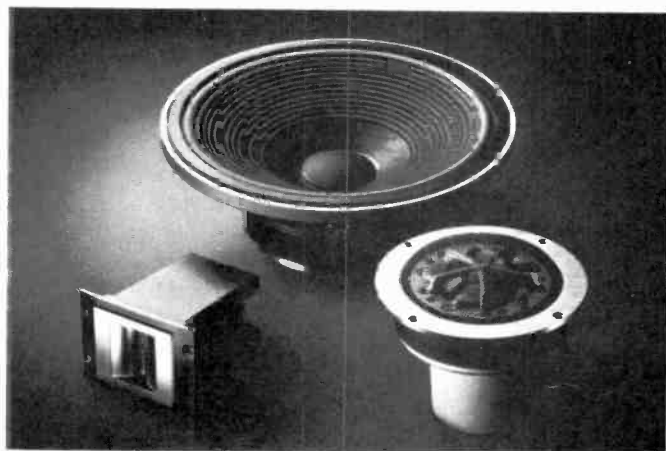
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tivate us. These cello duets come from his concertizing period and thus are relatively early works. They are neither major chamber music nor mere trifles; the tunes are pleasant, and the writing for the two cellos is fabulous, and the combination of sonorities and colors is delectable. (Those chords and passages in the lower register are simply gorgeous.) Here we hear a full string quartet, there a bit of violin concerto as the first cello soars to the heights. The harmonic and sonic fullness sustained by a mere pair of stringed instruments is amazing. In some

ways these pieces remind one of Weber; here too, a man of the theater composes nonvocal music, and while the texture is instrumental and virtuosic, the tunes are eminently singable and melting.

Both cellists are top-drawer, and the sound is remarkably clean and clear. P.H.L.

PERSICHETTI: Concerto for English Horn and String Orchestra, Op. 137.*
HODKINSON: The Edge of the Olde One.*

Thomas Stacy, English horn; New York String Orchestra, Vincent Persichetti, cond.*; Eastman Musica Nova, Paul Phillips, cond.* [Richard Gilbert, prod.] **GRANDILLA GS 1048, \$7.95.**

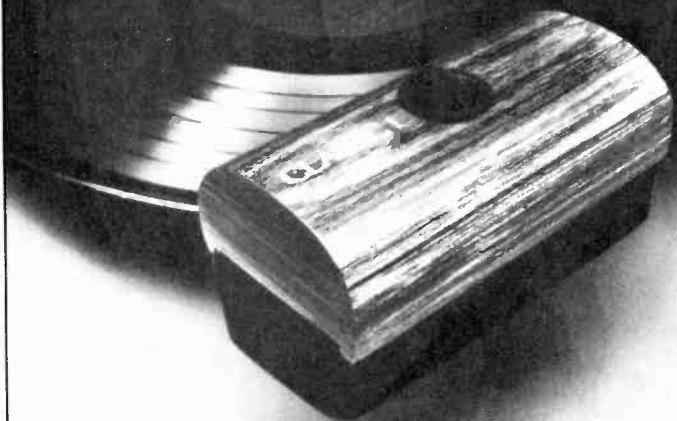
This recording proves that Thomas Stacy is a superb English-horn player. Beyond that, it shows that, while we may be able to use *Gebrauchsmusik*, we surely don't need it.

Vincent Persichetti's Concerto for English Horn and String Orchestra (Op. 137!) sounds as if it were written dutifully for the occasion, to show off one of the New York Philharmonic's principal members in a solo role—in this case, Stacy. The traditionally structured three movements are of the Friday matinee, music-to-let-your-mind-wander-by variety, full of tunes and mildly dissonant harmonies and virtually devoid of imagination. The piece won first prize in the Kennedy Center/Friedheim Award competition in 1978, which makes one wonder how tired and sated the judges were when they made their choice.

In contrast, Sydney Hodkinson's *The Edge of the Olde One* is marvelously inventive. Written in 1977 on a commission from the New York Philharmonic Society and given its first performance by—who else?—Stacy, with Pierre Boulez conducting, the one-movement work is a chamber concerto for electric English horn, with strings and percussion. In his notes to the recording, the composer almost apologizes for having written something approaching a "sinfonia concertante," thick and often turbid, rather than a true chamber concerto." He needn't have worried, for the work is emotionally and aurally involving, full of wonderfully mysterious sounds, and—in this recording, at least—ingeniously balanced between the often eerie sonorities of the amplified English horn and the ensemble.

Hodkinson took his title from a segment of a prose poem by John Clare (1793-1864), which describes an eighty-day walk with no food, no money, and obviously, failing strength. The British poet's end was unfortunate, but his words moved the composer to invent sounds that are by no means all desolate or despairing. The textures are wonderfully rich, and the soloist accomplishes feats one wouldn't have imagined possible. Some of this reflects Stacy's mastery; most of it is attributable to the amplification and electrification of the solo instrument (for echo, octaves, reverberation, modulation, etc.), controlled via foot pedals. To my mind, this makes the music all the more personal and accessible, if not necessarily destined to become a staple of the repertory. Paul Phillips and the Eastman Musica Nova perform with

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PETTERSSON: Symphony No. 8.

Baltimore Symphony Orchestra, Sergiu Comissiona, cond. [Håkan Elmquist, prod.] DEUTSCHE GRAMMOPHON 2531 176, \$9.98.

The earliest compositions by Gustaf Allan Pettersson date from around 1950 when the Swedish composer, something of a late bloomer, was approaching his fortieth birthday. Since then, he has been remarkably productive, especially in view of the serious illness that has plagued him most of his life. Early in the 1960s, he developed severe rheumatoid arthritis, and the disease has virtually imprisoned him in his home for more than a decade. This has not prevented his writing a dozen symphonies, three concertos for string orchestra, seven sonatas for two violins, and many other large-scale works.

Perhaps the most immediately approachable of his symphonies is the Seventh (1967), once available in a fine London recording by Antal Dorati (to whom it was dedicated) and the Stockholm Philharmonic. The CBS recording of the less successful Sixth, by the Norrköping Symphony Orchestra under Okko Kamu, was never released in this country.

The Eighth, far more diffuse than its immediate predecessor, demands considerable concentration but is well worth hearing. Completed in 1969 and introduced by Dorati and the Stockholm Philharmonic on February 23, 1972, this gigantic fresco in two somber movements is characteristically Petterssonian in its dark-hued, oppressive tone, doubtless reflecting the pain and solitude of his personal life. Typically, his approach is intense and hyper-Romantic; at times, this seems music that might have been written by a Scandinavian Mahler.

The architecture of Pettersson's symphonies is unusual. He seems to view each work as a unique organism with a life all its own. The Eighth, essentially tonal, uses a harmonic palette that is not excessively dissonant, but very startling effects arise from minuscule changes in dynamics, rhythm, and tempo. It begins with a "seed-motif" that grows and blossoms much the way a plant does. Development, in the orthodox musical sense, is seldom utilized; the work grows by accretion with reiterated blocks of sound slowly altered.

Sergiu Comissiona led the Baltimore Symphony Orchestra in the American premiere of the symphony on October 26, 1977. The orchestra sounds here very much like a first-class ensemble, with help from Deutsche Grammophon's usual excellent engineering. I.L.

Pettersson died on June 21, shortly after this review was written.—Ed.

PUCCINI: La Bohème; Tosca. For a review, see page 57.

SCHUBERT: Konzertstück in D, D. 345—See Schumann: Concerto for Violin and Orchestra, in D minor.

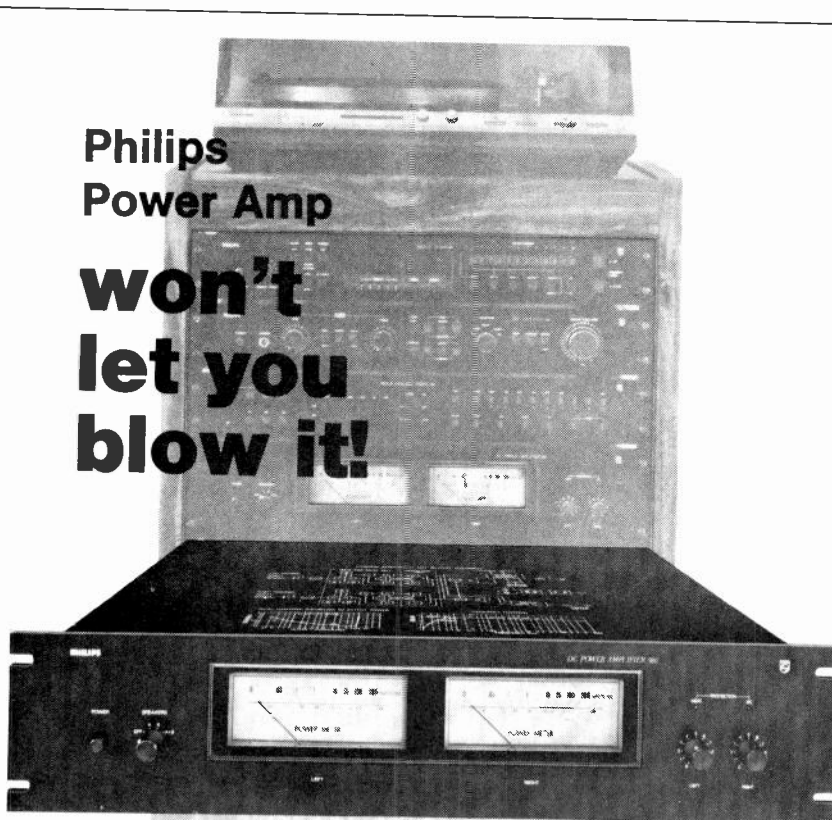
SCHUBERT: Piano Works.
Edmund Battersby, piano. [Friedrick J. Bashour, prod.] MUSICAL HERITAGE

SOCIETY MHS 4024, \$6.95 (\$4.45 to members) (add \$1.25 for shipping; Musical Heritage Society, 14 Park Rd., Tinton Falls, N.J. 07724).

Klavierstücke: D. 459 (5); in A, D. 604; D. 946 (3). Variation on a Waltz by Diabelli, D. 718. Allegretto in C minor, D. 915.

SCHUBERT: Sonata for Piano, in C, D. 840 (Reliquie); Klavierstücke (3), D. 946.

Gilbert Kalish, piano. [Marc J. Aubert and Joanna Nickrenz, prod.] NONESUCH H 71386, \$5.98.



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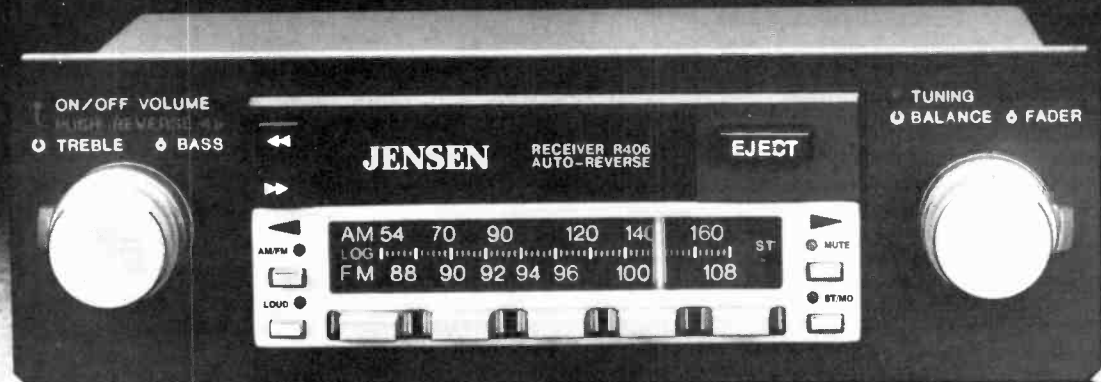
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SCHUBERT: Impromptus, D. 899 and 935; Moments musicaux, D. 780; Klavierstücke (3), D. 946.

Rudolf Buchbinder, piano. TELEFUNKEN 26.48132, \$21.96 (two discs). Tape: 24.48132, \$21.96 (two cassettes).

SCHUBERT: Sonatas for Piano: in F sharp minor, D. 571; in F minor, D. 625.

Tirimo, piano. [Martin Compton, prod.] SAGA 5469, \$8.98 (distributed by Centaur Records, Inc., P.O. Box 23764, Baton Rouge, La. 70893).

SCHUBERT: Piano Works.

Rosario Marciano, piano. MUSICAL HERITAGE SOCIETY MHS 4065, \$6.95 (\$4.45 to members).

Sonata in E minor, D. 566; Menuetto in F, D. 995, No. 2; Kupelweiser Waltzes, D. 893a; Ländler (6), D. 820; Fantasy in C minor, D. 993; Variation on a Waltz by Diabelli, D. 718; German Dances: D. 769 (2); D. 973 (3).

A fascinating stockpile, this, giving the reviewer a forum to discuss textual matters, the advisability of restoration, and the issue of modern vs. period instruments.

Actually, the textual problem encountered in the D. 946 *Klavierstücke* extends into the realm of morality. In the first of these pieces, Kalish and Buchbinder jump on the bandwagon and give the longer version with the second trio section. But Schubert clearly crossed out that trio in his autograph, and the Breitkopf and Härtel text, reprinted by Dover, complies with his directive (as does Battersby). I suspect that, with all the music one hears these days, performers, musicologists, and critics are all looking for gimmicks to dispel the prevailing uniformity. It's a sad day when performers deny composers the option of revising their works—when this second trio, which obviously weakens the succinct emotional force, appears almost routinely, and when performances of Beethoven's Op. 130 String Quartet close, almost exclusively, with the *Grosse Fuge*, Op. 133.

Battersby thus begins with a considerable advantage, and he plays these elusive late pieces with character and insight. The plangent tone of his Bösendorfer, with good clarity in the bass, is more appropriate than Buchbinder's spiky angularity (a German Steinway?). Kalish, playing a Baldwin SD 10, obtains a translucent, pearly, crystalline tone, but the very smoothness and homogeneity of that instrument tends to dilute some of the jabbing, intense harmonies. Questions of tone and text aside, all three versions are admirably rendered. Kalish tends toward a faster tempo in the C minor section of No. 2, probably to emphasize Schubert's *L'istesso* tempo marking for the A flat minor second trio of that piece;

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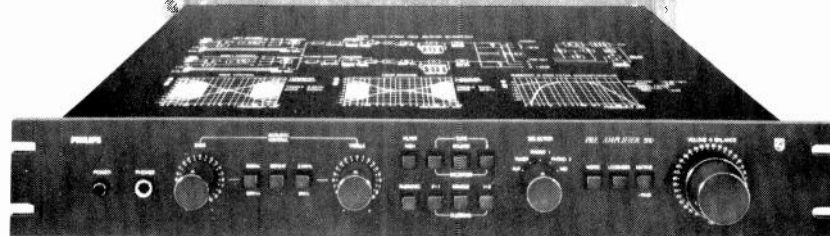
the others hold back, and I prefer their greater angularity. (Battersby, in fairness, does have a bit of difficulty articulating the double thirds.) I like the barcarolle quality Battersby brings to the opening of this piece; Buchbinder's more rigorously Teutonic approach seems rushed, and Kalish's lovely lyricism is just a shade under-characterized. In the third piece, with its fearsome syncopations, Kalish gives the fleetest account; the other two make it sound more reckless—a kind of distant cousin of Beethoven's *Rage over a Lost Penny*

And here it is Buchbinder who has slight problems wrapping his fingers around those treacherous left-hand figurations.

Battersby's C minor Allegretto unfolds more briskly than usual, its sentiment intact but with nary an ounce of treacle; this almost Beethovenian account is most refreshing. The lone *Diabelli* Variation is midway between Frankl's delicately introspective reading (Vox SVBX 5487) and Bordoni's jauntier approach (Seraphim SIC 6112), with just enough suggestion of a bared fist to make me want to hear Bat-

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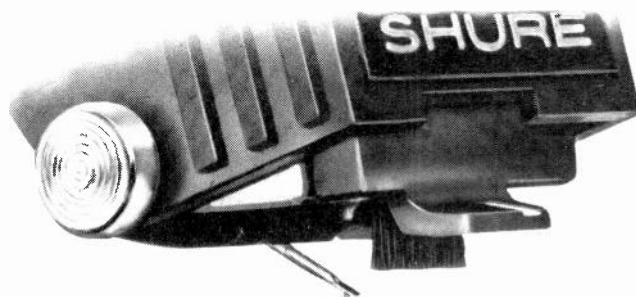
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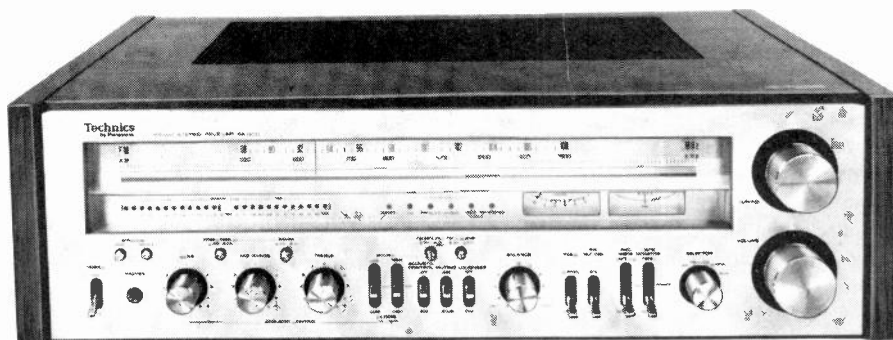
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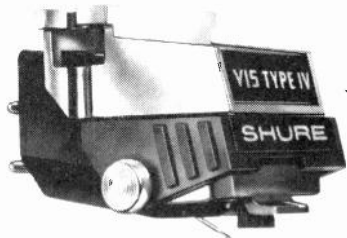
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tersby in Beethoven's variations on the same waltz. The early morceaux are appropriately more playful without becoming rhythmically unraveled. All considered, this is an unusually promising debut.

Kalish gives the C major Sonata, D. 840, in torso form, a solution also favored by Brendel (Philips 6500 416), Kempff, and Rudolf Serkin. His performance of the two movements is as winning as theirs, having a strong yet flexible basic pulse, a welcome inwardness of sentiment, a wealth of inflected detail, and a yearning, singing tone. Kalish is a bit more contained, less Mahlerian, than Brendel in the Andante, but none of the piercing emotion is lost.

Buchbinder's anthology is uneven. His D. 935 Impromptus are basically very fine. No. 1, in F minor, has broad expansiveness; the A flat moves at a true Allegretto pace without losing any of its breadth or nobility (an unsentimental, almost Schnabelian account). If there is some fussing in the B flat theme and variations, the rollicking No. 4, in F minor, comes off with superb brio (more similar to one of Serkin's characteristic concert performances than to the slightly tame one Serkin actually *did* record, CBS M 35178, July).

The D. 899 set, on the other hand, falls far below Buchbinder's admirable standards in D. 935 and D. 946. He hammers away at No. 1 in a picky, aggressive fashion, and his scale passages in No. 2 suggest crocodiles' teeth. No. 3 drags along at a languorous *Liebstraum* tempo in flat contradiction to Schubert's unusual double alla breve meter, and I am shocked to find Buchbinder (who seems a scholarly sort) indulging in that tastelessly ersatz harmony in measure 6. No. 4, never a favorite of mine, sounds more like mindless noodling than ever, rounding out a facile, un insightful rendering of the set.

Buchbinder's *Moments musicaux* are somewhat more agreeable, but he fusses with the simple outlines a little too much. He also takes all the uninteresting textual options in Nos. 4 (F natural rather than F flat in the trio), 5 (the systematic repeat of the coda—surely, as suggested by Demus and Serkin, Schubert put a double bar and repeat sign *before* the entry into F major), and 6 (the more conventional and far less characterful harmony in bar 32). None of these choices is wrong (like that faux pas in the G flat Impromptu), but collectively they suggest a complacent attitude toward the music in general and questions of interpretation in particular. Telefunken's reproduction varies, with the piano tone notably rounder and more cushioned in D. 935 and D. 780 and even unpleasant in D. 899. When *will* Seraphim (or Arabesque) reissue

Schnabel's wonderful D. 899 and D. 935?

Tirimo is preparing a new edition of Schubert's piano sonatas, scheduled for publication in 1981—an urtext, with the unfinished movements completed by the editor. Saga's recording, containing no fewer than three such movements, offers an interesting preview.

The editor/pianist's excellent annotations are illuminating on the subject of why Schubert left so many of his sonatas in skeleton form. He did discard a few works, such as a sketch for the song "*Nähe des Ge-*

lieben," because he was dissatisfied. (He wrote the words "*gilt nicht*"—no good—over that manuscript.) But his early sonata-form movements he tended to write out only up to the point of recapitulation. In a few fortunate instances, such as the B major Sonata, D. 575, he finished the structure at a later date; to others, however, he simply never returned. Tirimo, therefore, makes a strong case for his restorations, and he has scrupulously studied the composer's completed works in choosing his options (all of which sound convincing, even to the point



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*Stereo Review, April, 1980

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of reproducing some of Schubert's bold modulations).

But Tirimo gives us far more than careful scholarship: His performances are alive with color, texture, and poetry. I wonder whether he would play some of the later sonatas so rhapsodically or go for a simpler kind of forward drive in such movements as the first of the D major Sonata, D. 850. For these youthful works, his playing is all one could ask, and Saga's acute, resonant recording and flawless pressing are balm to the ear.

Rosario Marciano's anthology will gladden the hearts of those diehard musicologists who have been whining for performances of Schubert and Beethoven on "authentic instruments." But since she uses *two* such instruments, with astonishingly disparate results, the disc will likewise provide grist for more skeptical listeners like this reviewer. The Sonata in E minor, D. 566, is played on an 1828 Bösendorfer and sounds just fine—round and full, with a touch of plangency in the upper register. What a difference from the 1825 Tafel-

klavier, which twangs and thumps like one of those washboards used in hillbilly music! The obvious lesson is that there was as much variation among period instruments as one finds today among Baldwins, Steinways, and Bösendorfers, or between two pianos from the same manufacturer—nay, more. Marciano's playing is steady and dependable, and the recording is most acceptable. But the *Diabelli* Variation sounds insubstantial pared of sectional repeats. H.G.

SCHUMANN: Concerto for Violin and Orchestra, in D minor. **SCHUBERT:** Konzertstück in D, D. 345.

Václav Snítíl, violin; Prague Symphony Orchestra, Libor Hlaváček, cond. [Jan Vrána, prod.] SUPRAPHON 1110 2288, \$8.98.

Surprisingly, Supraphon's annotations assert that Schumann's violin concerto "has been featured quite often, but always in adapted versions, since the original was impossible to perform." Kulenkampff, it is true, used a heavily edited text in his 1937 recording (Telefunken 26.48013), and Menuhin's of a year later (recently reissued by Neiman-Marcus in a limited edition) has some wrong notes in the second movement (excessive fervor? simple misreadings?). But to the best of my knowledge, the versions of Rybar, Szeryng, Fontanarosa (Peters PLE 003), and Lautenbacher (Turnabout TV 34631) all conform to the score as published by Schott.

Supraphon makes its pitch, of course, to justify Professor Václav Snítíl's rescoring of the solo part, done—as always—"with maximum respect for the original." Snítíl, we are told, "studied the work, and the possibility of performing it, for more than one year[!]" and has not infringed "on the Schumann-Brahms typical perfect blend of the solo part with the orchestra (or what the contemporaries used to describe as concertos 'against violin')." Performers and editors reared in the less puritanical nineteenth century were more adept at this sort of thing. Kulenkampff's departures from the text, for all their high-handedness, often sounded curiously effective and convincing; so, too, did the numerous arrangements by Kreisler, Ernst, et al. But present-day musicians have largely lost the knack, and as one listens to Snítíl's self-consciously altered figurations and precarious higher-octave relocations, one senses the vengeful spirit of literalism, dagger in hand, concealed behind that thin curtain. (Or is it merely a Hamlet-like indecisiveness in the performance? Tempos are too laggard to capture the big line, and everything begins to sound heavy and choppy.) The comfortable contralto quality

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is replaced by a soprano brilliance that grates on the nerves. The "Schumann-Brahms typical perfect blend" is lost and, with it, the magic of this music.

The charming little Schubert *Konzerstück* is played admirably but without quite the lightness of Gidon Kremer's recent account (DG 2531 193). H.G.

SHOSTAKOVICH: Symphony No. 4, in C minor, Op. 43.

London Philharmonic Orchestra, Bernard Haitink, cond. [Richard Beswick, prod.] LONDON CS 7160, \$9.98.

COMPARISONS:

Ormandy/Philadelphia CBS MS 6459
Previn/Chicago Sym. Ang. S 37284

Absurdly prodigal in ideas, spilling over with a terrifyingly mordant impudence, the Fourth is the most radical and startling of all Shostakovich's purely orchestral symphonies. Why was it suddenly withdrawn on the eve of its premiere in December 1936, not to be performed until a full quarter-century later? In an interview some eighteen months before his death, Shostakovich declared that he had simply been dissatisfied with the piece and wished to rework it. But his posthumously published *Testimony* tells a different story: He "was completely in the thrall of fear" after the infamous January 1936 Stalinist manifesto "Muddle Instead of Music," which vehemently denounced his heretofore wildly successful opera *Lady Macbeth of the Mzensk District*. "The Bolshoi Theater staged my ballet [*Bright Stream*, Op. 39]—and there was another Pravda editorial, 'Balletic Falsity.' And what would have happened if the Fourth had been performed then too? Who knows? Perhaps no one would have said a word, and my song would have been sung for good. . . . I was no longer the master of my life, my past was crossed out, my work, my abilities turned out to be worthless to everyone. The future didn't look any less bleak. At that moment I desperately wanted to disappear—it was the only possible way out." In the final pages of his symphony, Shostakovich reveals, "these thoughts . . . [are] all set out rather precisely."

Haitink underplays the acidic wit of this music in order to more effectively lay bare its tragic desolation. He maps out the work along exceptionally broad lines in a performance that runs a full six minutes longer than any of the recorded competition, superbly clarifying its disturbing spiritual development and complex (haphazard, some might say) structure. Intentionally, I think, he projects a chilling sense of impersonality; the winds, for example, effect a gray, almost monochromatic

tonal quality. Yet for all this emotional aloofness, he never succumbs to the excessive politeness that mars Previn's otherwise impressive performance; in fact, Haitink secures a singularly apposite biting timbre from his musicians. And holding his full resources in reserve until they are really needed, he unleashes climaxes of frightening power. London's heavily miked sound is immediate and extremely clean, if rather lacking in hall perspective; no other recording sets forth nearly so complete a picture of this symphony's astounding de-

tail and dynamic range. In sum, an impressive achievement that offers a new perspective on this remarkable work.

But I wonder how accurately Haitink's grim vision reflects the thirty-year-old composer's intentions. Was Shostakovich at the time really so embittered, so thoroughly pessimistic? After all, substantial portions of the Fourth were written before the 1936 manifestos. Ormandy's shockingly pungent performance conveys a devil-may-care attitude more in keeping with the character of a brash, yet cou-

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rageous young artist. His is probably the best recording for those just getting to know this music, Haitink's for those who already know it well. R.D.H.

SUBOTNICK: A Sky of Cloudless Sulphur (electronic); After the Butterfly*.
A Mario Guarneri, trumpet*; Twentieth-Century Players, Morton Subotnick, cond.* [Morton Subotnick, prod.] NONESUCH N 78001, \$8.98 (*digital recording).

With *A Sky of Cloudless Sulphur* (1978) and *After the Butterfly* (1979), Morton Subotnick extends the series of lepidopterous "sound sculptures" he began five years ago with *Four Butterflies* (CBS M 32741). As he said then and reiterates now, he "uses the butterfly's life as a metaphor for the compositional process"—not so farfetched an idea, really, but by now a tired one. Still, whatever his winged fixations, his results are as varied as the patterns on butterflies' wings.

A Sky of Cloudless Sulphur (just guess what kind of insect a cloudless sulphur is) is purely electronic, one of Subotnick's most captivating, concise, and logically structured works in the medium. The first of its three sections is an exhilarating perpetual motion of percussive sounds that brings to mind both tribal drumming and some of the recent hypnotic-school works that drumming has inspired. Supposed to represent the primitive "dance" of the caterpillar, this section ends abruptly and is followed by a longer movement that begins with soft whirrings, some light percussive sound more evocative of rain than of drumming, and stretches of silence. As the but-

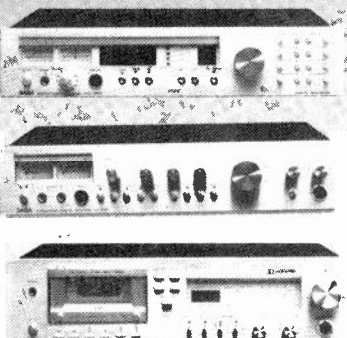
terfly develops in this cocoon section, the whirrings and patterings grow into buglike buzzes (an effect not overused here) and glassy percussion. The calm of the cocoon is shattered as the butterfly emerges in a somewhat more melodic version of the insistent opening section.

In style, technique (described in the composer's lengthy notes), and timbres, this is far more sophisticated than the early works—*Silver Apples of the Moon*, *Laminations*, and *The Wild Bull*—that first brought Subotnick to prominence. Where they relied on an incessant stream of delicate, high-pitched warblings mixed with what now seem rather simplistic frequency modulations and, particularly in *The Wild Bull*, picturesque gimmicks and imitations of "real" sounds, *Sulphur* falls solidly into the middle pitch range; apparent randomness has given way to evident form; and the self-consciously electronic beeps, squeaks, and whines that have lately been co-opted by the sci-fi film business and fed en masse to R2D2s have yielded to a set of more attractively tactile timbres that at times brings to mind an orchestra of tuned glasses.

After the Butterfly, for electronic and amplified conventional instruments, is a different bag of moths. Like *Sulphur*, it is in three sections, this time two comparatively serene outer movements ("Cocoon" and "After the Butterfly") flanking a wild, cacophonous scherzo ("Butterfly"). It is, in a sense, a trumpet concerto, and soloist Mario Guarneri handles the demanding trumpet part unflinchingly. Just how difficult that part—or any of the other instrumental lines—is is difficult to say, since some of the sounds arise from avant-garde

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RECENT RECORD RELEASES

The following listings are excerpts from the "New Listings" section of the October Schwann Record and Tape Guide. Some listings contain a cross-reference (*) to other works on the recording. Letters in brackets refer to language used in vocal music (G, German; E, English, etc.). Cassette editions are indicated by the symbol •. Quadriphonic discs are indicated by a Q following the record number; digital discs are indicated by a D following the record number.

ANTHEIL, GEORGE

Symphony No. 5 (1947)
Duffallo, Louisville Orch. † Maxwell
Davies Lou. 770

ARNOLD, MALCOLM

Symphony for Brass Instruments, Op. 123
Jones Brass Ens. † Premru; Salze-
do Argo ZRG-906; ●906

BACH, CARL PHILIPP EMANUEL

Concerto in A for Cello, W.172
Harrell, Zukerman, English Ch.
Orch. † F. Couperin:Pièces en con.;
Vivaldi:Cello Con. Ang. SZ-37738

BACH, JOHANN SEBASTIAN

Motets (6), S.225/30
Harnoncourt, Concentus Musicus,
Stockholm Bach Cho. [G]
2-Tel. 2635470 (D); ●442663

BARBER, SAMUEL

Serenade for String Quartet, Op. 1
Schwarz, LA Ch. Orch. † Carter:
Elegy; Diamond; Fine
None. 79002 (D)

BARTÓK, BÉLA

Concerto No. 1 for Piano
Pollini (see Coll., Piano)
5-DG 2740229

Concerto No. 2 for Piano

Pollini (see Coll., Piano)
5-DG 2740229

BEETHOVEN, LUDWIG VAN

Concerti (5) for Piano & Orchestra
No. 1 in C, Op. 15
Michelangeli, Giulini, Vienna Sym.
DG 2531302; ●3301302

Symphonies (9)

No. 3 in E \flat , Op. 55, "Eroica"
Mehta, NY Phil.
Col. IM-35883(D); ●HMT-35883

No. 4 in B \flat , Op. 60

W. Richter, London Pro Musica
Sym. CMS/Sum. 1063; ●41063

No. 9 in d, Op. 125, "Choral"

Kanawa, Hamari, Burrows, Holl, Jo-
chum, London Sym. & Cho. [G]
2-Ang. SZ-3880 (Q)

BOLCOM, WILLIAM

Three Ghost Rags, for Piano
Jacobs † Copland:Four; Rzewski
None. 79006 (D)

BOULEZ, PIERRE

Sonata No. 2 for Piano
Pollini (see Coll., Piano)
5-DG 2740229

BRAHMS, JOHANNES

Sonatas (3) for Violin & Piano
No. 3 in d, Op. 108
Y. & H. Menuhin † Franck:Son.
Sera. S-60345

BUSONI, FERRUCCIO

Sonatina No. 6 for Piano (Fantasy on
Bizet's Carmen) (1920)
Trenkner † Szymanowski; Toch;
Weber:Inv. Orion 80382

CARTER, ELLIOTT

Elegy for String Quartet
Schwarz, LA Ch. Orch. † Barber:
Ser.; Diamond; Fine
None. 79002 (D)

CHOPIN, FRÉDÉRIC

Concerto No. 1 in e for Piano, Op. 11
Shapiro, Jones, Berlin Sym. † Piano
CMS/Sum. 1075; ●41075

Concerto No. 2 in f for Piano, Op. 21

Fou Ts'ong, Maag, London Sym. †
Schumann:Con.
West. MCA-1415; ●1415

Piano Music

Ashkenazy: Sonata No. 1 in c, Op.
4; Mazurkas in B \flat , G, a, Op. 68/2;
Nocturne in e, Op. 72/1; Polonaise
in B \flat , Op. 71/2; Funeral March in c,
Op. 72/2; Contredanse; Waltzes in
E \flat , A \flat ; Rondo in C, Op. 73

Lon. 7135

Shapiro: Waltz in c \sharp , Op. 64/2; Fan-
taisie-Impromptu in c \sharp , Op. 66/4;
Nocturne, Op. 27/2 † Con. 1
CMS/Sum. 1075; ●41075

Sonata No. 1 in c, Op. 4

Ashkenazy (see Piano) Lon. 7135

COPLAND, AARON

Four Piano Blues

Jacobs † Bolcom; Rzewski
None. 79006 (D)

COUPERIN, FRANÇOIS

Pièces en concert for Cello & Strings

Harrell, Zukerman, English Ch.
Orch. (5, arr Bazelaire) † C.P.E.
Bach:Con. W.172; Vivaldi:Cello
Con. Ang. SZ-37738

DEBUSSY, CLAUDE

La Mer

Giulini, LA Phil. † Ravel:Ma Mère;
Rapsodie
DG 2531264; ●3301264

DIAMOND, DAVID

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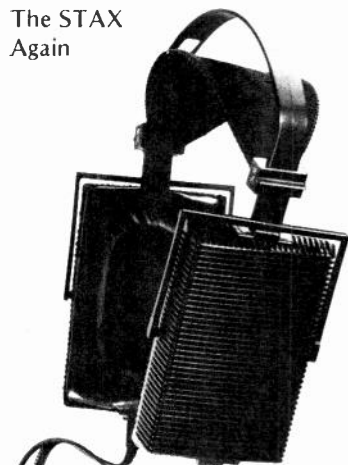
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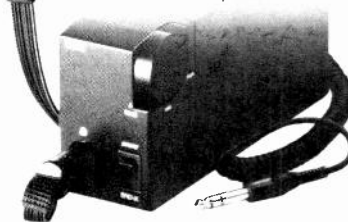
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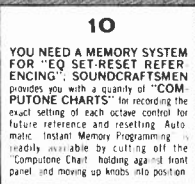
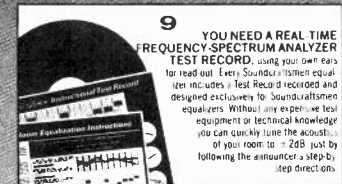
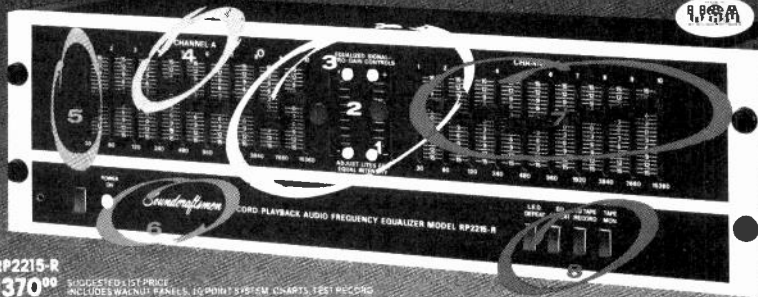
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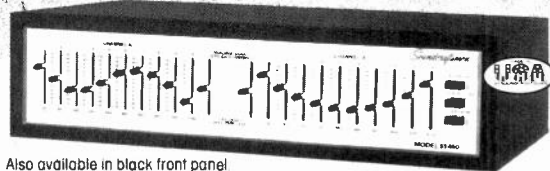
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performance technique, while others achieve their strangeness through electronic modification. This is a more ambitious and colorful piece than *Sulphur* but somehow less pleasing. It was recorded in April, using the 3M digital mastering system—the only digital system capable of multitrack editing and thus the only one that could have served Subotnick's needs in this kind of work. The sound is clean and bright; but in truth, this piece with its unfamiliar timbres is not the best with which to judge a recording system's capabilities. In fact, the analog *Sulphur* sounds every bit as crisp as the digital *Butterfly*, thanks no doubt to careful mastering and a delightfully unobtrusive pressing. A.K.

VERDI: *Pezzi sacri* (4).

Jo Ann Pickens, soprano*; Chicago Symphony Chorus and Orchestra, Georg Solti, cond. [James Mallinson and Ray Minshall, prod.] LONDON OS 26610, \$9.98. Tape: OS5 26610, \$9.95 (cassette).

Květoslava Němečková, soprano*; Czech Philharmonic Chorus and Orchestra, Gaetano Delogu, cond. [Libor Mathauer, prod.] SUPRAPHON 1112 2443, \$8.98.

Ave Maria; Stabat Mater; Laudi alla Vergine; Te Deum*.

COMPARISON:

Giulini/Phil. Ch. & Orch. Ang. S 36125

BOITO: *Mefistofele*: Prologue.*

VERDI: *Pezzi sacri*: Te Deum.

A John Cheek, bass*; Morehouse-Spelman Chorus*, Young Singers of Callanwolde*, Atlanta Symphony Chorus and Orchestra, Robert Shaw, cond. [Robert Woods, prod.] TELARC DG 10045, \$17.98 (digital recording).

Two points deserve to be made about Verdi's *Quattro Pezzi sacri*. First: Although they were published together, Verdi did not regard these four pieces as a cyclical work. In particular, he did not permit the *Ave Maria*, for a cappella chorus, to be performed with the other three at their Paris premiere in April 1898 or at the first Italian performance the following month. He regarded this piece as a "charade," less a musical work than an experiment in harmonizing the "scala enigmatica" to which Boito had directed his attention in a Milan musical journal in 1888. As an experiment, he thought it rather successful ("Strange that with that mixed-up scale the modulations work well, and also the distribution of the parts")—but he also knew that in style and dimension it bore little relation to the other pieces. In

performance, it would probably match better with the 1880 unaccompanied *Pater noster*, on records, since "*Tre Pezzi sacri*" would be found short measure, I suppose we shall continue to have it—but liner notes ought at least to make mention of the composer's preference. (Neither of the new recordings does so.)

The *Laudi alla Vergine*, also composed between *Otello* and *Falstaff*, and also for unaccompanied voices (though this time for women only), raises another question. Unlike the *Ave Maria*, it is a "real piece," in a pure and personal style, unencumbered by the persistent chromaticism imposed by the "enigmatic scale"; it makes an effective contrast, even a desirable interlude, between the grander, orchestrally accompanied statements of the *Stabat Mater* and *Te Deum*. Verdi asked that the *Laudi* be sung by four soloists, and this was done at the initial performances: The Paris quartet included Aino Ackté and Marie Delna, the Turin ensemble Fausta Labia and Guerrina Fabbri, from which names collectors of early recordings will recognize that eminent singers were involved, not mere voices from the chorus. Modern performances, however, seem invariably to use a full female chorus—often to perfectly good effect,

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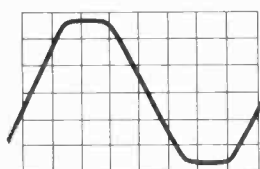
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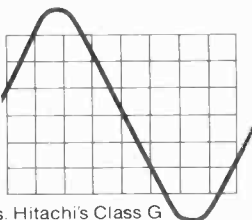
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to be sure. The reasons are doubtless in part practical (the chorus has already been hired for the other pieces, while four soloists would be an extra expense), in part musical—to minimize the disparity of scale between this quiet piece and the two heaven-storming masterpieces that frame it. But on records, where the acoustic focus can be matched to the different forces and where those different forces do not have to all be in one place at one time, it is surprising that we have never had a proper recording of the *Laudi*, sung as Verdi meant it to be sung.

Be that as it may—and perhaps it will be rectified the next time round—it is no reason to abstain from a recording of the *Pezzi sacri*, for the *Te Deum* (1895–96) is one of Verdi's greatest achievements, the *Stabat Mater* (1896–97) only slightly less overwhelming. By some miracle of continuing vitality and creativity, he contrived to shape the emotional language of the *Messa da Requiem* with the economy and quicksilver continuity of *Falstaff*; into less than fifteen minutes, each of these pieces compresses worlds of awe, pity, terror, and hope.

Each of the two unaccompanied pieces is marked at a single tempo because of the homogeneity of the musical material. The larger pieces require a similar con-

sistency, but for a different reason—to prevent their extreme and volatile contrasts from becoming incoherent. Verdi's note at the beginning of both *Stabat Mater* and *Te Deum* is insistent that, although inflections of the basic tempo are desirable for expressive purpose, the original speed must always be regained.

That original speed, for both these pieces, is eighty quarter notes to the minute, which seems to be Verdi's principal tempo for liturgical music: Many of the main sections of the *Requiem* fall in this range, while the unaccompanied *Pezzi sacri* are both marked eighty-four. It must be said that few performances move as quickly as Verdi envisaged—not even the recording of the *Te Deum* conducted by Arturo Toscanini, fifty-six years after he conducted the first Italian performance. (Not now listed domestically, this can still be found on imported RCA, AT 131.) Georg Solti is closer to the mark than the admired Giulini recording or the new Delogu one, though that advantage is canceled out, to my ears, by dynamics that are consistently a degree or so too loud and by consequent deficiencies of mood. The Czech recording is, in the two big pieces, rather flabbier, and the division of the chorus in the *Te Deum*

into double chorus thins out its tone; the unaccompanied pieces are well sung here and recorded with greater presence and clarity than in any of the other sets.

All this sent me back to the Giulini disc. Its flaws are as tangible as ever: Not only are the tempos slower than Verdi's, but Giulini is prone to relax them still further for cadences, though he does not lose the line of the music. The sound is more resonant than is consonant with clarity of detail, and short of dynamic range by today's standards; and the contralto voice of Janet Baker, however fervent, does not match Verdi's specifications for the small but crucial soprano solo at the end of the *Te Deum* (though she is more correctly—that is, distantly—placed than any of her opposite numbers in the complete sets). For all that, the Philharmonia Chorus of the early 1960s was a remarkable instrument, of superb tonal quality, lovely line, refined dynamics, and impressive power, and the emotional range of the pieces is more vividly realized. I can imagine a better performance, one that will unite these virtues with the clarity and urgency that are clearly part of Verdi's conception. (Though he could not attend the premiere, during the rehearsals the composer peppered Boito, who had gone to

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Paris as his representative, with detailed instructions about the realization of cherished effects.)

Robert Shaw's recording of the *Te Deum* and the Prologue to Boito's *Mefistofele* is another matter, in content, price, and recording technique. The coupling will recall to many the already-mentioned Toscanini recording, drawn from a 1954 NBC concert for which the chorus was prepared by this same Robert Shaw. Certain aspects of the *Te Deum* are well served by this disc. For once, the string harmonics after the last "Sanctus" are soft and naturally sweet. The soprano soloist is placed at the proper distance and has a bright, firm voice that can stand up to the trumpet that introduces her. (A small army of people is credited for work on this recording, but nowhere is this admirable lady identified.) And of course the dynamic range of the digital sound surpasses all of the competition; this is certainly one of the most impressive and realistic recordings I have ever heard.

But Shaw is yet another conductor who does not take the *Te Deum* at Verdi's speed. What is more, the episode following those violin harmonics actually drags, and so does the wonderful unison passage, "Dignare, Domine." It isn't only the tempos; the slightly but persistently infirm attacks in chorus and orchestra throughout tend to soften the outlines of the music.

The Boito scene is, if anything, an even braver noise, but the musical density is much lower—nor does the bass soloist furnish either the voice or the theatrical authority that, from Chaliapin to Treigle, has often managed to disguise the paucity of invention in this section. I still play that Toscanini recording for pleasure as well as instruction, twenty-five years after it was made; I venture that it will still be worth hearing in twenty-five years more, when the Telarc disc will have been consigned to the shelf reserved for "Yesterday's Demo Discs."

London and Telarc give texts and translations, Supraphon only the Latin texts. D.H.

Recitals and Miscellany

ZOLTAN ROZSNYAI: *Orchestral Works.*

A Philharmonia Hungarica, Zoltán Rozsnyai, cond. [Jonas Miller and Ken Kreisel, prod.] DBX PS 1005/7, \$16 each [encoded versions of M&K REALTIME RT 204/6] (digital recordings).

PS 1005: ROSSINI: *Overtures: La*

Gazza ladra; Il Barbiere di Siviglia; Guillaume Tell. BERLIOZ: *Damnation of Faust; Rákóczy March.*

PS 1006: LISZT: *Les Préludes.* DVOŘÁK: *Slavonic Dance, Op. 46, No. 8.* SMETANA: *Má Vlast: The Moldau.*

PS 1007: HANDEL: *Water Music: Suite. Concerto Grosso, Op. 6, No. 12: Aria.* BACH: *Suite for Orchestra, No. 3, in D, S. 1068: Air.* PACHELBEL: *Canon in D.*

How quickly we take technological miracles for granted! It was precisely a year ago (November 1979) that I hailed in awed delight the complete elimination of disc surface noise through DBX coding and decoding; only last May that I rejoiced over the first three releases in M&K Realtime's series, which potently combines DBX silencing with digital mastering. Yet already, in the next three discs in the series (announced with the others but only now available), the same sonic marvels no longer disguise—or even adequately compensate for—artistic weaknesses.

Again it's sheer bliss to lower one's stylus into the grooves and hear absolutely nothing, until out of the velvety silence music suddenly blossoms—with an electrifying jolt when it begins loudly, as with the sforzando snares of the *Gazza ladra* Overture. Again it's nearly stupefying to feel as well as hear the palpably solid thud of even a pianissimo bass drum and the wall-shaking thunder of symphonic percussion in full blast. Again it's ineffably thrilling to realize how much more of the expanded dynamic range of digital recording can be captured on analog-processed discs when the DBX system lowers the noise threshold to the level of the ambient noise of one's living room. But now the executant limitations of the underrehearsed or quite unrehearsed Philharmonia Hungarica, along with the insensitivities of conductor Rozsnyai, become more and more painfully evident as the spectacular sonics come to be taken for granted.

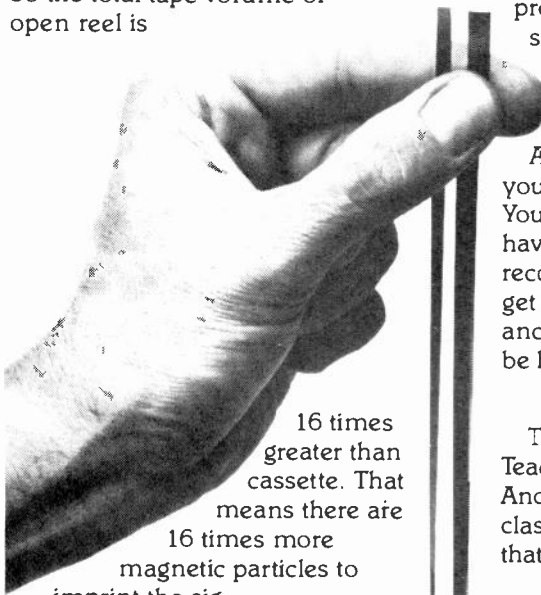
The woefully unimaginative programming, confined here to symphonic pops favorites, only too familiar, is never enlivened by striking insights. The Bach/Handel/Pachelbel readings regress to the dark ages before the resurrection of authentic baroque stylistic traditions; even the more modern showpieces are too often insensately hard-plugged and tonally coarse. Most irritating of all, the best all-around performance here, the Berlioz march, is simply repeated from one of the earlier releases. Technologically, the M&K/DBX discs continue to be worth every cent of their premium price; musically, these last ones are straight out of super-market bargain bins. R.D.D.

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TEAC

The Tape Deck

by R. D. Darrell

Philips reels back . . .

For several years a prime ambition of open-reel specialist mail-order house Barclay-Crocker (11 Broadway, New York, N.Y. 10004) has been to bring Philips recordings back to that format, lacking since Ampex abandoned its processing and distribution activities in 1975-76. So it's good to celebrate at last B-C's hard-won success with the first new Philips reels in years—tapes that exemplify the very best in current state-of-the-art audio technology (\$10.95 each).

Not surprisingly, the debut programs are mostly those already familiar in other formats. Yet one that seems to have attracted little attention in its earlier disc and cassette editions is a very fine 1978 recording of Dukas works by a quite inspired David Zinman and Rotterdam Philharmonic (Philips/B-C G 9500 533). Their kaleidoscopically glowing *La Péri* (with prefatory fanfare), *Sorcerer's Apprentice*, and *Polyeucte* Overture may not be as idiomatically Gallic as some of the best native versions (especially Martinon's for Erato/Musical Heritage in 1972). But they are first-rate performances, and surely none of these works ever has been recorded with more dramatic vividness or with lovelier pianissimos, all ideally captured in B-C's Dolby reel processing.

The better-known programs feature the generally preferred choices in the extensive discographies of Berlioz' *Symphonie fantastique* and Sibelius' First Symphony/*Finlandia*, those with Colin Davis conducting, respectively, the Amsterdam Concertgebouw (G 6500 774; 1974) and, the Boston Symphony (G 9500 140; 1976). In its disc and tape editions, I found the 1978 Mariner/Concertgebouw version of Holst's *Planets* (G 9500 425, HF, February 1979) sonically superb but just a shade lacking in fervor and spontaneity. However, hearing it given even finer lucidity in the matchless open-reel format, I'm no longer so certain that my treasured 1971 Haitink/London Philharmonic account (7300 058) is still my sole choice.

The first opera in the series is Verdi's thrilling early *La Battaglia di Legnano*, as performed in 1978 by Lamberto Gardelli and the Austrian Radio Symphony Orchestra (R 6700 120, double-play, \$21.95). This recording, the opera's first in stereo, is even more exhilarating and gripping than in its admirable disc and cassette editions.

. . . and Unicorns prance on

Unlike most other labels in Barclay-Crocker's fast-growing catalog, British Unicorns are not available in cassettes as well—hence the added appeal of the B-C reel edition (E 0364, \$8.95) of Unicorn's first recording of music from Grieg's only opera attempt: three *Olav Trygvason* fragments, Op. 50, coupled with the better-known cantata, *Landkjenning*, Op. 31 (HF, June). Everyone who enjoyed the first truly complete *Peer Gynt* recording (Unicorn/B-C M 0361, August 1979 "Tape Deck") will relish these new revelations of Grieg's dramatic powers too seldom represented but potentially demonstrated here by the same Norwegian performers (conductor Per Dreier, soloists, Oslo Chorus) along with the London Philharmonic Orchestra.

Two long-acclaimed Mahlerian masterpieces, the Horenstein/London Symphony versions of the First (1969) and Third (1970) Symphonies, would be welcome in any case in exemplary reel processings (F 0301, \$9.95, and N 0302, double-play, \$17.95). But these are doubly valuable in that the only other tape editions, in superb cassettes, are unlikely to remain available for long, now that Advent Corporation has discontinued its processing activities.

Centuries-spanning Heritages

The latest musicassettes in Musical Heritage's new series illustrate almost extravagantly the chronological and stylistic range of that Society's catalog: from fourteenth-century *Toulouse* and *Tournai* Masses (in MHC 6133) to early-twentieth-century American ragtime (MHC 6022). The church works, including also M.-A. Charpentier's *Easter Eve* Mass and DeLalande's *Psallite Domino* motet, are enthusiastically if a bit roughly sung by the Schola Cantorum of New York's Church of St. Mary the Virgin under its enterprising young organist/director McNeil Robinson. The incomparable James P. Johnson's stride piano pieces plus a batch of Joplin rags written in collaboration with others are given infectious verve by William Albright and William Bolcom, respectively.

Perhaps even more interesting historically, while appealing to an undoubtedly wider listening public, are the four long-lost symphonies by Beethoven's respected rival Muzio Clementi. If your curiosity was as sharply whetted as mine by Paul Henry Lang's review (HF, May 1979)

of the Scimone/Philharmonia first recordings (and if you haven't already bought the imported Erato discs), you'll snap at the chance to get them in two cassettes (MHC 6150/1). Pietro Spada's editing may be controversial, but the music is fascinating, especially the magisterially intricate No. 4 and the amusingly pussyfooting treatment of "God Save the King" in the *Great National* Symphony No. 3. (The cassettes list at \$6.95 each, \$4.95 to members, plus \$1.25 shipping charge; Musical Heritage Society, 14 Park Rd., Tinton Falls, N.J. 07724.)

Vivent les differences!

Second only to completely offbeat fare for titillating jaded musical appetites are programs arrestingly different in their approach to familiar music and well-known composers. If you usually think of Domenico Scarlatti's harpsichord sonatas as lightweight salonish entertainment, prepare to be startled by Igor Kipnis' big-sound treatment of unexpectedly dramatic examples (the K. 204a/204b/205 triptych and others) and then bewitched by the quirky lyricism of K. 87, 322, and 323 on a delicate-toned clavichord (Angel 4ZS 37310, \$8.98—shamefully lacking notes and even clavichord-version identifications).

In contrast, Scott Ross's big set of the *Essercizi* (Sonatas, K. 1-30), is lightweight, played deftly enough but unimaginatively and with scant subtlety or dramatic power. What's vitally different here is that this is the first integral recording of the 1738-39 publication and Ross plays a tonally entrancing replica of a 1579 G. A. Baffo harpsichord [mistakenly identified as a 1589 original in July HF—Ed.] (Telefunken Tri-Tec two-cassette Prestige Box 24.35487, \$21.96, with thirty-two-page illustrated booklet). And Everest 3459 (\$5.98) differs from too many carelessly processed predecessors in that it's first-rate technically as well as artistically for guitarist John Williams' delightful 1968 recordings of the Bach Suite, S. 1009, plus Iberian-spiced pieces by Albéniz, Ponce, Duarte, and A. Scarlatti.

Finally, instead of the usually heard orchestral suite of Stravinsky's saucy Pergolesi "aberrangements," try the full *Pulcinella* ballet score with its vocal solos in its first recent recording, conducted by Claudio Abbado (Deutsche Grammophon 3301 087, \$9.98, with notes on the provenance of all the original source materials). **HF**

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springs directly from the wonderfully varied roots and talents of the players themselves. So many deep strains of American pop music have converged into and evolved from the Section that to trace the musical lives of its members is to gain new insight into the last decade and a half of pop radio and records.

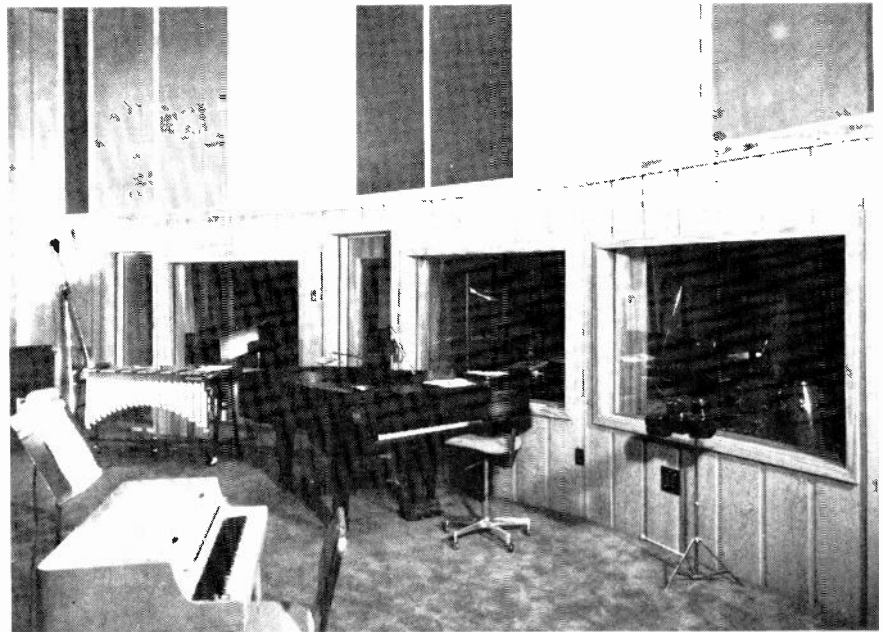
The Muscle Shoals Sound Studio sits on a bank above the Tennessee River in Sheffield. (The town uses the Muscle Shoals airport—thus the studio's name.) This is low-lying red-clay country, near the Tennessee border in northern Alabama. The enormous single story building, which they've been in for two years now, once served as the local U.S. Naval Reserve headquarters. When I met Jimmy Johnson, he proudly told me that "the Naval Reserve used to let our local high school, which is a few blocks from here, have the space for dances. We actually played our first gigs on the gymnasium floor, where the studios now sit."

The two 24-track studios are built with the control rooms back to back, separated by three feet of sand-filled concrete blocks and air space. The recording rooms are large (Studio A is slightly bigger), and both have three spacious isolated alcoves with excellent sight lines. Studio A's Neve mixing console is fully automated; Studio B's will soon be converted. The rest of the building is used for office and workshop space, and there's even a guest house on the grounds. Johnson, who handles most of the administrative duties, is a warm, outgoing man who clearly has a gift for anecdotes. As we sat in his office listening to recent tapes and recalling his early days as a musician, it was clear to me that he still loves good music in the kind of immediate, physical way it must have first appealed to him as a boy. He remembered that his first instrument was "trumpet in school, but I picked up the guitar on my own. I was in a band called the Delrays for awhile, doing songs by the Five Satins, Bo Diddley, Jimmy Reed, and such, and playing school dances and frat parties."

In 1961, local musician Rick Hall opened Fame Studio in the neighboring town of Florence. "Rick had a nationwide hit in '62," says Johnson, "with Arthur Alexander, a bellhop in town. [The song, *You Better Move On*, was later covered by the Rolling Stones and recently by Ry Cooder.] Well, my uncle, who is a musician and has always encouraged me, helped get me a job at Fame. I'd get out of school at 1:00 and then go work for six



The Muscle Shoals Rhythm Section—Beckett, Hawkins, Hood, Johnson—in front of their original studio



Studio B in the new Muscle Shoals Sound Studios



The control room in Studio A



Bassist Hood

At their site on Jackson Highway, the players would crowd onto a small back porch to hear finished tracks because, "If it sounded good out there, it was a keeper."



Drummer Hawkins



Guitarist Johnson

hours at the studio. At first I was the janitor, secretary, and accountant, but soon I was engineering sessions. And when the house rhythm section left for Nashville in '64, I was drafted to play guitar." That original section had evolved from a local band called Dan Penn and the Pallbearers—their name having been derived from the hearse they used to transport equipment.

The following year local songwriter Quin Ivey opened a studio with guitarist Marlin Greene. "Rick didn't have any of us under contract at Fame," continues Johnson. "He just paid by the session, so we moved freely between studios. Ivey's very first session in 1965 was Percy Sledge's *When a Man Loves a Woman*, which we cut in mono on a little 2-track machine, with me engineering. Percy was just another local guy who had been a bellhop and part-time singer. On that first record, we had to punch in almost every word because he had such a hard time with his pitch in the studio, a problem he later overcame. Roger Hawkins played drums, along with the rest of the Fame section from those days: Spooner Oldham on organ [now with Dylan's band], Junior Lowe on bass, and Marlin on guitar. I don't think I ever got a dime for that session, just some free studio time, but I was very glad to be on the date.

"Around that time I also started engineering sessions for Otis Redding, who came down here to produce Arthur Conley, one of the acts he was grooming from his road show. Otis was an amazing talent, a very instinctive producer. He always got exactly what he wanted in the studio, usually by singing and explaining a song to the musicians bit by bit, until they got it right. He had a special gift with horn parts too; he could get horn players to really phrase a part just like he would sing it. The session for *Sweet Soul Music* was one of my favorites. . . .

"I guess if Otis hadn't died in the plane crash in '67, I would have ended up working with him because, even at that point, he and his manager Phil Walden were planning a record company, which Walden of course later formed around the Allman Brothers band and called Capricorn Records. As a matter of fact, Duane Allman was once a regular member of our section at Fame."

How did all this musical talent ever find Muscle Shoals in the first place? Says bassist Hood, "I don't really know what it is about this area. W. C. Handy was



originally from here, as well as numerous successful players and producers like Buddy Killen, Eddie Hinton [whose lone Capricorn LP from '77, "Very Extremely Dangerous," is a treasure], Norbert Putnam, Percy Sledge, Sun Records' founder and Elvis Presley discoverer Sam Phillips, and so on. This is a dry county, so there are really no nightclubs to go hear live music in. Families tend to make and listen to music at home. There's even a barber in town. Al Lester, who's been a national fiddle champion."

Hood went to high school with Johnson and "grew up, like a lot of southern white boys, loving rhythm and blues. My high school band was called the Mystics, and we traveled all over the state and into Tennessee, doing songs by Otis Redding, Chuck Berry, and all." His first heroes on bass were seminal '60s Motown bassist James Jamerson and Booker T. & the M.G.s' Duck Dunn, who now plays with the Blues Brothers. "I used to sit and listen to those old M.G.s records and envision Duck Dunn as this old black guy. Of course I was amazed to meet him later—we became good friends—and find out he's white and just a couple years older than me.

"Even though I went to a segregated high school, it's not unusual that I loved r&b and idolized people like Otis Redding. In the South, the roots of r&b and country music are very close. For example, Percy [Sledge] was a black gospel-based singer, but he always used a good deal of country & western phrasing. When he used to play gigs in the South, his audience was almost exclusively white."

"After the Mystics broke up," continues Hood, "I went to work in my father's tire store. By that time I was married and had a kid." But Roger Hawkins, who continued to do a lot of sessionwork at Quinlvey and Fame, encouraged him to stick with studio work. "I'd always played for fun—back in those days, if you just owned a bass you'd get calls—but Roger, who sometimes sat in with the Mystics and was already known as a great drummer, encouraged me to get serious and play on demo sessions. On the early Fame sessions, he would come over afterward and say, 'Look Hood, you'd better start practicing more if you want to work.' At the same time, I realized that I could make more money playing sessions in one day than working a whole week changing tires. So I scrambled for about a year and a half, and by '66 I was more confident, and by

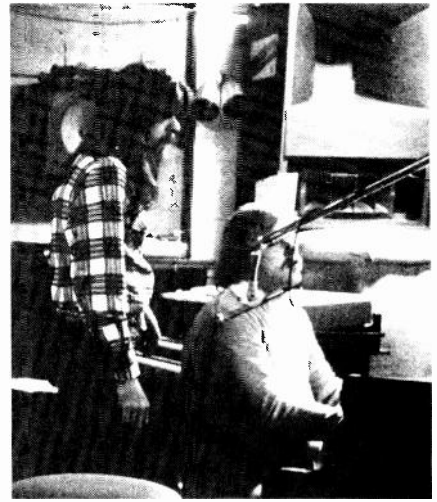
'67 the four of us were a unit."

Hawkins, who has been playing sessions since he was eighteen, must have known even then that he and Hood would make a great team. I heard them working together with singer Johnny Rivers in Studio A on a nifty update of the Everly Brothers chestnut *Cathy's Clown*. After listening to Rivers' version of the song once, the two of them dug into an appropriate rhythmic groove, tailoring their parts to the singer's smooth phrasing and unique accents. As Hood's resonant bass and Hawkins' snapping drums came ripping through the big speakers, I realized Hawkins' backbeat is, to put it mildly, impressive. While keeping machinelike time on the high-hat, he lets the second and fourth beats on the snare drum hang back ever so slightly. The actual time never slackens, but given how hard and decisively he hits the snare, the overall effect is to nail the pulse down on every backbeat while driving the groove forward with bass drum and cymbals. Meanwhile, Hood's thick, bell-like tone on bass hangs with Hawkins on every throbbing snare hit, eloquently setting up the Muscle Shoals Section's bottom sound.

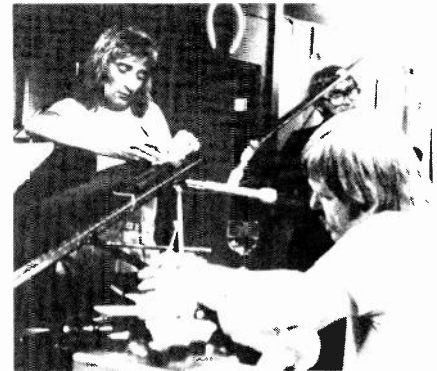
When I asked Hood during a break how he would characterize their famous rhythm-section pulse, he laughed and said, "It's not that conscious on my part. I've always felt Roger is a steadier player than me, so I try to play with him, to key off his time. As for his time feeling, my theory is that a person plays the way he speaks, especially if he doesn't have to read music that much. I don't think Roger consciously thinks about those kinds of things as he's playing, but he does play with some of the same characteristics and cadences of his speaking voice."

That evening I had a chance to listen to Hawkins' measured drawl: "By the time I was thirteen my dad was driving me up to the Tennessee state line to play gigs. At seventeen or eighteen, when I was working in clubs six nights a week, my chops were probably the best they've ever been. But I didn't know what to do with them. At that point I think I would've been a great drummer for Blondie—it was like, around the tom-toms and roll every four bars.

"The first drummers I liked were jazz players like Joe Morello and even Gene Krupa—not that I wanted to play like them, but I admired their technique. Then I began to listen to r&b: Motown's Benny Benjamin, Al Jackson of Booker T. and



Bob Seger with Beckett



Rod Stewart with Beckett



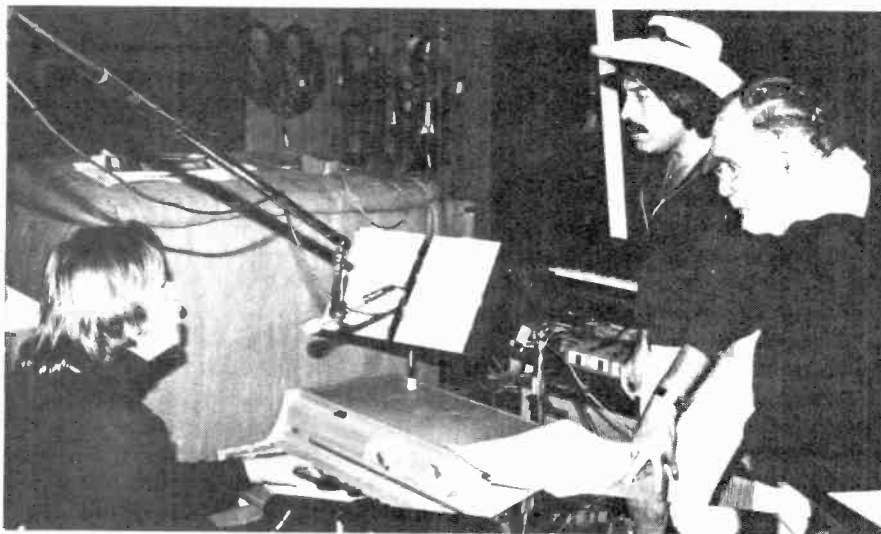
Hawkins with Cat Stevens



“Pops” Staples, Jerry Wexler, and Beckett



Mary MacGregor, Mary Beth and Peter Yarrow, Beckett



Beckett, Tony Orlando, Wexler

the M.G.s. I guess I learned the most listening to Jackson. He wasn't a real technical player, but when I heard him, I knew where he was coming from. You see, as a kid my aunt used to take me to Pentecostal Church services and tent meetings where they'd have a band playing with the congregation, and I'd often join in on tambourine. That's the kind of drum feeling Al had—I liked the way he would hang back on the two and four.

“I wanted to play in the studio from an early age, so I'd listen to records and play along. Pretty soon I knew all the parts, but I still didn't understand why session drummers did what they did on recordings or how they could walk into a session, set up their drums, and come up with great parts. Then I began to play on song demos with Dan Penn and Spooner Oldham, and I gradually learned that the idea was to come up with creative parts that are right for a song and play them well, as opposed to just playing a lot.

“Basically, you're only as good as the players you're with. That's why I liked the idea of this section so much—of getting to be good and staying together. Of course, once we were established we had to learn how to deal with record executives, and set up and administer a publishing company, and so forth. These became necessities in order for us to continue on as a unit. But while all of us have produced and handled business affairs over the years, and will continue to do so, we're still players, wanting to play and succeed with different artists. Our ability to do that, I think, has to do with the way we learned things coming up in local studios.”

By 1966, Hawkins, Hood, and Johnson were working together regularly at Fame. Keyboardist Barry Beckett first came into contact with them a year later when Florida deejay “Papa Don” Schroeder took Beckett, soul singers James and Bobby Purify, and several other musicians to Fame to cut *I'm Your Puppet*. “Jimmy Johnson was engineering,” recalls Beckett. “Roger was on drums, David played trombone, and I was the organist. The record sold a million—I was knocked out to hear it on the radio. After two more visits to the studio I was asked to join the Section in '67.”

During my brief but intriguing stay, Beckett had been working overtime to finish mixing a new Stephen Stills LP, before starting production on J. D. Souther's next album with Hillman and Furay. When we finally had a chance to talk late one



evening, he was obviously exhausted but nonetheless articulate. He's a very sensitive, philosophical man who, though the last to join the Section, also provided a valuable missing link. Born the same day as Johnson in Birmingham, Alabama, he was encouraged by his mother to play as a child, and he grew up performing in Sunday school. By the time he was fifteen he was doing nightclubs and fraternity parties, and later, after a couple of false starts in college, he moved to northern Florida and concentrated on professional club work.

"My first bands and influences were rockabilly—I admired players like Floyd Cramer," says Beckett. "Of course, I'd always loved Ray Charles's playing, and started learning his licks early on. It wasn't 'til later that I figured out how to adopt his musical feeling—I had to grow into that. The most important thing about Ray's style was the role his piano played in bands—how much it contributed to a groove. I listened more closely to the spaces he'd leave and the cracks he'd fill than to the actual notes he played."

From 1967 to 1969, the Section played with most of the major soul singers of the day at Fame. Producer Jerry Wexler had been having problems working in Memphis, since Stax Records felt that if Wexler used the Stax "sound" (which came primarily from Booker T. and the M.G.s, the label's house band) on Wilson Pickett's hits, then Pickett should move from Atlantic to Stax. So, once Wexler heard *When a Man Loves a Woman*, he took his business to the Muscle Shoals area to use the musicians there. That business included a long string of artists—Pickett, King Curtis, Aretha Franklin, and the Staple Singers among them—for whom the Muscle Shoals players produced a long string of hits, such as Aretha's *Chain of Fools*, *Respect*, and *The House that Jack Built*.

Even the most casual listen to those ageless '60s sides reveals the unmistakable elements that helped to literally define the "soul era": Hawkins' subtle but earthshaking fatback drums on Aretha's *Since You've Been Gone*, Johnson's party-time, funk-up Chuck Berry-style guitar chording on Pickett's *Mustang Sally*, or Hood's famous chiming bass break and Beckett's bluesy, rolling electric-piano note clusters on the Staple Singers' heavenly *I'll Take You There*.

By 1969, the four players were making moderately comfortable livings

(about \$20,000 a year," estimates Hood), but they had neither equity in the studio nor royalties from the hits they played on. "We wanted a studio where we could work as players," says Hawkins. Then Fred Bevis put his small Jackson Highway studio—which was housed in a former casket warehouse across from the town cemetery—up for sale. After getting guarantees of studio work from Wexler and a cash loan from Atlantic to be paid off in studio time, Hawkins persuaded Johnson to put

"It was a little scary at first, because nothing really happened—until we did R.B. Greaves's Take a Letter, Maria."

a down payment on Bevis' place, and Hood and Beckett were brought into the partnership a few months later. The Muscle Shoals Rhythm Section and Sound Studio were in business.

"We played more in that first year than any before or since," recalls Hood. "doing demos, experimenting with sounds. It was a little scary at first, because nothing really happened—until we did R. B. Greaves's *Take a Letter, Maria*, with Ahmet Ertegun [president of Atlantic] producing." The section showed that it had learned its Fame studio lessons well by providing Greaves—a strong black r&b singer—with an assertive Top 40 rhythm track. The song perfectly embodies the delicate contrasts and slight ambiguities that create a crossover hit on American radio. Johnson's strumming acoustic-guitar intro establishes the driving tempo without disclosing whether the tune will be country or rock, as Greaves begins his sad tale of a businessman who comes home to find his wife "in the arms of another man." As the singer instructs his sympathetic secretary to "take a letter, Maria, address it to my wife, and say I won't be coming home, for the rest of my life," the combination of Hawkins' by now instantly recognizable whipcracking r&b snare sound with the tune's deadpan, unsyncopated pop/rock groove helped to further blur the lines between musical styles. The players' reputation for creating that kind of instantly accessible yet unique sound was firmly established with the huge success of *Take a Letter*, and from then on the hits, as they say, just kept on coming.

Among them was, of course, Paul Simon's "There Goes Rhymin' Simon" LP, which the Section also coproduced. Initially, Simon had intended to cut only one song at Muscle Shoals. "When he came down in '72 to the Jackson Highway studio," recalls Hawkins, "we knew what it meant, how important it could be for us. He had booked a couple of days to do the basic tracks on one song. The first day he showed us the tune, and we cut it in an hour. I guess he was pretty surprised and probably a little flustered, but we just said, 'Show us what else you've got,' and then we cut all the basic tracks for the album in a few days. That's just the way we learned things were supposed to be done."

This ability to be creative on the spot, and in a variety of contexts, is any good sessionman's strongest calling card. "I go in completely open," says Hawkins, "and let the music move wherever it takes me. I don't let my personal taste get in the way of what I do on someone else's record, and I really enjoy seeing an artist's idea turn into a good record. That appeals to me just as much as a good night jamming at a club. For example, today we were working on a very specific little drum intro to a ballad, and I had the figure all worked out. But then when Johnny [Rivers] went to the mike and started to sing, all of a sudden that figure left my head and I just automatically went to something else, thinking, 'This is what I'm supposed to be doing.'"

The longer I stayed at Muscle Shoals, the more I saw how this natural and flowing approach to recording music saturates every level of activity. While I was visiting Studio B, Johnson was wrapping up overdubs and mixing the new Amazing Rhythm Aces album he'd produced. The Aces, originally from the Knoxville, Tennessee, area and most widely known for their single *Third-Rate Romance*, embody the kind of r&b/c&w fusion that Hood had described earlier, and Johnson was obviously delighted to be working with them. I listened to Aces keyboardist James Hooker overdub an electric piano solo on Van Morrison's *Wild Nights*. Though he turned in an inspired and funky take the first time, he wanted to do it again. Jimmy sighed and said, "It's always better at the top, when it's fresh," but he let the pianist punch in the last four bars. This compromise worked splendidly, and Johnson jumped up, dancing and swaying to the newly embellished rhythm track.

We then listened to another Aces tune, a remake of the '60s Wilson Pickett



cut, *You Left the Water Running*, written by Dan Penn and Rick Hall, the Section's former boss at Fame. "One day Rick showed up with a tape and said, 'I heard you were looking for material.'" says Jimmy. "We put the tape up, and it was a vintage demo, with Rick playing piano and Otis Redding singing his heart out. Russell [Smith, the Aces' lead singer] turned to me and said, 'I think I'd like to do that song.'

"But we've always had songs happen here in funny ways. For instance, we have a very fine songwriter on staff, George Johnson, who came up with a tune called *Old Time Rock & Roll*. At first we said, 'That's nice, George, but we're not sure if we can do anything with it.' Then we thought, 'What about Seger?' We'd never pitched a song of ours to Bob before, even though he has been record-

“Basically, you're only as good as the players you're with. That's why I liked the idea of the Section so much.”

ing here since 1972, but we sent a copy of this one up to him. He liked it a lot but wanted to try cutting it a different way. After spending quite a bit of money over the next few months trying things, he ended up transferring those original demo tracks to a 24-track and doing overdubs with his band." It worked, of course, and became Seger's biggest single of 1979.

As a producer, Jimmy has sometimes found that staying out of a band's way gets the best results. "The Rolling Stones recorded three songs from their 'Sticky Fingers' LP here in '70," he recalls. "They flew in with their entourage in a Constellation jet in the middle of a worldwide tour. Their producer, Jimmy Miller, never made it, so they just went ahead and cut without him. Mick Taylor had just joined the band, and this was his first session with them—he was real nervous. They did a song a night, ending with *Brown Sugar*. Well, the first four or five hours that last night were very rough—I mean *not* good—and I was sitting there engineering, thinking, 'This ain't going nowhere.' They were sort of writing the tune on the spot, and it wasn't happening. Then all of a sudden, the groove fell together, and the next take was a real smoker. I knew that was

the one, and not to even bother trying it again. They just walked into the control room and said, 'Was that it?'. I nodded and that *was* it. The next day they got on their plane and flew to the concert at Altamont." Keith Richards has said in an interview that he considers *Brown Sugar* to be the only "perfect" single the group has ever done.

Speaking of the Stones, the Muscle Shoals Rhythm Section also has deep roots in rock & roll. Johnson is that rarity today, a truly great *rhythm* guitarist, and much of his trademark playing on his Fender Stratocasters and Telecasters has evolved from the old '50s Chuck Berry/Bo Diddley r&b guitar sound. Furthermore, every time the Section has been asked to play straight-ahead rock in recent years, the players' early bar-band days rise to the surface quicker than you can say "Maybelline, why can't you be true?" I mention to David Hood that their work on Bob Seger's *Katmandu*, from his "Beautiful Loser" LP, is about as authentically rocking as any track released in 1975. "We all grew up playing that kind of music," he says. "For me, playing *Katmandu* was just like being in the Mystics again."

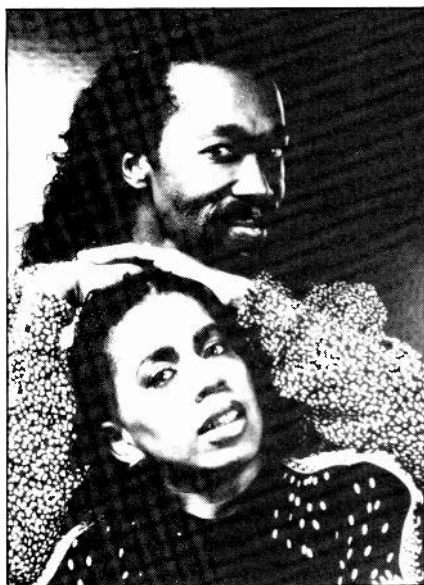
Johnson's current production work with mainstream rock & roll bands—which includes the Florida-based group Blackfoot—goes back to his affinity for modern southern rock and his affiliation with Lynyrd Skynyrd, whose first real recording was done in the Jackson Highway studio. (Those tapes comprise much of last year's "Skynyrd's First and . . . Last" anthology LP.) The late Ronnie Van Zandt, that band's lead singer, once said of the Studio, "When we got there, we didn't know anything about recording. You could say the people in Muscle Shoals taught us everything we know."

Barry Beckett's first project as a producer was in 1972 with Roger Hawkins, recording the soul duo Mel and Tim. They came up with a beautiful single *Starting All Over Again*, which was a national hit on Stax. Barry then met Peter Yarrow, who had come to Muscle Shoals to record using Mary MacGregor as a background singer. "Peter brought her in for his album," he remembers. "We loved her voice and decided to record her." For material, Barry put songwriter Phil Jarrell together with Yarrow, and their collaborative efforts yielded *Torn Between Two Lovers*. That, of course, became a huge single in 1977, and soon after Jerry Wexler and Beckett formed a production team that, in the last three years, has worked

with such acts as Sanford and Townsend, Bob Dylan, Dire Straits, and Mavis Staples. Beckett's realistic reasoning behind moving from playing into producing is that great younger players are coming up the studio ranks yearly, and production is a natural progression for a man with a family to raise and a business to sustain. But his beautiful, rolling piano style still graces records from time to time. Seger's recent hit *Fire Lake* is a great example, with Barry's gently swelling chords and country-tinged licks providing the wistful answers to the singer's rhetorical questions. Perhaps prophetically, the same tune features new Section member Randy McCormick on soulful organ, furnishing just the right churchy cushion for the track.

As sophisticated as the Muscle Shoals complex has become, it still retains direct and vital links to its past. At their original site on Jackson Highway, the players would crowd onto a small back porch to hear finished tracks, because "if it sounded good out there, it was a keeper," explains Johnson. Likewise, as he and I drove to dinner one night, we listened to tracks on his car stereo because "if you can hear all the parts in the mix and feel the groove on little speakers at a low volume, you know it's all there."

In spite of their impressive track record—fifteen gold singles and twenty-four gold albums, nine of which are also platinum—Hood, Johnson, Beckett, and Hawkins have never sought the limelight, although they are planning to release an album of their own next year that will, in Roger's words, "highlight each player's musical personality." But even without the limelight, musicians and producers have been coming to Muscle Shoals for years knowing that they'll find that priceless combination of great chops and good musical feeling. ♪



Ashford & Simpson

But, on the evidence of this album, they may be giving their best songs away. Recent successful covers by such female singers as Diana Ross (*The Boss*), Chaka Kahn (*I'm Every Woman*, *Clouds*), and Gladys Knight (*Landlord*) also suggest that Simpson should be taking a more decisive vocal role, rather than simply reverting to call and response with Ashford on every song. Certainly the most affecting moments on "A Musical Affair" are her floating soprano on the opening of *Happy Endings* and her sassy, gutsy delivery on *I Ain't Asking for Your Love*.

On that song, *You Never Left Me Alone*, and *Get Out Your Handkerchief*, Ashford & Simpson's debt to Motown is quite apparent. Fellow alumnus Paul Riser provides impeccable horn and string arrangements, while Francisco Centeno's vibrant bass recalls the work of legendary Detroit session ace James Jamerson. Though the other songs have their strong points—the sparkling arrangements of *Rushing To* and *We'll Meet Again* and the lyrics on *Make It to the Sky* and *Love Don't Make It Right*—for the most part, "A Musical Affair" is below standard for this duo.

The B-52's: Wild Planet

Rhett Davies & the B-52's, producers Warner Bros. BSK 3471
by Steven X. Rea

On their second album the B-52's haven't exactly expanded their modus operandi. Rock-steady bass and drums are still the backbone of their sound. Kate



The B-52's: Schneider, Wilson, Wilson, Strickland, Pierson

Pierson and Cindy Wilson still screech their way into outer space, and debonair Fred Schneider still attempts to maintain a straight face while rhyming the most inane lyrics this side of a kindergarten poetry contest.

Nothing on "Wild Planet" quite matches the wacky, locomotive intensity of *52 Girls* or the classic crustacean summer surf song *Rock Lobster*. But even when the five Georgians lose their hold altogether—on *Runnin' Around* (a declawed *Rock Lobster*) and *53 Miles West of Venus* (repetitive to the point of ridiculousness)—their pandemic rhythms beat a spirited path to the dance floor.

The B-52's amalgam of *Secret Agent/Peter Gunn*-type theme music, '60s soul and r&b, and Eno-esque buzz-sawing (for that subliminal "out there" effect) solidifies most successfully on the single, *Private Idaho*, the surreal *Give Me Back My Man*, and *Dirty Back Road*. On the first, the two girls build a wailing crescendo that plays like an old Buffalo Springfield song at the wrong speed. *Dirty Back Road* is the closest the 52's come to parlaying their campy lunacy into something more substantial. It's a spooky reverie about weird things lurking in the shadows on rural backroads (and in the recesses of the driver's imagination). The bass and drums pulse along like the engine of a cautiously driven auto, while the girls' hushed chanting lends a queer ominousness to the proceedings.

While it's virtually impossible to take them seriously, at times the B-52's suggest that they're capable of more than

just modernizing the Mash Potato and the Monkey. But then they start singing about a poodle who wears designer jeans with appliqués, and, well. . . .

The Cars: Panorama

Roy Thomas Baker, producer Elektra 5E 514
by Crispin Cioe

The Cars rode out the '70s as the only commercially successful American rock group to combine Anglicized musical trendiness with the kind of heavy metal backbeat and guitar sound that's still the people's choice here in the colonies. Songwriter Ric Ocasek's subtly alienated, catchphrase lyrics have always been edgily engaging, projecting crystal-clear, near-cinematic jump cuts about the vagaries of modern love. "Panorama" trades in this same imagery, but the big news is that the Cars' third album features an innovative, adventurous approach to what is by now a totally recognizable sound.

The title track's instrumental intro says it all: This time around the Cars intend to expand their musical horizon. Drummer David Robinson has taken on a major textural role, far beyond his usual exemplary timekeeping. On the tune's final vamp, his intricate high-hat cymbal work, synthesized ever so slightly, is insistent and riveting. Greg Hawkes's keyboard work now laces through the mix as a major emotional tonesetter; on the shimmeringly erotic *Touch and Go*, his cozing synthesizer arpeggios, sounding

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like an updated Farfisa organ, give Ben Orr's aging-adolescent, in-heat vocals their pathetic urgency.

Elliot Easton's fluid lead guitar solos are still the group's most mainstream element, with Ocasek's lyrics and melodies providing the real conceptual glue, crystallizing and defining the music. As he writes in *Don't Tell Me No*. "It's my party you can come... it's my mercy it's my plan. I want to go to futureland." There are enough fresh and provocative sounds on "Panorama" to make me believe that this just might be how futureland will sound.

Mink DeVille: *Le Chat Bleu*

Steve Douglas, producer

Capitol ST 11955

by Steven X. Rea

From a commercial vantage point, "Le Chat Bleu" is a lame duck. Capitol has made virtually no attempt to "work" this record, since the label dropped Willy DeVille and his band from its roster. (They've since signed with Atlantic.) So, barring some kind of unprecedented spontaneous airplay, the band's third album is destined for oblivion. And that's too bad.

Recorded in Paris, where DeVille lived and soaked up inspiration, "Le Chat Bleu" is the group's best yet. The surging, tough blues and rock of *Spanish Stroll*, *Soul Twist*, and *She's So Tough* (from their debut and followup, "Return to Magenta"), have their equally aggressive, raunchy counterparts here: the anthemic Spector/Springsteen-ish *This Must Be the Night* (producer/sax man Steve Douglas was the saxophonist during Spector's halcyon days), the chunky, churning *Savoir Faire*, and *Lipstick Traces*.

But the real high points are the ballads, with Willy DeVille sounding like the Puerto Rican answer to Neil Diamond. Aided by string arranger Jean Claude Petit (who did Edith Piaf's charts), he dramatically sets his half-spoken, half-sung sentiments awash in the desperate splendor of overblown orchestral flourishes. On *That World Outside*, a plaintive saxophone solo and an airy glow of strings create a poignant setting for DeVille's plea for a love that will provide shelter from reality. Castanets punctuate the moody *You Just Keep Holding On*, while the accordion in *Just to Walk That Little*



Grisman (center) Quintet

Girl Home Again calls to mind the smoky corners of some dark café.

"Le Chat Bleu" is *West Side Story*. Billie Holiday, *A Rose in Spanish Harlem*, Elvis Presley, Neil Diamond, and Springsteen rolled into one. It's an epic street romance, teeming with heartfelt passion, wherein Willy DeVille chases his muse all the way from New York's Avenue C to the bright lights of the Champs Elysées.

David Grisman Quintet '80

David Grisman, producer

Warner Bros. BSK 3469

Frank Wakefield:

Blues Stay Away from Me

Norman Dayron & Tom Stern,

producers. Takoma TAK 7082

by Steven X. Rea

The mandolin is one of those instruments that can, in the wrong hands, sound tinny and shrill. Even in the right hands, it is known to have limited applications—mainly to the interrelated forms of British traditional music and American bluegrass.

Then along come two masters, and it is suddenly spewing forth quavery, resonant gusts of jazz and Swing, in addition to bluegrass. "Dawg" is a term coined by David Grisman's friends for his "weird tunes that were no longer bluegrass." Whether one opts for Dawg innovations or the simple charms and pleasures of Frank Wakefield's bluegrass forays, both men have recorded exemplary works.

Grisman started in Cambridge coffeehouses in the mid-'60s. He worked with the Boston folk/rock unit Earth Opera and Jerry Garcia's bluegrass group Old & in the Way before moving on to his own bluegrass and jazz/bluegrass/what-have-you explorations. "Quintet '80" provides continuing evidence of two major influences: Wakefield and '30s jazz guitarist Django Reinhardt, who can be heard in



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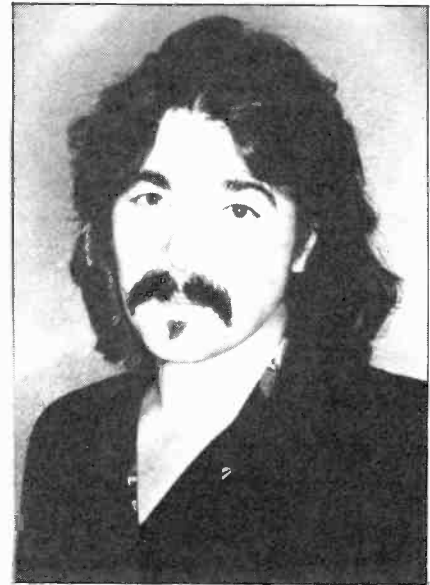
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John Prine: Storm Windows

Barry Beckett, producer

Asylum 6E 286

by Sam Sutherland

John Prine's decision to form his own band and flex his rock & roll roots seemed more problematic than practical on last year's "Pink Cadillac." That record brought Sun Records founder Sam Phillips out of retirement to oversee the proceedings, and, though his credentials as a rock godfather with deep Southern roots were appropriate (given Prine's heritage as a transplanted backwoods boy), the roughened edges of the record itself obscured both Prine's singing and songwriting.

With "Storm Windows" Prine tries another southerner, Muscle Shoals' own Barry Beckett [see story on page 91], and the results are far more satisfying. The ensemble from "Pink Cadillac" remains but benefits from a more lucid aural finish, as does Prine's drily crisp singing style. The added rock firepower is also there, but so too is the warm delicacy of the singer's best past work.

Prine's writing continues to show the renewed piquancy that made 1977's "Bruised Orange" an underexposed classic. As on his earliest records, the material offered here ranges from the bittersweet vignettes that have clinched his professional esteem to the more light-hearted, loopy hard-luck tales that convey his deft

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sense of humor. *Shop Talk*, the set's opener, uses its title as a metaphor for bedroom secrets and sets its central characters in a rollicking, uptempo context in which the singer tries to hush his lover's indiscretion. It's funny, wise, and spirited.

At the other end of the spectrum are several subdued ballads plumbing familiar Prine topics from failed love (*It's Happening to You*) and lost hope (*Sleepy Eyed Boy*) to the sobering perspective of a man facing his own mortality (*Storm Windows*). In between is a wry editorial on modern times, *Living in the Future*, which carries on the singer's tradition of gentle broadsides such as his earliest, *Your Flag Decal Won't Get You Into Heaven Any-more*. Fans will find few surprises, but that's a testament in itself. This is comfortable, mature music from a classic American songwriter who has survived with both dignity and compassion intact.

Son Seals: Chicago Fire
Son Seals & Bruce Iglauer,
producers. Alligator AL 4720
by Chuck Carman

Chicago bluesman Son Seals is simply one of the best guitar players around. His searing single-note solos can send chills down the spine; his piercing tone and percussive attack combined with fierce picking give him a style that's instantly recognizable. While his singing will always be overshadowed by the sounds from his electric guitar, here, on his fourth album, he emerges as a moving, full-throated vocalist.

Seals wrote six of the nine songs on "Chicago Fire." None is particularly distinguished melodically, but all are suitable launching pads for his solos. Generally the lyrics are urban updates of timeless blues themes. But, on *Landlord at My Door*, for instance, the real urgency of the saga is conveyed not by the words, but by his screaming guitar.

"Chicago Fire" features Seals's working band—King Solomon on keyboards, Snapper Mitchum on bass, David D. Anderson on drums—supplemented by rhythm guitar and horns. While the horn section occasionally offers refreshing new colors, more often it is downright annoying and inadequately rehearsed. On the intro to *Leaving Home*, for example, Seals plays a classic, heart-wrenching Chicago blues that is almost drowned at the tenth bar by a sudden rise in the horns. On *Watching Every Move You Make*, the effect of their entrance is akin to down-



Seals: searing solos

shifting into second gear at 50 mph.

Like most of the small but distinguished Alligator catalog, "Chicago Fire" has a clean, bright sound. Extreme purists may be dissuaded by the horn problem, but if you've got a taste for fiery blues guitar, give Son Seals a listen.

Paul Simon: One-Trick Pony
Phil Ramone & Paul Simon,
producers. Warner Bros. HS 3472
by Steven X. Rea

It's inevitable. The more popular an artist and the longer the lapse between albums, the higher people's expectations rise—eventually to the point where no mere mortal is capable of standing. Over four years have passed since Paul Simon released "Still Crazy After All These Years," and, sure enough, on first listen there is nothing on "One-Trick Pony" that strikes the same empathetic, emotive chord as *50 Ways to Leave Your Lover*; nothing that grapples with the sociological underpinnings of small-town America like *My Little Town*; nothing that rings with the wry resignation of *Still Crazy After All These Years*. Even the hit single, *Late in the Evening*, with its undeniably catchy conga beat, seems to lack the crisp alacrity and color of *Kodachrome*.

But then the mettle and the magic at the core of "One-Trick Pony" begins to make itself clear. The LP is the soundtrack from the New York singer/songwriter's first movie. The semi-autobiography tells the story of an itinerant tunesmith who has been working clubs and colleges for fifteen years in search of the kind of fame that Simon has attained in reality. "Can't say my name's well known. You don't see my face in *Rolling Stone*. But I've sure

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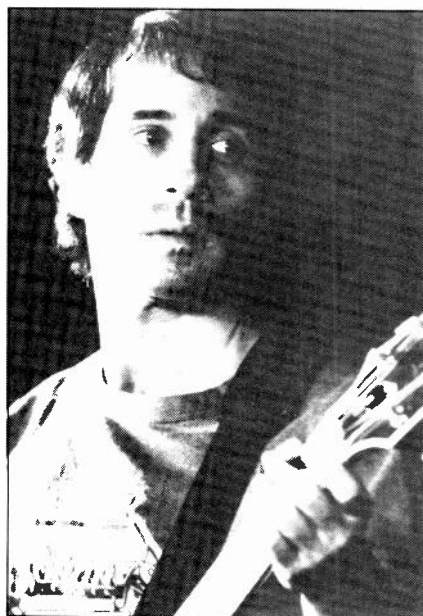
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Simon: a narrow perspective

been on this road," he sings in *Long Day*.

As such, the strengths and weaknesses of "One-Trick Pony" are tied to the fact that it is a musical narrative and that many of the songs share an unusually narrow focus. The funky *Ace in the Hole*, the plaintive *Jonah*, *God Bless the Absentee*, and the title track all revolve around Life on the Road. You've heard about the endless motels, bars, and one-night stands before, and it's only when Simon emerges with a new twist or a wise, amused perspective (*Jonah* and *Oh, Marion*) that he transcends the clichéd portrait and paints his own.

Simon's knack for gliding smoothly through unusual harmonic and melodic turns is still very much intact. To wit: the tenacious shifts and free-associative images of *Long Day* or the jazzy *Oh, Marion*, on which he scat-sings in sync with Jon Faddis' flugelhorn. Little subtleties pervade the arrangements (he scored the strings and horns), like the lithe clip-clopping percussion that reverberates through *Jonah* and the classical elegance of the acoustic guitars on *How the Heart Approaches What It Years*.

It is on that song that Simon's trademark taut, lucid language and sense of poetry is most in evidence: "In a phone booth, in some local bar and grill, rehearsing what I'll say, my coin returns." Unfortunately, in other instances his slightly blurred lyrics obscure the intent (and the direction) of the songs.

As on Simon's past studio forays, perfectionism abounds here. Tight, pol-

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Stewart: still the same

ished performances are turned in by some of the slickest, surest jazz/pop purveyors around, including guitarists Hugh McCracken and Eric Gale, bassist Tony Levin, drummer Steve Gadd, and pianist Richard Tee, who provides a mellow backdrop that irradiates the midtempo tunes. Sonically, Simon and producer/engineer Phil Ramone have outdone themselves—even the two live tracks (*Ace in the Hole* and *One-Trick Pony*, recorded at the Agora in Cleveland) resound with clarity and depth. Given the nature of the project and the self-imposed limitations of "One-Trick Pony," Simon has managed to return from four years of silence to show that he's still got something to say.

Al Stewart and Shot in the Dark: 24 Carrots

Al Stewart & Chris Desmond, producers. Arista AL 9520
by Sam Sutherland

Having refined his bookish soft rock on "Year of the Cat," his most successful work, songwriter Al Stewart continues to rework the same melodic and verbal twists to diminishing effect. It's not that "24 Carrots" fails to match the burnished instrumental gleam and widescreen perspective of his mid-'70s albums. Indeed, *Shot in the Dark*, the new band he unveils on these sessions and with which he graciously shares credit, matches the sure-footed studio groups he has worked with in the past. The problem is in the songs.

Stewart's musical high card, as played on the midcareer sleeper that brought him attention in 1974 ("Past, Present, and Future"), has been a canny

coupling of commercial folksong structure with pop and folk instrumentation. That combination seemed refreshing when compared to the hyperbolic rock drama and slick pop narcissism of the time. But his topical mix of historical vignette and courtly romance has varied little since. Here he bears witness to the fall of Byzantium (*Constantinople*), describes the American dream as envisioned by turn-of-the-century immigrants (*Murmansk Run/Ellis Island*), and contrasts a fable of romantic enchantment (*Rocks in the Ocean*) with a world-weary, tongue-in-cheek tribute to a tacky waitress (*Mondo Sinistro*). His stance on each recalls specific models from his own earlier songs.

All of this means that consistency is the sole justification for the new set. Even given his excellent taste in arrangements and the seamless playing of *Shot in the Dark*, for this listener consistency isn't nearly enough.

The Vapors: New Clear Days

Vic Coppersmith-Heaven, producer
United Artists LT 1049
by Andy Edelstein

The Vapors are second-generation English new wave. Discovered by Jam bassist Bruce Foxton, they toured England last year with that band, and even use its producer on their debut LP, "New Clear Days." Similarly, the group shares the Jam's initial affection for the early Who sound—pop-based power chords churning beneath high, quavering harmonies—which is, by now, tiresome. Still, their first album does contain occasional snippets of brilliance.

Vic Coppersmith-Heaven is clearly in control here, polishing the Vapors' rough edges, using lean, sparse hooks, and minimizing the role of lead guitarist Ed Bazalgette. In fact most of the band's propulsion comes from its hyperactive and inventive bassist, Steve Smith. Former attorney turned lead singer/rhythm guitarist David Fenton wrote all nine tunes, using precise, clipped tones to convey the sense of fatalism that the Vapors strive (overbearingly at times) to project. From the album title pun on in, his themes—alienated youth (*Prisoners*), generational strain (*News at Ten*), trendy girlfriends (*Spring Collection*)—have been explored previously by many including the Jam's Paul Weller.

But Fenton clicks on two occasions, both of which involve Oriental themes.

Continued on page 107

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Robert Conti: Solo Guitar

Albert Marx, producer
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Although Robert Conti is a jazz guitarist who grew up playing with Pat Martino, most of the numbers here are low-key mainstream ballads along the lines of *My Funny Valentine*. Yesterday, and the theme from *A Man and a Woman*. Engineer Dave Ellsworth achieves an incredibly resonant sound, providing an excellent showcase for this fluid guitarist's lush and classically influenced approach to melody.

Bob Cooper: Tenor Sax Jazz Impressions

Albert Marx & Dennis Smith, producers
Direct-to-disc
Trend TR 518

Engineer Dave Ellsworth again does a fine job here, making saxist Bob Cooper's delightfully lazy tones seem to just ooze out of the speakers. Cooper—a West Coast tenor player very much in the Lester Young via Stan Getz tradition—is here backed by pianist Carl Schroeder, bassist Bob Magnusson (an outstanding accompanist), and drummer Jimmie Smith. It's a relaxed pearl of a set.

Neil Diamond: Hot August Night

Tom Catalano, producer
Half-speed mastered
MCA/Mobile Fidelity
Sound Lab MFSL 2-024
(two discs)

Recorded live at L.A.'s Greek Theater in 1972—and originally released that same

year on MCA—this double album contains such Diamond standards as *Song Sung Blue*, *Sweet Caroline*, and *Holly Holy*. Diamond's passion sounds more convincing than ever, particularly against the full string section, which probably benefits the most from the remastering process.

Bob Florence Big Band: Live at Concerts by the Sea

Albert Marx, producer
Digitally mastered
Trend TR 523

Whew! Turn up the volume on this one and it's like having an absolutely stellar big band in your living room. The brass and woodwinds sound better than being there, and Pete Christlieb's tenor solo on *I'll Remember* is simply gorgeous.

John Klemmer: Straight from the Heart

John Klemmer & Stephan Goldman, producers
Direct-to-disc
Nautilus NR 4

From Klemmer's low-down, florid bell tones to his highest wails, this is what a saxophone really sounds like. Direct-to-disc also means no overdubs, so each take of this virtuoso's standards (*Arabesque*, *Touch*) is like a freshly cut flower.

Melissa Manchester: Melissa

Vini Poncia, producer
Half-speed mastered
Arista/MFSL 1-028

"Melissa" was originally released on Arista five years ago and contained her starter hit, *Midnight Blue*. Though Vini Poncia's wall-of-pop pro-

duction still isn't my cup of tea, thanks to the remastering process, Manchester's honey-eyed voice never sounded better or more intimate.

Shelly Manne Jazz Quartet: Interpretations of Bach and Mozart

Albert Marx, producer
Digitally mastered
Trend TR 525

On "Interpretations of Bach and Mozart," the advantages of digital recording are heard most clearly from the sweet tones of Gary Foster's flute. Less present, though certainly more full-bodied than if the process had been analog, is Mike Wofford's lilting piano. The arrangements are imaginative and tasteful, and formidable drummer Manne swings through these classics without ever getting corny.

Lincoln Mayorga & Amanda McBroom: Growing Up in Hollywood Town

Lincoln Mayorga & Doug Sax, producers
Direct-to-disc
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Amanda McBroom wrote the title tune from *The Rose*; pianist/arranger Lincoln Mayorga played on the recording. "Growing Up in Hollywood Town" reveals that McBroom also has a gorgeous soprano voice, somewhat in the pop style of Judy Collins. Recorded with first-rank L.A. studio musicians on the scoring stage at MGM, the music, the production, and the direct-to-disc engineering are about as highbrow and classy as easy listening ever gets.

Bob Seger & the Silver Bullet Band: Night Moves

Bob Seger, Muscle Shoals Rhythm Section, Punch Andrews, & Jack Richardson, producers
Half-speed mastered
Capitol/MFSL 1-034

The big difference between this and the original is that the lowered distortion and noise has increased the separation between instruments phenomenally. Guitar solos and drums in particular are punchier and rock much harder. A classic Seger effort.

Bruce Springsteen: Born to Run

John Landau, Bruce Springsteen, & Mike Appel, producers
Half-speed mastered
Columbia Mastersound
HC 33795

Half-speed mastering has added dramatic clarity to Springsteen's voice and band, especially on the tunes with less reverb, like *Thunder Road* or *Tenth Avenue Freeze Out*. Yes, it's worth the higher price tag than the original, which was released in 1975.

Steeleye Span: All Around My Hat

Mike Batt, producer
Half-speed mastered
Chrysalis/MFSL 1-027

English folk/rock band Steeleye Span's strongest suit was always chiming vocals, although it had its moments instrumentally as well. Here, the purity of those voices wrapped around charming plainsong ditties is what makes the remastered original worth having.

Continued from page 105
Turning Japanese (a Top 5 hit in England) straddles the line between wit and insensitivity. *Letter from Hiro*, which contains the album's cleverest line ("the age of reason is out to lunch"), shifts dramatically from an otherwise ordinary rocker into a graceful, two-minute, Kabuki-like coda. Though that gentleness is never heard again, it is one of several surprises that show the Vapors may have more substance than their name implies.

|||JAZZ|||

Tom Artin and Condon's Hot Lunch

Tom Artin, producer
 Slide Records (132 Grandview
 Ave., Monsey, N.Y. 10952)
 by John S. Wilson

One of the nicer oddities about jazz in New York is the Friday midday jazz session. Les Lieber's Jazz at Noon series, which mixes very capable amateurs with a professional guest, has been running for fifteen years. Eddie Condon's Hot Lunch, together for more than five years now, has developed its own distinctive repertoire, some of which is on "Condon's Hot Lunch." Many of the players here are familiar to nighttime audiences at Condon's and at neighboring Jimmy Ryan's. Cornetist Pee Wee Erwin, clarinetist Jack Maheu, and drummer Ernie Hackett are part of the former family. Bobby Pratt plays trombone at Ryan's and shifts to piano and vocals when he goes to Condon's at noon. Rounding out the personnel are trombonist/Hot Lunch leader Tom Artin and bassist Dick Waldburger.

This album is a mixture of traditional jazz standards, pop songs of the '20s and '30s, Swing, and blues. The mainstays are Erwin, projecting exquisitely on *Rockin' Chair*, and Artin, showing his range and expressive tone on *Star Dust*. Together they create the set's high point, Artin's *Out to Lunch Blues*. Erwin plays with a gorgeously dark-toned lyricism, and his partner shows off a big, bristling tone that combines the laidback style of Jack Teagarden with the propulsive phrasing of Lou McGarity or Cutty Cutshall. Pratt has an easy, ambling piano style and sings *I Double Dare You* in what must be the huskiest voice in town (although anybody's vocal cords might be rusty at noon). Maheu's warm and woody clarinet

builds with a bubbling, joyous momentum. The program also includes *S'posin'*, *Smiles*, *That Old Feeling*, and *Mandy*.
Make up Your Mind.

Concord Super Band II

Carl E. Jefferson, producer
 Concord Jazz CJ 120 (two discs)
 by John S. Wilson

The Concord Super Band is composed of some of the most prominent neo-Swing players. Representing the young Eastern school are tenor saxophonist Scott Hamilton, bassist Phil Flanagan, and cornetist/flugelhornist Warren Vaché. All of them have been part of Benny Goodman's groups in the '70s, as has midwestern guitarist Cal Collins. Rounding out the personnel are two musicians who were swinging long before "neo" ever surfaced—pianist Dave McKenna and drummer Jake Hanna—and producer Carl Jefferson, whose Concord Jazz Festival spawned his record label.

This two-disc, in-concert set was recorded in 1979 at the end of the band's second tour of Japan. The rhythm section lays down a supportive, unhurried beat, enabling the rest of the players to float over such numbers as *Crazy Rhythm*, *Gone with the Wind*, *Just Friends*, *In a Mellow Tone*, and *The King*. All are played with the kind of relaxed confidence that is the very essence of Swing. *Oh Baby*, a piece that can be rushed into a fluster, is crisp and contained, prodded by Collins' dancing guitar and McKenna's solid piano.

There are solo pieces for Hamilton, McKenna, Collins, and, most notably, Vaché. Having consolidated all the standard trumpet elements from Armstrong to Clifford Brown, Vaché is the most adventurous, exploratory member of this neo-Swing society. He uses unexpected phrases and moves in seemingly unlikely directions, but does so within the context of a mainstream style. Finally, vocalist Anli Sugano makes an unscheduled appearance on *Sunny Side of the Street*.

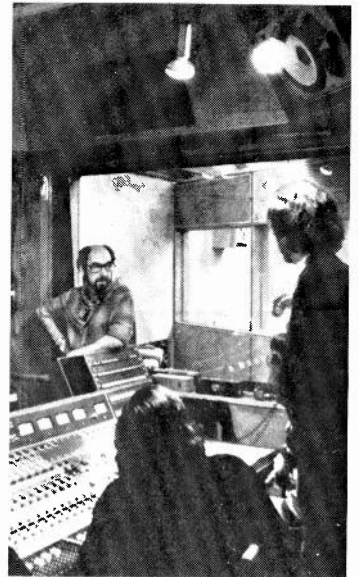
Panama Francis and the Savoy Sultans, Vol. 1

Black and Blue, producer
 Classic Jazz CJ 149
 by John S. Wilson

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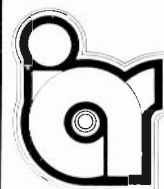
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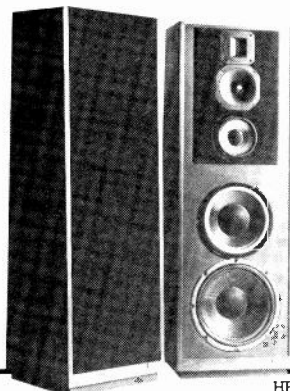
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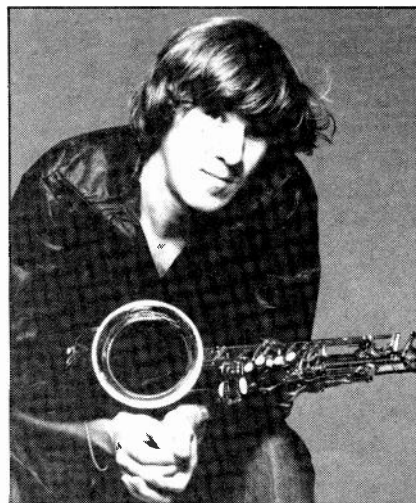
Savoy Ballroom in Harlem—from 1937 to 1946. For six of those nine years, Panama Francis was in Lucky Millinder's band at the Savoy, which gave him plenty of opportunity to observe the celebrated Sultans. His drumming background also includes the bands of Roy Eldridge and Cab Calloway and recordings with Billie Holiday, Dizzy Gillespie, Joe Turner, and Dinah Washington.

The Sultans were the ultimate "jump" band, keeping the demanding dancers lindyng and jitterbugging around "the track," as the dance floor was known. Early in 1979, Francis formed a group in the Sultans' image to go to Europe and play that band's arrangements, along with those of such other Savoy ensembles as Millinder, Chick Webb, Count Basie, and Jimmie Lunceford. Though the tour was a success, almost a year passed before he began getting engagements in the U.S.

"Panama Francis and the Savoy Sultans," cut in Paris in January 1979, is a good sampling of the Sultan's characteristically tight, jumping performances. It is a lively, vital presentation, showing off the distinctive soloing of onetime Ellington altoist Norris Turney, the swinging piano of Red Richards, and the pure singing tone (much like Doc Cheatham's) of Irvin Stokes, a relatively unheralded trumpeter. Though the band has improved since this was recorded, the set does preserve the old Sultans' spirit via the relaxed *Gettin' in the Groove*, the riffing exchanges of *Stitches*, and the tremendous drive of *Frenzy*. And there are a pair of tunes from the Millinder and Webb books, *Little John Special* and *Clap Hands Here Come Charlie*. But the high point has nothing to do with the Sultans or the Savoy. It is a tribute to Johnny Hodges, *Checkered Hat*, which Turney plays with deep affection and appreciation, giving his performance a radiant glow.

John Klemmer: Magnificent Madness
Stephan Goldman & John Klemmer,
producers, Electra 6E284
by Don Heckman

Taking potshots at John Klemmer is becoming as easy as shooting down Richard Nixon or quoting punk rock lyrics. But the truth is that Klemmer's recent outings are sad parodies of whatever it was that he once did well. "Magnificent Madness" is his usual mix of Echo-plex space improvisation and syrupy tunes, including some silly originals here sung by Danny O'Keefe and Bili Thedford. I expect the title track will find its way onto the singles



Klemmer: syrupy tunes

charts, where it probably belongs. To his credit, Klemmer's commercial vision hasn't become at all blurred by his recent creativity failure.

However, I find it almost impossible to sort out the other tracks. *I Can't Help It* blends into *Adventures in Paradise*; the sleep-provoking miasma of *Don't Take Your Love Away* moves inexorably (and appropriately) into *Déjà Vu*. Incredibly, any trace of their originators—Stevie Wonder on *I Can't Help It*, Minnie Riperton and Joe Sample on *Adventures in Paradise*, and Isaac Hayes on *Don't Take Your Love Away* and *Déjà Vu*—drifts off in the Echo-plexed winds. Though one can't fault Klemmer for his choice of material, one can for what he does to it.

The newest and most disturbing element here is the fact that Klemmer's improvisations are beginning to sound shopworn. In the few moments when he plays openly, unencumbered by electronic gimmickry, he sounds lacking in ideas and, worse, rhythmically confused. An extended sabbatical away from commercial demands might be the thing Klemmer needs. He's too good to make records like this.

Late Band Ragtime
Compiled and annotated
by David A. Jasen
Folkways RBF 39
by John S. Wilson

For several years now, David Jasen has been turning out invaluable collections of ragtime and subsequent novelty piano styles of the '20s. "Early Band Ragtime," this LP's predecessor and his first move into ensemble recordings, covered early-nineteenth-century military concert

band works. "Late Band Ragtime" picks up where that album left off, tracing ragtime dance and jazz bands from the '20s into the '50s.

The early pieces include a performance by an unidentified pianist with the Broadway Dance Orchestra on *Ragging the Scale* (1923). Roy Barge with Isham Jones's Orchestra (1924), and Arthur Schutt playing *Doll Dance* with Sam Lanin's Orchestra (1927). All of these arrangements are basically extensions of piano solos. But then the collection opens some new doors. Ben Bernie's orchestra on *Cannon Ball Rag* (1928) reveals a surprisingly aggressive jazz ensemble filled with driving soloists. Segar Ellis' Choirs of Brass Orchestra plays *Shivery Stomp* (1937)—an arrangement of Ellis' piano solo—with a heavy attack that sounds more like the black bands of the '20s than the emerging Swing bands of the mid-'30s. Ozzie Nelson's *Maple Leaf Rag* (1938) is a showcase for the relaxed and swinging group he led, complete with a beautifully swinging trumpet solo by Bo Ashford and the flowing drive of Charlie Buebeck's wandering baritone saxophone.

In the traditional jazz revival of the '40s, ragtime pianists, headed by Wally Rose, came back into the picture. Unfortunately, the unexpected success in 1948 of Pee Wee Hunt's deliberately corny *12th Street Rag*—still a fun record after thirty-two years—sent ensemble ragtime down some tiresomely repetitious alleys. But Jasen has found some exceptions, such as Pete Daily's band, which continued to give ragtime its due. That makes his reasoning behind the inclusion of *Hey, Taxi!*—a slick novelty by Leroy Holmes and his Tug Boat Eight—all the more perplexing. Perhaps it's simply for the voice of Ernie Kovacs shouting the title in various intonations.

George Lewis and His Ragtime Band: In Concert
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George Lewis was a pivotal figure in the development of latter-day New Orleans jazz. Having played in Bunk Johnson's band, he was a link between that 1940s New Orleans Revival leader and the current Preservation Hall Bands (in which all of the personnel on "In Concert" played). The selections here are taken from a Lewis band concert in Springfield, California, in May 1954. Represented are

Continued on page 112

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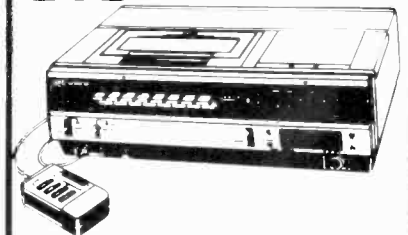
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Continued from page 109

Kid Howard on trumpet, Jim Robinson on trombone, Alton Purnell on piano, Lawrence Marrero on banjo, Alcide "Slow Drag" Pavageau on bass, and Joe Watkins on drums.

Despite a similarity in all these latter-day New Orleans groups—primarily because they all drew on a relatively small pool of musicians—the Lewis band had some identifiable characteristics. The essential one came from Lewis' thin, reedy, plaintively singing clarinet style, demonstrated here on *Burgundy Street Blues*. But the band also played with an ensemble power that usually was more electrifying than any of the Preservation Hall groups, even those that used these same musicians. Robinson's broad, swaggering trombone seems more exuberant than when he became absorbed in the routines of the Hall in the '60s, and Howard is a consistently gutty trumpeter. *The World Is Waiting for the Sunrise* and *Panama* show the rhythm section to have a drive that the Hall's bands rarely achieved.

Still, Lewis' group was subject to the same vagueness that afflicted many of these bands when they were trying to build momentum. On "In Concert" it fumbles its way through *Caledonia* until it is finally rescued by Watkins' confident, sassy vocal.

Ike Quebec:
With a Song in My Heart
Michael Cuscuna, producer
Blue Note LT 1052
by John S. Wilson

Ike Quebec was a tenor saxophonist in the tradition of Coleman Hawkins, Ben Webster, and Chu Berry. His tone ranged from feathery and gentle on up-tempo numbers to close and intimate on ballads to big and aggressive. Yet, although he was featured in Cab Calloway's band—alongside Webster, Berry, Illinois Jacquet, and Sam the Man Taylor—the recording ban of the early '40s kept him from cutting any sides with Calloway. And by the time he led his own groups on a series of Blue Note sessions in the mid-'40s, bebop was coming up and the older tradition that he represented was on its way out. When he finally returned to the studio for Blue Note in '61 and '62 at the age of forty-four, his time had run out, for he died a year later.

All of this has served to keep Quebec's talents a virtual secret. Now, seventeen years after his death, Blue Note is finally releasing for the first time material



Wheeler: originality, intellect, and spontaneity

from two of those '62 sessions, along with two previously issued selections. The emphasis on "With a Song in My Heart" is Quebec's ballad style—the slow, warm, curling lines that seem to float and kick at the same time. His artistry is evident in the way he sustains these slow pieces, never letting them bog down, never overdressing them, and never resorting to tonal exaggeration. *How Long Has This Been Going On*, *Imagination*, and *What Is There to Say* are gorgeous performances, given light, pastel settings by Earl Vanddyke's organ. The faster pieces—*All of Me*, *But Not for Me*, *With a Song in My Heart*—are relatively superficial examples of his swinging power. That can be heard in better light on those mid-'40s Blue Note sessions, titled "Swing Hi-Swing Lo."

Kenny Wheeler: Around 6
 Manfred Eicher, producer
 ECM 1-1156
 by Don Heckman

Though trumpeter Kenny Wheeler has been active on the English jazz scene since the late '50s, he has been a virtual nonentity to the American jazz audience. Part of the reason may be that he is that rarest of rara avis, a white English avant-gardist. But it is an undeserved neglect, because Wheeler is a gifted composer/improviser.

On "Around 6," his third ECM album as a leader, he creates a seldom-heard commodity in contemporary music—an original sound. The stately lyricism

of *Mai We Go Round*, for example—especially in the section where overdubbed trumpet lines wind sinuously around each other—is quite unlike any other contemporary jazz you're likely to hear. So is the playful way in which the pointillistic fragments and loose-jointed lines of *Follow Down* suggest an improvising New Orleans ensemble.

Riverrun contains some bright parallel ensemble harmonizations and a soaring improvisation by Wheeler. *Lost Woltz* is unexpectedly romantic with a sardonic trace. Wheeler is a highly controlled, but never cold, improviser, his phrasing reflecting a sense of direction that properly balances intellect with spontaneity. *Solo One*, an unaccompanied impromptu, is a superb illustration of his capacity for making cohesive structures out of avant-garde methodology.

For the most part, his companions are just as good. Saxophonist Evan Parker's solos on *Mai We Go Round* and *Follow Down* are ravishing demands for attention; his playing quite literally rears up and shouts that he is an important improviser—one who should be heard from more frequently. Trombonist Eje Thelin, a bit out of his stylistic waters, nonetheless manages to squeeze in his boppish lines adroitly, and Tom Van Der Geld plays vibraharp fills with uncharacteristic (for the instrument) vigor. But the real accompaniment accolades go to the steaming, but never overwhelming, rhythm team of drummer Edward Vesala and bassist J. F. Jenny-Clark.

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It would be nice if "Around 6" would help open up Wheeler's reputation in the American market. It's hard to imagine that anyone hearing even a little of his music wouldn't want to hear more.

Bob Wilber and the American All Stars: In the Mood for Swing

Anders R. Ohman, producer
Phontastic 7526 (Bidewell Record
Distribution, 24 Skipper's Drive,
Harwich, Mass. 02645)

by John S. Wilson

In 1978, when saxophonist Bob Wilber was in Sweden performing with Kenny Davern in Soprano Summit, Wilber met and recorded with Lars Erstrand, a vibraphonist in the Lionel Hampton tradition. Another Swedish session with Erstrand resulted in "Swingin' for the King" (also on Phontastic), a set of arrangements by Wilber, most of which were based on the Benny Goodman combo repertoire. Eventually Wilber brought the vibist to the U.S. to do some of the small-group material that Hampton recorded in the late '30s while still with Goodman. The result is "In the Mood for Swing." Wilber and Erstrand are surrounded by established American jazz musicians: Jimmy Maxwell on trumpet, Norris Turney on alto saxophone, Al Klink and Frank Wess on tenors, pianist Hank Jones, guitarist Bucky Pizzarelli, bassist Michael Moore, and drummer Connie Kay. Like the Goodman set, this LP preserves the Hampton spirit, but through Wilber's arrangements and the musicians' individual personalities. Erstrand comes through brilliantly, establishing an affinity to Hampton without cloning him.

Wilber's saxophone voicings suggest that he has been studying the writing of Benny Carter, two of whose pieces—*When Lights Are Low* and *I'm in the Mood for Swing*—are included. Maxwell's flaring trumpet, with some growling Cootie Williams entrances, is a bright-toned contrast to the mellow saxophones, and the other soloists make their points quickly and well.

The Phil Woods Quartet, Vol. 1

Bill Goodwin, producer
Adelphi/Clean Cuts CC 702
by Don Heckman

I know it sounds terribly old-fashioned, but it's nice to know that in a

twenty-four-track world of platinum-or-bust production, musicians like Phil Woods can still survive. It's even nicer to hear him in an uncluttered, live performance accompanied by a rhythm section that is clearly up to his own high standards.

Clean Cuts stresses that this album was recorded "live" on "100% pure virgin vinyl." And it shows. "The Phil Woods Quartet, Vol. 1" has all the joys—and a few of the flaws—of a typical, Monday-night-in-Austin, Texas session by world-class jazz players. Aside from sounding fat, alive, and accurate, the instruments are in the right position and proportion to each other.

Woods seems to have exorcised some of the rock music demons that have beset him in recent years and returned to the rich, bop-based improvisational style that made his early reputation. He starts the set with a fine, evocative blues by Charlie Parker, *Bloomdido*, playing with a strutting exuberance that would have made Parker proud. (Woods was once married to Parker's widow, Chan.) On *Everything I Love*, a chord-loaded, somewhat obscure Cole Porter ballad, he pushes his bop phrases into areas that even Parker never managed to reach. Alas, he doesn't stop quite soon enough, and two thirds of the way through, an otherwise brilliant solo resorts to easily available noodling.

The performance of Benny Golson's funky, soul/jazz *Along Came Betty* is surprisingly laidback, and, though I'm not sure that's the proper interpretation, there is no faulting Woods's upbeat improvisation. Steve Gilmore's crisp bass work, Mike Melillo's high-energy piano, and some last-minute explosions from drummer Bill Goodwin. Bud Powell's *Halucinations* (titled *Budo* when it was performed by the Miles Davis Nonet in 1949) is a demanding line that springs one of Woods's best solos. It's the kind of wonderfully intricate excursion in and around the chord changes that requires mechanical, aural, and imaginative dexterity.

One side point: Woods could have recorded five lines of his own and thereby collected the mechanical royalties for himself. But he instead chose pieces that he wanted to play—for his own creative reasons. So listen to this record. Artists like Phil Woods and labels like Adelphi/Clean Cuts are worthy of our attention and encouragement.

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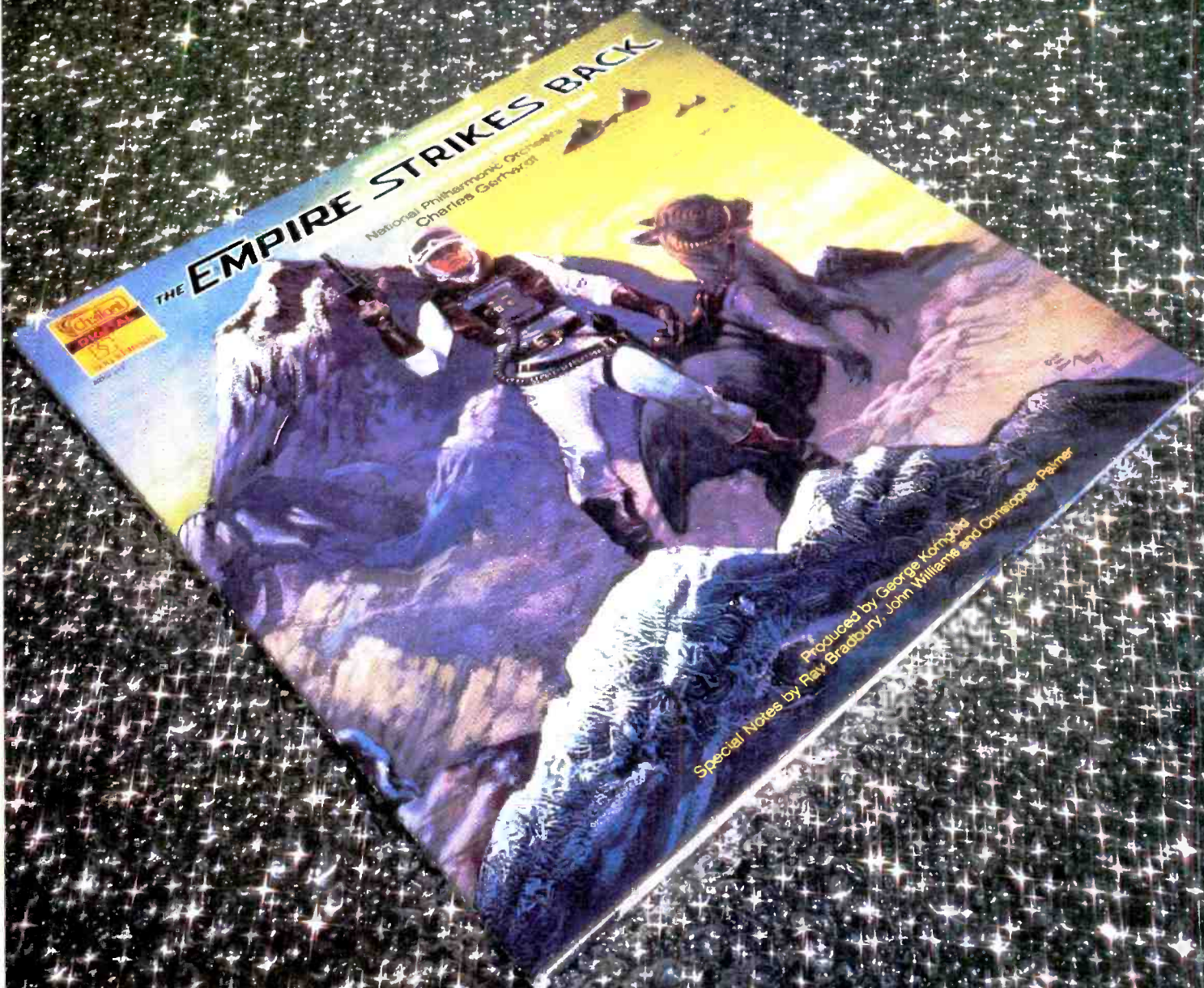
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