SPECIAL SPEAKER ISSUE

How to Get the Most from Your Speakers
How Julian Hirsch Chooses Speakers
Ten Tips for Speaker Buyers

Equipment Test Reports
- Mission 700S Speaker System
- Realistic STA-112 AM/FM Receiver
- JBL J216 Speaker System
- Hitachi HT-68 Record Player
- Yamaha K-2000 Cassette Deck
Plus
- Alpine 7347 Car Stereo System

Disc Specials
ZZ Top • Santana • U2
Waylon Jennings & Willie Nelson
José Feliciano • Say Amen, Somebody
Berlioz's Symphonie Fantastique
Bishop's Schubert • Curzon's Mozart
Piano Music from France

Special Test:
Do Audiophile Speaker Cables Make a Difference?
PERFORMANCE MAKES ALPINE/LUXMAN SYSTEMS WORTH EVERY PENNY...
AND IT’S OUR SELECT DEALERS WHO HELP YOU GET YOUR MONEY’S WORTH."

Reese Haggott, Executive Vice President/General Manager

It all comes down to performance. That’s why at Alpine/Luxman, we go to such extreme lengths to isolate and incorporate the innovations, technologies and refinements that can bring you a step or two closer to perfection.

Take dbx® for example. It’s a superior noise reduction system engineered to completely eliminate amplifier and tape noise. And with the Alpine 7347 and Luxman X-series components (shown at left), Alpine/Luxman is the first to bring the superior performance of dbx® to both car and home audio.

But while advanced engineering can promise unheard-of performance, it takes a sophisticated audio specialist to properly tailor that potential to your particular listening environment.

Which is why we also go to the lengths we do to pick and qualify every one of our select audio dealers.

And why they go to such lengths to insure the Alpine and Luxman products they recommend, install and service will more than live up to your expectations.

You select Alpine/Luxman because you want the finest.

So we want to make sure you get your money’s worth.

Now You Can Copy Tapes in Half the Time With Radio Shack's Dubbing Deck (and do it for $60 less!)

Reduced $60.00. At $339.95, the Realistic® SCT-28 was a great deal. Now at $279.95, the convenience of a dual-cassette deck is even more affordable!

High-Speed Dubbing. Duplicate your tapes at twice the normal recording speed. You get professional sounding copies and you save time, too—no second deck or patch cords required.

Two Superb Decks in One. Deck-1 is designed for playback only, and features a special narrow-gap tape head. Deck-2 has full record/play capability and a wide-gap head for superior recording results. And both decks feature soft-touch controls for smooth, easy operation.

Continuous-Play Function. You can set the SCT-28 to automatically play two cassettes in sequence for up to two hours of uninterrupted music.

Auto-Search Music System. Deck-1 has ASMS to help you locate your favorite selections quickly. Each time you press the button the SCT-28 finds and plays the next or previous song automatically!

Features for Great-Sounding Copies. You get Dolby® B noise reduction for expanded dynamic range and dramatically lowered tape hiss. Selectors for noise-free metal, CrO₂, high bias and normal cassettes plus a fine-bias control. Two-color, five-step LED peak meters to indicate the signal level. And a normal-speed button so you can listen as you dub. Plus, mike and line inputs let you use the SCT-28 like a regular deck.

Come in for a hands-on demonstration today and discover high-speed dubbing for yourself. Only $26 per month on Radio Shack/CitiLine credit.

"Rock'n'Roll City" Dolby Cassette Starring Mike & Dean

Only $4.99

A Radio Shack exclusive! 12 new Rock'n'Roll recordings by Mike & Dean with special guests: The Beach Boys, Paul Revere & The Raiders, and The Association. New recordings of 60's hits will make you feel 18 again. Produced by Daryl Dragon.

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Stereo Review

AUGUST 1983 • VOLUME 48 • NUMBER 8

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CHRISTIE BARTER

Regulars

BULLETIN
CHRISTIE BARTER AND GORDON SELL

SPEAKING MY PIECE
WILLIAM LIVINGSTONE

LETTERS TO THE EDITOR

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COVER: Design by Borys Patchowsky; photo by Geoff Rosengarten. A coil of Monster Cable PowerLine is shown in front of a JBL J216 speaker. See page 36 for Hirsch-Houck Labs test results on the JBL speaker.
Only dbx Sound Components offer you this many ways to improve the sound of your stereo system. We do it by giving, and by taking away.

Our 3BX Series Two Dynamic Range Expander, for example, gives back up to 50% of the dynamic range that was lost in the recording studio. So your music takes on a new “liveness,” with more impact, drama, definition and punch.

The dbx 120 Subharmonic Synthesizer gives back the deepest bass notes that are lost on records, tapes, and FM broadcasts. Which means that with the 120, you get the kind of bass you hear in a live concert. The kind of bass you can feel.

There are some things dbx taketh away. Like tape noise. The dbx 224 Noise Reduction System audibly eliminates the tape hiss from cassettes and open reels that a Dolby* system merely reduces. The 224 also includes a Disc Decoder for dbx Discs, Digital dbx Discs, and dbx Cassettes.

To complete your system, try the Model 200 Program Route Selector. It lets you “route” the audio signal through as many as three tape decks, a noise-reduction system, and three sound processors.

Of course, you don’t just have to read about the dbx difference. You can hear it at your local authorized dbx retailer. Or, for our full line brochure, call or write dbx, Incorporated, Route 303, Blauvelt, N.Y. 10913 U.S.A. (914) 358-6060 TELEX: 13-7441.

Music can’t live without us.

*Dolby is a registered trademark of Dolby Laboratories Licensing Corporation.
VHS HI-FI, the stereo, high-fidelity sound system for VHS VCR's, has been announced by two companies, JVC and Matsushita (parent company of Quasar, Technics, and Panasonic). This greatly anticipated follow-up to Beta Hi-Fi is claimed to have a frequency response of from 20 to 20,000 Hz and a signal-to-noise ratio in excess of 80 dB. JVC demonstrated a prototype at the just-finished Consumer Electronics Show in Chicago; it is said to use a compander (compressor/expander) type of noise reduction but not dbx. Matsushita's unit, which the company says is on the market in Japan, does use dbx noise reduction. Matsushita says it is not putting the machine on the U.S. market yet because there is no stereo TV broadcasting here yet.

DIGITAL COMPACT DISCS from CBS will be released at the rate of twelve a month for the next few months as CBS takes over distribution of its CD's from Sony. The repertoire will be more or less equally divided between pop and classical, and while the retail price will be at the dealer's option, it is expected to be in the $17-to-$20 range. Each CD, in its now-standard small "jewel box," will be issued in a 6 x 12-inch display pack along with notes and artwork....August is also the month that the PolyGram and Warner labels intend to enter the CD software market, joining the two front-running independents, Telarc and Denon....RCA and Capitol/Angel will not release their CD's until after Labor Day.

TECH NOTES: Sony has announced the development of a digital tape recorder that uses a cassette that is half the size of a standard audio cassette and can store three hours of music. The tape recorder is said to use VCR-style rotating heads....dbx demonstrated a prototype speaker at the Consumer Electronics Show with phased-array drivers for an enhanced sound image. ...Also at Summer CES, Philips and Mitsubishi demonstrated prototype Compact Disc players for car use....Tandberg of Norway recently celebrated its fiftieth anniversary....The Compact Disc Group, an association of CD player and software manufacturers, has published the first CD catalog. Listing 250 titles that will be in stores by August, it is available for $1 from: Compact Disc Group, P.O. Box 2395, Rockefeller Center Station, New York, N.Y. 10185....A full report on the latest developments in audio that were seen at the Summer Consumer Electronics Show will be in our September issue.

THE BRITISH PHONOGRAPHIC INDUSTRY, BPI, originated this mail cancellation logo for use by its member record companies; it has come to us on several packages from EMI. We are reproducing it here for its news interest, not as an editorial comment.

SCHWANN CITED: The Music Library Association has honored William Schwann, publisher of the Schwann Record & Tape Guide, with a citation "in recognition of his distinguished services." The formal presentation in Philadelphia also marked 33-1/3 years in the life of the Schwann catalog itself and a total of 33-1/3 million copies printed and sold. Boston's Mayor Kevin H. White cited Schwann, as well, for his "vision and commitment" and for his "unique place within the music world."

"VIDEO LP" TAPES are the latest in software from Sony. The first releases feature live performances by Lionel Hampton, Rob McConnell and the Boss Brass, and the Bill Watrous Refuge Band. Each contains roughly twenty-five minutes of digitally mastered stereo-music video and is priced at $19.95 (Beta Hi-Fi) and $24.95 (VHS). The tapes are the first commercially released videos with digital stereo music and Sony's first video releases of jazz.
AUDITIONS

Before I came to work for Stereo Review, I was the humanities editor of a large encyclopedia. The change from making annual revisions on a fairly scholarly reference book to editing a monthly magazine about audio equipment and recorded music required a difficult shift of mental gears.

Facts and objectivity were our goals at the encyclopedia, and while I found a healthy respect for facts at the magazine (all those lab-test measurements!), Stereo Review is also a journal of opinion. At first it was shocking for me to edit record reviews filled with subjective evaluations. Some even contained the pronoun "I."

Then there was the question of technical jargon. After a few years I got used to the word "optimize," but it took me longer to accept the notion that one could "audition" loudspeakers. I had attended auditions at which actors, dancers, or singers tried out for parts in shows, and it seemed proper to me to speak only of auditioning people, not things.

The vocal competitions in which I have been a judge are much like auditions, and I have at times been surprised at the amount of disagreement among qualified judges. In a contest a few years ago, for example, although the panel agreed easily on the male contestants, we argued about some of the singers. A few voices that had sounded vital in the little hall now seemed to lack substance, and others emerged with greater roundness and warmth. At Juilliard, Number Seven's voice sparked with so much brilliance that she was voted one of the winners. Besides a cash award, she got a chance to sing in a New York recital and was well reviewed by the Times.

The opera-company manager did not change his mind about her. Instead, he gave a contract to Number Twelve, a soprano he liked better although she was not among the winners. That singer has been quite successful since then with his company and others.

"Audition" means to give a trial hearing to someone or something, and the word can be properly used to discuss trying out loudspeakers as well as voices. Like voices, speakers sound different in different rooms, and judges at speaker auditions sometimes disagree in their opinions of the contestants.

There may be no objectively correct choice, but the auditioning process can be entertaining. We have an article on listening tests and speaker cables on page 46, and to help you make auditioning useful there is some guidance for buying speakers on page 52. An article on page 54 will tell you how to use room acoustics to get the most from your speakers when you, the impresario, have awarded your contract.
"That night I was listening to the bass player cook. As his hands went spidering up and down the strings his thum-thum-thum became the group's heartbeat — and mine too. In my living room, I had traveled once again to that smokey little jazz club long ago."

A JVC High Fidelity System can take you to another time and place, with components that reduce six different kinds of distortion down to incudible. Nothing interferes with the reality of your music. You're there.

We take you there.
In 1976, Pioneer introduced the first Supertuner technology. It elevated the car stereo tuner's ability to produce music. And sent every other car tuner maker scrambling back to the drawing boards.

Now, just when they've finally caught up to the advanced technology of the original Supertuner, Pioneer introduces Supertuner III.

So long, fellas. See you down the road in another five years or so.

FM CAR STEREO RECEPTION
SO CLEAR YOU’LL THINK YOU’RE LISTENING TO A CASSETTE.

Because music and only music is important to the engineers at Pioneer, anything that gets in the way of the music is as annoying to them as it is to you. So they’ve worked continually to develop technology so sophisticated and advanced it virtually eliminates the maddening interference common to all car tuners.

Like static. FM noise. Strong signals cutting in or bleeding.

A lot of things stand in the way of clear reception. Like buildings, mountains, even telephone poles. Radio signals bounce off them like balls on a handball court. Creating static, signals cutting in and out. Unless you have a Supertuner III.
on top of weaker ones.

In addition, Supertuner III can capture weak signals from a great distance and lock them in. So, while Supertuner III offers a great many convenience gadgets like other tuners, it offers something that none of the others can.

The clean, clear, FM stereo reception you should be getting in this day and age.

**WHICH CAR TUNER GETS THE BEST RECEPTION IS NOW PERFECTLY CLEAR.**

Of course, it's one thing to boast that no other FM stereo tuner eliminates the irritants to your listening pleasure like Supertuner III. It's another to prove it. Which is just what Pioneer did.

By road testing Supertuner III against the highest quality stereo tuners currently on the market. The test was conducted in Chicago, Illinois, perhaps the worst FM reception area in the country.

If Supertuner III outperformed the competition here, it would do it anywhere.

Using the same car, with the same antenna, and driving continuously around the same block on the Near North Side (where the world's tallest and third-tallest buildings create FM listening havoc), Pioneer put one tuner after another to the test.

And the clear winner, time after time, was Pioneer's Supertuner III. Downtown, only Supertuner III received stations that came across other tuners sounding like bacon sizzling on a hot griddle. And in the suburbs, only Supertuner III consistently was able to pick up weak stations located downtown, and hold on to them.

Of course, reading this now may impress you. But most likely you'd rather hear the real thing with your own two ears.

So, at your earliest convenience, visit your nearest Pioneer car stereo dealer and ask for a demonstration of Supertuner III.

And if, on the drive there, you get static and stations cutting in and out on your car stereo, don't just change stations. Change car stereos.

**PIioneer**

Because the music matters.

CIRCLE NO. 3 ON READER SERVICE CARD
Car Stereo

- Congratulations to Julian Hirsch and Christopher Greenleaf for their discerning test report in June on the Jensen 530 car stereo unit. I became the proud owner of one three months ago when I had it installed in my 1983 Renault Alliance. Superb sound reproduction, operating ease, and impressive specifications characterize the Jensen 530. Stereo Review should give it a Car Stereo of the Year award.

Congratulations also for Christopher Greenleaf and Gordon Sell's article on how sive specifications characterize the Jensen 530. Stereo Review should give it a Car Stereo of the Year award.

- I really enjoyed the article about car stereo acoustics in the June issue. It's the first time I've seen the subject covered so clearly. I now have a standard-equipment AM/FM radio and would like to put decent sound in my car, but I can't see spending over $1,000 for it. From the article I get the impression I'd be better off doing nothing.

Steven Costa
Denver, Colo.

Not so. Although the article doesn't state it in so many words, it is our opinion that almost any replacement car stereo system we have heard is better than the standard-equipment systems delivered with most—but not all—new cars. The in-dash AM/FM/tape units generally work better and the speakers generally perform better than standard equipment even if the whole replacement system costs only a couple of hundred dollars. In the June article we were trying to convince audiophiles that it is now possible to achieve in an automobile sound quality approximating that of fine home systems, but it requires a carefully thought-out approach and usually the services of an experienced installer.

- I wonder how car stereo installer Rich Inferrera (June, page 57) plans to enjoy listening to music when his 500-watt, 124-dB sound-pressure-level auto installation twin the last of his irreplaceable inner-ear hair cells. It seems ludicrous to invest so much attention on the output system and totally ignore the physical limits of the input system. Madness.

William Schroeder
Orlando, Fla.

Tom Snow

- I agree with Peter Reilly's comments on Tom Snow's Arista album, "Hungry Nights" (reviewed in June), but I would label his performance "disappointing" rather than "promising." It is not "his first album as a singer," since in 1976 he recorded a far superior album for Capitol ("Tom Snow," ST-11545) with a truly stellar group of pop "sessioneers." Not only were the songs better than on his Arista album, but any of them could easily be pop gold: "Hungry Boy," featuring "Stephanie" Nicks (better known as Stevie) in her finest Welsh Witch incarnation, and "Rock & Roll Widow," featuring Valerie Carter—who, like Snow, has little or no luck attracting the attention of playlist pointiffs. I found the Capitol album in the dollar bin. If anyone is to blame for its not selling, it may be the cover photographer and designer, who made Snow look positively consumptive. At least on the Arista album he looks healthy.

Dan Humiston
Arcata, Calif.

Phil Collins

- As an avid fan of Genesis, I found Mark Peck's June review of Phil Collins's latest solo album right on the mark. The only thing I might add is that Collins went through a very trying divorce around the time of his first solo album, "Face Value" (not "Face the Music," as Mr. Peck had it), and I think his songs reflected that. That might explain his being "a little down on love" in the new album too.

Brad Fuji
Evanston, Ill.

Saint-Saëns Third

- David Hall says in his June review of the new London recording of the Saint-Saëns Third Symphony by organist Peter Hurford and the Montreal Symphony conducted by Charles Dutoit that the earlier Deutsche Grammophon recording by Daniel Barenboim and the Chicago Symphony holds the edge sonically. On that I agree, but in my opinion neither of these recordings can hold a candle to the Chalfont digital recording with Loris Tjeknavorian conducting the Liverpool Philharmonic and Noel Rawsthorne playing the organ in the old Liverpool cathedral. This is one of the few recordings in which the organ and orchestra were recorded together under the same roof. The sonics are electrifying throughout, and so is Tjeknavorian's interpretation! In my book this is the one with which to compare all other recordings of the work.

Jeffrey A. Morrell
Lindenhurst, N.Y.

Journey's Genre

- It took me quite by surprise to read in Mark Peck's June review of Journey's album "Frontiers" that the band "proves its unequalled mastery of heavy-metal" and that Neil Schon's guitar "practically defines the heavy-metal genre." The band that originally defined heavy-metal is still the unequalled master of the art. Led Zeppelin. Their rare blend of blues and heavy-metal has spawned a host of imitators since 1968, but none of them, including Journey, comes close to the successful style of Led Zeppelin.

M.E. Dunaway
Louisville, Ky.

- Mark Peck's theory that "trapped inside each [Journey partisan] is a symphonic-music lover struggling to get out" is absolutely right! At seventeen, I am the result of combining a thesis (my father is a classical aficionado with a B.A. and M.A. in music from Indiana University) and an anti-thesis (my friends are anti-classical rock-and-rollers). I am the synthesis. I enjoy Mahler, Beethoven, Copland, and Gershwin as well as Journey, Def Leppard, Pat Benatar, the Go-Go's, and the Police. You must tell the world—introduce those who are deprived to the other side of the coin!

Dave Gentry
Frankfort, Ky.

Audio / Videophile

- I've been a so-called "audiophile" since 1957 and a regular reader of Stereo Review for almost as long. About three years ago I finally plunged into home video and have rapidly become an incurable "video-phile." In the meantime, audio has more or less taken a back seat, something I enjoy more in my car or boat than at home as I await the "wedding of video and audio."

Contrary to the view expressed by William Norrish in the June "Letters" column, Stereo Review has held my interest because it always has enough to say about video to make me think I might miss something from both hobbies if I don't keep reading. After all, I've never been too interested in the non-classical record reviews, but should I expect you to stop reviewing all other kinds of music?

James R. Holt
Cincinnati, Ohio
HOW COULD A CASSETTE DECK WITH TWO HEADS BE SO HARD TO GET?

The Kyocera D-801 Cassette Deck is hard to get because so much more is built into it. For example, it has five circuit boards where most decks have only one or two. But that's only the beginning.

It more than meets the ultimate tape deck challenge.

The challenge is to move tape across the heads at as nearly a constant speed as possible. Variations in speed, of course, come out in your speakers or headphones as wow and flutter. Many decks claim a wow and flutter figure of 0.05% WRMS—trouble is, speed variations of 0.05% are clearly audible with piano music (one of the most revealing tests you can give a cassette deck—try it on the D-801 and marvel!).

The D-801 by Kyocera comes through with a remarkably low wow and flutter figure of 0.02% WRMS—and that is derived from a unique, three-motor, dual capstan drive mechanism. Two capstans are driven by a direct drive motor. A beltless/clutchless simple DC motor drives the feed and takeup reels, while a third motor is used as a head-position assist drive (it greatly prolongs head-to-tape azimuth accuracy). The dual capstan system provides that sensationally accurate tape travel, maintaining proper tension between capstans to eliminate external shock source modulating noise.

It more than meets the needs of the audio perfectionist.

The D-801 goes above and beyond even the fussiest audiophile's needs with 3-position bias/equalization selection (with fine bias adjustment), 400 Hz calibration tone, Automatic Program Mute Recording, automatic search, and electronic 4 digit display, including counter, elapsed time and time remaining functions.

The D-801's noise reduction systems were built for the audio purist. It has two—Dolby B & C—Dolby B for music material of limited dynamic range, Dolby C for music of the widest dynamic range, so noise reduction can be tailored to program material.

Finally, the specs everyone wants: frequency response of 30-20,000 Hz ± 3 dB using metal or CrO₂ tape, and a S/N ratio of 78 dB with metal tape in Dolby C NR mode.

If you have any trouble finding a Kyocera dealer, contact Kyocera International, Inc., 7 Powder Horn Drive, Warren, NJ 07060 (201) 560-0060.

CIRCLE NO. 4 ON READER SERVICE CARD

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ULTRA LIGHTS: 5 mg. "tar", 0.5 mg. nicotine. LIGHTS. 10 mg. "tar", 0.8 mg. nicotine, av. per cigarette by FTC method.

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Share the spirit.
Share the refreshment.

New Products
Latest Audio Equipment and Accessories

AR Introduces Three Bookshelf Speakers

Acoustic Research's new AR58B, AR48B, and AR38B (left to right in photo) all have a Twin Drive tweeter/midrange mounting arrangement. The common mounting plate for the ¾-inch dome tweeters and 4½-inch cone midrange drivers places them in close proximity to each other and allows for precise alignment in their independent acoustic-suspension subenclosure. Woofer diameters for the AR58B, AR48B, and AR38B are 12, 10, and 8 inches, respectively.

Other specifications for the speakers include (in descending order of model number) sensitivities of 90, 88, and 88 dB sound-pressure level with 2.83-volt inputs; frequency response for the AR58B these points are 45 and 32,000 Hz, for the AR48B these points are 45 and 32,000 Hz, and for the AR38B they are 52 and 32,000 Hz. Recommended maximum amplifier power is 175, 150, and 100 watts per channel, respectively. All the speakers have cabinets finished with a walnut-grain vinyl veneer. The AR58B measures 26½ x 14 x 10¾ inches, and the AR48B 26 x 14 x 10¼ inches, and the AR38B 22 x 12 x 7¾ inches. Respective weights are 49½, 39½, and 28 pounds. Prices: AR58B, $350; AR48B, $260; AR38B, $200.

ADC Offers Two Video Sound Processors

ADC (Audio Dynamics Corp.) has introduced two signal processors for video sound, the Video Sound Shaper 1 and the Video Sound Shaper 2, that are said to improve the sound quality of video recordings and broadcasts while fully integrating home audio and video systems.

The top-of-the-line VSS-2 (shown) connects to any audio amplifier through the tape-monitor loop and provides full monitoring and dubbing facilities for up to three video sound sources as well as a television set. A fader control lets the user fade out and in both sound and picture, and switching facilities make it easy to dub soundtracks from audio to video cassettes. A microphone input and a mixing control make it possible to add narration to video recordings. Included with the VSS-2 is an audio expander that increases the dynamic range of any video sound source by up to 40 per cent. The unit can also synthesize a two-channel pseudo-stereo signal from a mono input, and a “De-Hisser” function reduces distortions caused by ultra-low-frequency signals from analog disc warps.

Tandberg's Top-of-the-Line Cassette Deck

The transport of Tandberg’s new three-head TCD 3014 cassette deck is built on a 6-millimeter-thick aluminum base plate and uses four servo-controlled d.c. motors in a closed-loop dual-capstan system. The capstan flywheels, belt driven by the capstan motor, have different diameters and masses to prevent reinforcement of resonant frequencies. The two reel-hub motors provide constant tape-winding tension even in fast-winding modes. Tape slack is automatically taken up when any transport function is selected. The fourth motor moves the head assembly, preventing the mechanical shocks that the usual solenoids can impart.

An eight-bit microprocessor controls all transport functions. The multifunction transport-control buttons allow many combinations of scan, search, and memory-preset selection cueing. The front-panel digital counter always displays real-time readings, even in fast-wind modes. The primary transport-control functions are duplicated by an optional infrared remote-control unit.

The audio circuitry of the deck incorporates direct coupling throughout the signal path, discrete transistors for all the audio circuitry except the Dolby-B and Dolby-C IC’s, and phase-compensated ultra-wideband amplifiers. Electrolytic and ceramic capacitors have been replaced with high-grade polypropylene and polystyrene units. Low-noise metal-film resistors are used in the signal path. A built-in fourth-order (24-dB-per-octave) infrasonic filter prevents distortions caused by ultra-low-frequency signals.

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The audio circuitry of the deck incorporates direct coupling throughout the signal path, discrete transistors for all the audio circuitry except the Dolby-B and Dolby-C IC’s, and phase-compensated ultra-wideband amplifiers. Electrolytic and ceramic capacitors have been replaced with high-grade polypropylene and polystyrene units. Low-noise metal-film resistors are used in the signal path. A built-in fourth-order (24-dB-per-octave) infrasonic filter prevents distortions caused by ultra-low-frequency signals.

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New Products

Apogee's Full-Range Ribbon Loudspeakers

Apogee Acoustics has introduced a loudspeaker system that is claimed to be the first ever to use ribbon drivers to reproduce the entire audio spectrum. The woofer, midrange, and tweeter of the Apogee system are all constructed of corrugated, tempered aluminum strands that measure less than 0.001 inch thick. Ribbon-driver technology is claimed to make possible tremendous improvements in sonic clarity over more conventional designs.

The midrange and tweeter ribbon elements of the Apogee speaker are fastened to the system's framework only at the top and bottom; magnetic and electromagnetic forces keep them centered in the vertical slots of the frame. The tweeter is constructed as a line source, using 1/2-inch ribbons, and directs equal output forward and to the rear for full horizontal dispersion. The midrange driver is a single 2-inch-wide ribbon. The ribbon woofer is trapezoid-shaped and averages 12 inches in width; the unusual shape is intended to avoid resonances. The system's "seamless" crossover network has crossover points at 200 and 1,000 Hz. Overall frequency response is 30 to 30,000 Hz. The system can produce a sound-pressure level of 115 dB when driven by a 100-watt amplifier. The Apogee speaker measures 80 x 35 x 4 inches. Price per pair: $5,000. Apogee Acoustics, Inc., Dept. SR, 920 Providence Highway, Norwood, Mass. 02062.

Circle 122 on reader service card

New Car Stereo Lines From Mitsubishi

Mitsubishi has introduced two lines of car stereo components, the Diamond Collection and the Specialty Series. The RX-735 (shown), in the Diamond Collection, is a quartz-controlled PLL digital-synthesis AM/FM/cassette player in a compact chassis that can be installed in any car. It has five FM and five AM station presets and both automatic seek and automatic scan tuning. A distant/local circuit compensates for interference in crowded signal areas. Additional features include cassette auto-reverse with locking fast-forward and rewind, digital display for time and frequency, adjustable control shafts, a loudness switch, fader and balance controls for four-speaker systems, switchable muting, and a power antenna lead. Power output is 8 watts per channel into 4 ohms. Dimensions are 7 x 2 x 4 3/4 inches. Price: $319.95.

The RX-755 AM/FM cassette player, in Mitsubishi's Specialty Series, uses a DIN chassis. It features a music program sensor that finds selections in either fast-forward or reverse mode. There are five AM and five FM pushbutton presets, auto-reverse with locking fast-forward and rewind, a tape program selector, cassette door illumination, adjustable control shafts, and fader and balance controls for four-speaker systems. Power output is 8 watts per channel. Dimensions are 7 x 2 x 6 inches. Price: $269.95.

Circle 124 on reader service card

Heybrook, Turntable Has Floating Subchassis

The belt-driven Heybrook TT-2 turntable, designed and manufactured in England by Mecom Acoustics, has a floating subchassis. The unit's plinth, or sub-base, is a solid, inert structure made of three layers of 18-mm chipboard and one of particle board. The unit's framework is a T-shaped steel tubing, acoustically isolated by three coil springs. The bearing, a 10-mm hardened-steel thrust ball with oil lubrication, is said to ensure low rumble. The plat-

High-Fidelity JVC Personal Portables

JVC has introduced two high-fidelity personal portable stereos. The CQ-11K is an auto-reverse cassette player with a con-
**Harman Kardon Decks Feature Dolby-HX-Pro**

Harman Kardon's three newest cassette decks—the CD-291 (shown), CD391, and CD491—all feature the Dolby-HX Professional headroom-extension system, which is claimed to improve high-frequency response and reduce distortion. The least-expensive model, the CD291, has a rated frequency response of 20 to 21,000 Hz ± 3 dB. It has a solenoid-operated transport mechanism, Dolby-B and Dolby-C noise reduction, a bias fine-trim control, a narrow-gap Sendust record/play head, auto repeat, record mute, and a memory counter.

The CD391 has many of the same features plus bidirectional auto search, sixteen-segment LED peak-level indicators with a peak-hold function and a weighting system that allows for tape saturation so that maximum record levels can be used without danger of distortion. The transport is a closed-loop, dual-capstan system for lower wow and flutter. There is an auto-space switch to record a 5-second blank space between selections, and there are built-in test-tone generators for precise record-level calibration and bias fine-trim. Facilities for microphone mixing and timer control are also included. The rated frequency response is 20 to 22,000 Hz ± 3 dB.

The top-of-the-line CD491 has all the features of the CD391 as well as three heads, for off-the-tape monitoring during recording, and an electronic clock/counter. The record head is Sendust for high overload capacity, and the narrow-gap playback head is ferrite. Frequency response is rated as 20 to 24,000 Hz ± 3 dB.

All three decks measure 411/4 × 131/2 × 173/4 inches. Prices: CD291, $435; CD391, $575; CD491, $785.

**Bose Again Upgrades Model 901 Speaker**

Bose's new Model 901 Series V, the fifth in its 901 series of Direct/Reflecting speaker systems, is said to have improvements in its drivers, its enclosure, and the included Active Equalizer. The 901 systems use a total of nine full-range drivers, one aimed directly at the listening area and the other eight aimed so that their output is reflected at an angle off the wall behind the speaker. The combination of direct and reflected sound is said to give complete stereo imaging as well as preserving an accurate tonal balance throughout the listening area. Each driver in the 901 Series V uses a helical voice coil made of densely packed wire wound on an aluminum bobbin and a specially shaped cone. The conversion efficiency of the new design is said to be greatly improved, allowing the voice coils to withstand pulses of up to 4,000 watts.

The Bose Active Equalizer, an integral part of the 901 Series V system, automatically adjusts the power radiated by the speakers at every frequency. Mid-bass and mid-treble slider controls are provided so that users can adjust the sound balance to the acoustics of their particular listening room, and there is a bass-contour switch to eliminate problems caused by turntable rumble and other forms of low-frequency interference. A built-in tape-monitor loop facilitates connecting the equalizer to an existing music system. Rated dynamic range is 106 dB at 35 Hz, and signal-to-noise ratio is 90 dB.

The Acoustic Matrix enclosure of the 901 Series V is a single rigid unit that is completely sealed on all sides to prevent air leaks and thus reduce vibration. The overall dimensions of the speaker cabinet, finished in walnut veneer with bronze anodized aluminum minimum trim, are 21 × 127/8 × 13 inches. The Active Equalizer, finished in bronze anodized aluminum, measures 13 × 411/16 ×
Whereas Advent loudspeakers have lived in more homes for more time than any other speaker; and

Whereas the commitment to quality is further increasing the value of all Advent loudspeakers; and

Whereas the new Advent 6003 is clearly the best medium-sized loudspeaker available for digital dynamics and other program input,

Be It Resolved that the Advent Living Trust shall continue to convey the Rights and Privileges of Advent Ownership unto all those who have the Visceral Fortitude (guts) to seek out an Advent Dealer, and listen to the Advent 6003.

Concord's Low-Distortion, Self-Protecting Car Amps

- Concord's new HPA-51 (shown) and HPA-71 car stereo power amplifiers are rated for 50 and 70 watts per channel, respectively, with 0.5 per cent or less total harmonic distortion from 20 to 20,000 Hz into 4-Ohm loads. Both feature self-protect circuitry to guard against short-circuits, thermal overloads, and speaker transient overload. Both have provisions for low- and high-level inputs. Prices: HPA-51, $199.95; HPA-71, $269.95.

Circle 130 on reader service card

Onkyo Cassette Deck Has Auto-Reverse

- Onkyo's TA-R77 auto-reverse cassette deck is part of the company's Integra series of components. For auto-reverse the deck uses an optical sensor that is said to provide nearly instantaneous reversal of tape direction. The deck can record or play back a single side in either direction, record or play back both sides, or be set for continuous playback. The transport mechanism has three microcomputer-controlled motors to drive the capstan and reels and to position the head base. There is a Sendust record/playback head and both Dolby-B and Dolby-C noise-reduction systems.

The TA-R77 has an Automatic Music Control System that automatically winds the tape to the beginning of each selection and plays the first 10 seconds before going on to the next (unless instructed otherwise). The AutoSpace button is used to record 5-second pauses on a cassette between selections. Other features include vertical-bar peak-level meters, a four-digit electronic tape counter, timer-controlled recording and playback, and an FM-multiplex filter. Indicators show whether the erase prevention tabs have been removed from either side of the cassette. Specifications include a signal-to-noise ratio (without Dolby) of 50 dB with metal tape, wow-and-flutter of 0.04 per cent, and a frequency response of 30 to 18,000 Hz ± 3 dB. The unit is available in either black or silver finish and measures 17 1/2 x 43 3/8 x 145/8 inches. Price: $1,400.

Circle 131 on reader service card

Correction

- The B.E.S. SM-280 speaker reported on in June's "New Products" (page 20) was incorrectly identified as an electrostatic system. All speakers from Bertagni Electro-acoustic Systems (345 Fischer Street, Costa Mesa, Calif. 92626) use proprietary-design, hammer-driven diaphragms. We regret the error.
Maxell XL I-S and XL II-S are the ultimate ferric oxide cassette tapes. Precision engineered to bring you a significant improvement in dynamic range.

XL I-S provides exceptionally smooth linear performance characteristics with high resolution of sound and lower distortion.

While XL II-S has a greater saturation resistance in higher frequencies resulting in an excellent signal to noise ratio.

How did we achieve this?

**IMPROVED EPITAXIAL PARTICLES.**

Maxell engineers have managed to improve the Epitaxial magnetic particles used on both tapes.

By developing a crystallization process that produces a more compact, smoother cobalt ferrite layer on the gamma ferric oxide core, they've been able to pack the particles more densely and with greater uniformity on the tape surface.

This increases maximum output level and reduces AC bias noise which in turn expands the dynamic range.

**IMPROVED EPITAXIAL PARTICLE CHARACTERISTICS:**

- More uniform cobalt-ferrite layer
- Smoother particle surface
- Gamma-ferric oxide coating thickness: 10-11A (1A = 1/10,000,000 mm)

So you get a better signal to noise ratio, greater resolution of sound and higher output levels. Of course, greater dynamic range isn't the only reason to buy Maxell high bias XL II-S or our normal bias equivalent XL I-S.

Both tapes have more precise tape travel and greatly reduced distortion levels.

You'll see both these improvements covered in detail in future Audiphile Files. In the meantime, we suggest you listen to them.

For technical specification sheets on the XL-S series, write to:

Audiophile File, Maxell Corporation of America, 60 Oxford Drive, Moonachie, New Jersey 07047.
Speaker Repair

Q. Where can I get information on replacing speakers? I am especially interested in information about replacing the cone material when it is torn.

Joel Spackman
Logan, Utah

A. I, for one, would not want to have a high-quality driver repaired by anyone except its manufacturer or his representative. The physical structure and weight of the cone, the structure and weight of the voice coil, and the compliance and damping of the inner and outer cone suspensions all have a direct influence on the performance of a driver. Exact replacement cones are likely to be available only to the manufacturer, who will also have the special jigs and cements necessary for their installation.

Large tears or punctures in a woofer or midrange cone can be patched easily with tissue covered with a thin coating of non-shrinking cement such as Elmer's glue. A small puncture hole can be covered with a spot of glue alone. To make sure that any cement you are considering won't deform the cone material, test it first: coat a piece of a driver to the manufacturer.

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A. Connecting audio-system speakers to a TV set is not likely to damage them, but you might damage yourself if you make the connection to certain older tube-operated TVs. Some of these older sets lack line-isolating power transformers, and there is a fifty-fifty chance that the chassis of such a set will be "hot," depending on which way the a.c. wall plug is inserted. The leads to the set's internal speaker may also be at a.c.-line potential, as will any leads spliced to it. If you have any doubt about the safety of your hookup, connect a neon test lamp between a wall-socket screw ground and either of the speaker leads from your TV. If the lamp lights up when the set is turned on (with the speakers connected), reverse the TV's a.c. plug in the wall outlet.

As to stereo reception, many of the cable-TV companies do supply a stereo signal for movies with a Dolby-Stereo soundtrack. In my area, although both HBO and the Movie Channel cable systems advertise that certain programs are in stereo, only HBO actually makes stereo available. (The problem seems to be lack of room on the New York-area FM band to fit in another channel. connection is made via a 75-ohm antenna terminals on your FM set through the incoming cable. The TV socket on the splitter is connected to a short cable to your TV; the FM socket is connected to the antenna terminals on your FM set through whatever cables and 75- to 300-ohm adaptors are necessary. Now, if you tune across your FM dial, you should find the stereo TV audio signal for the movie channels.

I understand that the cable companies consider the stereo signal a special service, and that they are entitled to a monthly rental fee for the splitter and extra length of cable they provide. I would appreciate hearing from any readers who have a different stereo-sound cable arrangement and also about their satisfaction—or lack of it—with cable as an FM-broadcast source.

Eno Ambience

Q. On the back cover of his recent album, "On Land," Brian Eno advocates a three-speaker setup which he calls "ambient." The system consists of a regular stereo hi-fi with an additional speaker, ideally a minispeaker, the two terminals of which are connected only to both positive terminals of the amplifier. The additional speaker is then located somewhere behind the listener. Eno claims there is a subtle but definite effect whereby the music is opened out and the room seems to enlarge acoustically. I have tried setting up the system myself, and it does seem to make an appreciable difference with music recorded material, creating a spacious, airy quality. What I'd like to know is how this system works, whether it will cause any damage to my existing system, and, if not, how the effect can be optimized (through more wattage, specific type of speaker, etc.)

Mark Nugent
Montreal, Quebec, Canada

A. What Brian Eno suggests has been known for many years as the Hafler circuit. David Hafler worked out the techniques for making full use of the effect and even manufactured and licensed an adapter for optimum setup. Connecting a speaker to the two hot terminals on a stereo amplifier provides an out-of-phase signal that frequently embodies the hall-ambience or reverberation common to a recording. The effect will vary from recording to recording, but it is usually worth trying since the only cost is what you have to pay for an additional small speaker or two.

I would advise a couple of precautions, however. First, make sure that the two channels of your amplifier have a common ground (amplifiers with bridged or reverse-polarity output circuits won't work). And do not use a single 4-ohm speaker for the rear ambience channel. Two 4-ohm speakers connected in series would be okay. If you use two or more speakers (or speakers) sufficient to hang you, try positioning it on its back, radiating upward, against a wall.

Antiquated VCR's?

Q. I was interested in your test report on the Sony Beta Hi-Fi VCR (April), since I have been wanting a VCR for some time. However, I don't know whether I should buy or rent. Do you feel that present VCR's will become antiquated in the near future? Do you foresee any imminent major technical advances?

Frank Carbutti
Ronkonkoma, N.Y.

A. It depends on what you mean by "antiquated." The recorded picture quality provided by both Beta and VHS is practically indistinguishable from the original when viewed on a 19-inch screen. The only improvement I anticipate in the video area is improved recording and playback at slower speeds. In regard to improved sound, the Beta Hi-Fi system and its VHS equivalent should be available under a variety of brand names in less than a year. And if and when stereo-sound TV broadcasting arrives, the detector sections of non-stereo VCR's will have to be either replaced with stereo circuitry or connected to a stereo converter. Keep in mind, however, that both stereo and super-audio are likely to be found only in expensive, top-of-the-line VCR's for at least the next few years.
You Can Afford
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State-of-the-art technology at every price

Reviewers and critics agree on Polk
All 7 Polk speakers from the revolutionary SDA-1 to the astonishingly low priced Monitor 4, offer the most sound quality for the money available on the market. Every Polk speaker is built to the same critical and exacting standards of quality. You must listen to the Polks and hear the difference for yourself. Write to us or use the readers service card for information on our loudspeakers and the name of your nearest authorized Polk dealer.

There is a Polk loudspeaker which is the perfect choice to fulfill your sonic needs. Polk Audio, Inc. 1915 Annapolis Rd., Baltimore, MD 21230. In Canada, Evolution Audio.

Digital Disc Ready
The Speaker Specials
7 Models priced from $99.95 to $850

CIRCLE NO. 37 ON READER SERVICE CARD
Behold: a rugged off-road 4-wheel drive beast that acts civilized on the road. Shift our new Montero into 2-wheel drive and it cruises around town like a sporty car. It's roomy, seats four comfortably. And it's loaded with creature comforts.

WHERE DOES A GORILLA GO? GET A GORILLA. Fold down the rear seat and the Montero becomes a beast of burden. Spacious front bucket seats recline, and the passenger seat flips forward for easy rear seat access. Cargo tie-downs come standard, to secure everything you need to go on a camping trip. Or haul everything back from a shopping spree.

EVERY GIRL NEEDS A GORILLA. Although it manhandles most anything, the Montero is easily woman handled, thanks to variable assist power steering. Easy to see out of. Thanks to a high roof and tinted glass. And it's easy to shift. Thanks to a gearshift lever that's easy to reach. Easy to ride in. Thanks to a power-assisted front disc brake system that will stop a gorilla in its tracks.

EVERYTHING YOU NEED TO KNOW... YOU CAN EVEN BEET UP A GORILLA. In its 4-wheel drive mode, there's a low gear that will haul you up a hill. And a high gear for quick and nimble going in sticky snow or loose dirt. Super low gearing provides Montero with super climbing ability. And its wide track, allows it to traverse steep terrain. The Montero is tough enough to handle any job.

WHERE DOES A GORILLA GO? JUST ABOUT ANYWHERE IT WANTS TO. Müd, snow hills or gullies. You name it, the Montero tames it. From steel top to solid box-type frame and protective steel skid plates, the Montero is well built, like a gorilla. It's smooth and quiet in the concrete jungles. And it's powerful on its back wheels.

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Car Stereo

By Christopher Greenleaf and Julian D. Hirsch

ALPINE 7347

Alpine's Model 7347 is one of the more versatile car-stereo units we have seen since we began testing these products. It includes a digital-synthesis AM/FM tuner and a programmable cassette player, and it offers the choice of Dolby-B, Dolby-C, or dbx noise reduction. The noise-reduction system is selected by pressing a corner of the large rectangular plate on the front panel below the cassette loading port. The plate is pivoted at its center, and a small green light in each corner shows which function has been selected.

Unlike many car stereos, the Alpine 7347 provides for the use of its Dolby-B system not only with tape inputs but with FM broadcasts as well (since some FM stations transmit Dolby-B-encoded programs). The fourth corner of the control plate, marked M.T.S., is used to select 70-microsecond equalization for metal- or chrome-tape playback or to provide maximum tuner sensitivity for receiving distant stations.

The Alpine 7347 has five tuner memory buttons, each capable of storing one FM and one AM frequency. Although it has a digital tuner, there is a conventional-looking tuning knob concentric with the balance and front/rear fader controls. The knob has a large number of detented settings, each of which changes the tuned frequency by 200 kHz for FM or 10 kHz for AM. A momentary push on the knob, however, starts automatic tuning: the unit scans upward in frequency until a signal is received or until the knob is pressed a second time. The tuned frequency is shown on a bright digital display above the preset buttons. When a tape is loaded, the numeral 0 appears in the display window.

The 7347 has a Programmable Music Sensor feature (P.M.S.) that allows a cassette to be scanned in either direction at high speed to find any one of up to nine selections on the tape. The user selects the desired program by repeatedly pressing the P.M.S. button on the panel until the display shows the appropriate numeral. Pressing one of the fast-speed buttons will then initiate scanning; the numeral displayed progressively decreases as each silent interval between selections is passed. When 0 is reached, play begins.

The radio in the 7347 is turned on or off by pressing and releasing the spring-loaded P.M.S. button on the panel until the display shows the appropriate numeral. Pressing one of the fast-speed buttons will then initiate scanning; the numeral displayed progressively decreases as each silent interval between selections is passed. When 0 is reached, play begins.

The Alpine 7347 is designed to work only with matching Alpine power amplifiers, to which it connects by an integral cable and an eight-pin DIN plug that carries both audio and power connections (a similar cable connects the rear channels in a four-speaker system). For our lab and road tests we used the Alpine 3506 amplifier, a compact 25-watt-per-channel (at 1,000 Hz) unit with specifications comparable to those of most home amplifiers having a similar power rating. The suggested retail price of the Alpine 7347 is $599.95.

Lab Tests

All our measurements of the Alpine 7347 were made at the outputs of the connected amplifier, which was driving 4-ohm loads. For the audio measurements we supplied modulated test signals from our FM signal generator through the unit's antenna connector. The key test results are summarized in the box below.

The 7347's FM tuner has a signal-controlled automatic-blend circuit that smoothly combines the left and right channels as the signal strength is reduced, keeping the noise level low over a wide range of signal strengths at some expense in stereo separation. The blending action appeared to take place below about 40 dBf (26 microvolts, or μV). At lower signal levels most of what we heard was actually mono rather than stereo, although the ST light on the
tuner stayed its down to about 11 dBf, or 1.1 μV into 75 ohms. This stereo indicator, therefore, merely signifies that the station is transmitting a stereo pilot carrier. Although the instruction manual says that the tuner has interstation-noise muting, our sample did not mute except when the station presets were used.

Most of the FM-tuner performance measurements ranged from good to excellent. Only the image rejection could be called marginal, and this characteristic is probably of little importance in mobile use. The power rating of the Alpine 3506 amplifier was accurate (it clipped at 26.5 watts), and the combined tuner and amplifier distortion was very low for a car stereo. The actual amplifier distortion could not be measured, since we have to include the FM-tuner distortion in the measurement.

We measured a reduction in FM sensitivity of 15 dB when the Q switch was disengaged. We also noted, though, that turning off the Q switch caused the noise level of most FM signals to drop appreciably. This is opposite to what one could normally expect and confirms that reception at low signal strengths is essentially in mono. The operating instructions state that using the Dolby-B system with FM or tape signals that have not been Dolby encoded is not recommended because it "intensifies the high frequency response while serving no other purpose." Actually, Dolby-B decoding reduces the high-frequency response of a nonencoded signal as well as the noise. Sometimes the result is a net improvement rather than a degradation of sound quality. The tape-playback performance of the 7347 was excellent. The frequency response was essentially flat over the 31.5- to 18,000-Hz range of our standard test tapes. Unlike most similarly priced car stereo units we have tested, the 7347 does not have auto-reverse, thus avoiding the tape-head azimuth-alignment problems that make it most impossible to get good frequency response in both directions. The eject and loading mechanisms, however, make turning a tape over very easy. Alpine seems to have made a deliberate, intelligent choice of higher-fidelity sound rather than a minor convenience feature. —J.H.

Road Tests

The performance of the Alpine 7347's tuner was superb both in and outside of New York City. Even when the multipath conditions near the steel clutter of the Brooklyn Navy Yard produced some FM hash, the noise was less obtrusive than I usually get from car stereos on this part of the test route. I heard listenable stereo sound both at traffic lights in downtown Brooklyn, where reception often collapses into a gruesome muddle, and on the road up to sixty miles away from the broadcast antennas. In the seek mode, the tuner stopped at fairly short frequency intervals, suggesting that the unit considered most FM signal sources it came across to be receivable.

AM reception was clean and a little richer in tonal quality than I remembered from an earlier Alpine unit produced during the company's first year in the U.S. market. The interference effects created by partially disconnecting one of the spark cables were just barely audible; I had to short the cable directly to the engine block before getting any really noticeable disruption of the AM reception.

Since I can never remember to turn the volume down before ejecting a cassette, it was a pleasure to have the option of not having the system switch automatically to the tuner. Leaving the tuner switched off when you play tapes lets you avoid being startled by a blast of unwanted radio racket whenever you change cassettes. I inserted a Dolby-C-encoded metal-tape cassette and tackled some back streets offering a wide selection of potholes, bumpy Belgian block, old trolley rails, and ripply asphalt. The 7347's tape transport was disturbed only once — when I hit a large hole at 40 miles per hour (unintentionally!) — and even then there was only audible effect was a slight shiver in the music. During the rest of the test drive, only my prematurely aging Volvo, not the car stereo, showed distress at the road conditions.

On one of the quieter stretches of the interstate, I played a dbx-encoded cassette of a clarinet concert that I had recorded live the previous evening. With the tone controls set to equalize my car's acoustics as much as possible, the reproduction of this very wide-range cassette was exceptionally clear and open. Some other in-dash units I've encountered are unable to handle the extended high-frequency content of a metal tape, so I was impressed with the natural and unforced sound from the 7347. Although we were not specifically testing the Alpine 3506 amplifier, I must say that it powered my car speakers with no audible distortion or sense of strain even at unpleasantly high volume settings. The 7347 does not have auto-reverse tape playback, and I did not particularly miss it. The unit's night illumination is good, none of the controls are at all ambiguous, and the most important buttons have LED indicators. The Alpine 7347's outstanding performance and ease of operation make it a true music lover's car stereo. It's not an inexpensive unit, but using it suggests that the cost goes mostly toward sonic performance, not flashy trimmings.

—C.G.

"Alpine seems to have made a deliberate, intelligent choice of higher-fidelity sound rather than a minor convenience feature."
How I Would Choose a Speaker

I am often asked for advice on selecting audio components, and sometimes the question takes the form of "What would you choose for yourself?" That immediately brings us to the critical factor of personal taste. I can deal with personal taste fairly well when it comes to all-electronic components—amplifiers, receivers, and so on—and even tape decks and record players, among which there are usually enough features and control differences to make some models preferable to others according to individual needs. If only taste were that simple to deal with when choosing a speaker system!

Let me explain that I have certain attitudes (call them prejudices if you will) about choosing a speaker. There are many speakers, of all sizes and prices, that do not meet my personal standards for listening quality, and I probably could live happily with any of them. But I am definitely not interested in buying speakers just because they are called "state of the art," especially if they require special room treatment and are so large and heavy they dominate the room visually as well as sonically, are suitable for use only with specific amplifiers, or are of questionable long-term reliability or ruggedness.

I find that a good speaker will sound good when playing almost any good program; if a speaker sounds good to me only with exotic or special program material, I have little use for it. When I listen to FM broadcasts of high quality or when I play my own records, I am likely to be as interested in their musical content as in their sonic splendor, for I listen to music for my own enjoyment, not as an exercise for my stereo system.

So what am I looking for in the sound of a speaker? Principally balance and smoothness, which I believe to be the indispensable characteristics of any speaker with pretensions to high-fidelity performance. Balance refers to the distribution of sound energy over the audible frequency range and throughout the listening area; it includes the dispersion characteristics of the speakers. This is akin to the "frequency response" that we often talk about and sometimes see in speaker specifications. Although we may be able to measure it, however, the frequency response of a loudspeaker cannot be heard directly, there being no firm relationship between any frequency response measurement and the way a speaker sounds. The balance of the speaker's acoustic output is the subjective counterpart of its objectively measured response, and it can be evaluated only by a combination of the world's most sophisticated spectrum analysis and computing systems—the human ear and brain.

A balanced speaker does not unduly emphasize (or de-emphasize) any part of the audio range. Strings do not sound hard or "edgy" (or no more so, at least, than in real life); voices do not sound shrill, muffled, or tubby; the deep bass can be felt even at low listening levels, and so on. Of course, these are utopian requirements, and the truly balanced speaker has probably not yet been made (if it has, I have not heard it). The evaluation of speaker balance is complicated by the speaker's unavoidable interaction with the listening room, which can destroy the designed-in balance of the speaker or supply a balance that the speaker would not possess in different surroundings. Still, balance is what I listen for in reproduced sound, and no speaker that is grossly imbalanced (in my room) would be likely to satisfy me.

Speaker balance has surprisingly little to do with size or price, which is fortunate for the majority of people who would like to enjoy good sound in their homes but are unwilling or unable to spend thousands of dollars for speakers that may not deliver it. I have heard large, high-priced speakers that, because of problems in their overall frequency balance, are literally unlistenable by my standards. They may please some people (most likely their designers and manufacturers), but they are not for me. By contrast, I sometimes have on hand simultaneously several small, inexpensive speakers that all sound so pleasing that I do not care which I am hearing at any given moment (and often cannot tell which system is on without looking at my speaker-comparator switch or going up to the speakers themselves). As I write this, for instance, I am enjoying the sound of some speakers selling in the $100 to $250 range to which I could happily listen for hours on end.

My other main requirement—smoothness—is related to balance but is not quite the same thing. A speaker's balance is primarily a function of its octave-to-octave sound-power output, including any directional effects that modify the sound distribution throughout the room. Balance has to

Tested This Month

Mission 700S Speaker System • Realistic STA-112 AM/FM Receiver
JBL J216 Speaker System • Hitachi HT-68 Record Player
Yamaha K-2000 Cassette Deck
COMPACT DISC IS A REALITY.
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WE MAKE LASTING IMPRESSIONS

A Warner Communications Company
do with the broad, overall frequency-response characteristics of the speaker—the sort of thing that can sometimes be corrected, or at least modified, by amplifier tone controls or an equalizer.

Real speakers, however, usually have in their output many sharp, narrow-band peaks and dips, which are not necessarily audible as such (although they can yield the most discouraging frequency-response graphs). The absence of such large, narrow-band changes in a speaker's response contributes to what I call its smoothness. These fluctuations can be caused by resonances in the drivers, diffraction at cabinet edges, reflections from room boundaries, and probably many other factors, and they may account for some of the more subtle sound-quality differences. On the whole, they are more likely to affect the imaging properties of the sound than its tonal character, and they are not correctible by any electronic system components.

Actually, many (perhaps most) people can hear these subtleties, but not everyone reacts to them in the same way. If they do not matter to an individual, they probably will not play a significant part in his selection process. To me, most of these effects are merely unavoidable aberrations, inherent in the current state of the loudspeaker art. Choosing a speaker then becomes a matter of deciding between differently flawed products, rather than between essential perfection and obvious inferiority. Of course, this assumes that totally inadequate products do not exist. I have heard speaker demonstrations at which some listeners were ecstatic over certain sound or imaging qualities that I could hear but that I felt were so unimportant I would never allow them to affect my judgment of the speaker's overall merit. Even if I preferred some of these qualities, I am afraid that my own sense of values would probably not permit me to spend (say) five times as much for one product as for another where the advantage of the more expensive one was at best minuscule. Many people make the opposite choice every day, and I do not criticize their selections, but I am talking about how I would go about choosing a speaker.

Of course, more money (often a lot more) can buy substantially improved sound—but not necessarily! The cost of a speaker is an objective fact, but its sound quality is totally subjective. For me, a major additional investment can be justified only if it buys demonstrably superior performance. For example, at a live concert I cannot distinguish between the sounds from two violinists seated next to each other in the orchestra, nor would I consider it important or desirable that I be able to do so (though some people seem to be quite concerned about that sort of thing). Therefore, a speaker that is represented as having "imaging" that allows such discriminations is hardly likely to appeal to me unless it also happens to please me for other reasons.

As you can see, I am not really giving a "cookbook" approach to speaker selection. Frankly, I would not know how to do that. You, the buyer, must have some idea what kind of sound quality you like. Visit audio showrooms and friends' homes, and listen to lots of speakers until you begin to hear some of that quality in the ones you audition. True, you may not choose your ideal speaker on your first purchase, but few of us are able to make an ideal choice of anything on the first trial. Next time you buy a speaker system, you will know what you like and do not like about the sound of your speakers, and you will be able to make a closer approach to the "right" choice.

As I implied near the beginning of this column, your choice may be affected by powerful considerations unrelated to the sound of the speaker. For example, most people do not have the luxury of a separate music room that is furnished, decorated, and used primarily for listening to reproduced sound. Many of them probably have their stereo equipment in a room similar to my family room, where I spend a lot of time relaxing and listening to music. Quite different from my laboratory listening room, the family room does have a stereo system, but one of the ground rules for the installation there was that the speakers should not stand out or, if possible, that they should not be noticeable at all.

After much experimenting, I settled on a three-piece system with an unobtrusive bass module and two small satellites that could be disguised quite effectively. The sound happens to be quite good, by my criteria, but the point is that other systems with better sound were tried and discarded because they did not meet the requirement of unobtrusiveness, which was necessary for installation in this room.

I suspect that my family-room situation is not unique. It should be reassuring to others in the same predicament to know that it is not necessary to forgo the enjoyment of reproduced music simply because you cannot have a "Super-Audiophile" speaker system. 7 feet high, that occupies an entire wall of a room and costs between $5,000 and $10,000 a pair.
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Sansui’s remarkably innovative approach to microcomputer technology is the reason Sansui cassette decks have an unfair advantage over other cassette decks.

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There’s a lot of the precision and operating convenience of the D-970 in every cassette deck Sansui makes. So regardless which you choose, you’re assured superb recordings every time... automatically.

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**Putting more pleasure in sound**
The Mission 700S is a compact two-way speaker system with an 8-inch woofer that operates in a ported enclosure measuring 18 1/2 inches high, 9 7/8 inches wide, and 10 5/8 inches deep. The wooden cabinet, veneered in walnut, has a black cloth grille (not removable). The system weighs 16 3/4 pounds. The heavy-duty binding posts in the rear of the cabinet are spaced 3/4 inch apart to accept standard dual banana-plug speaker-cable connectors.

The woofer, whose cone is formed of a carbon-fiber-based material, operates up to 3,200 Hz, where it crosses over to a 3/4-inch polymer-dome tweeter. Unlike most small speakers, the Mission 700S has its woofer at the top (when the cabinet is in a normal upright position). The tweeter is at the approximate center of the grille, and the bass port is at the bottom. There are no external level or balancing controls. The 700S has a frequency-response rating of 60 to 20,000 Hz ±3 dB. A nominal 8-ohm system with a sensitivity rating of 90 dB at 1 meter for a 1-watt input, it is recommended for use with amplifiers delivering from 20 to 100 watts per channel. The suggested retail price of the Mission 700S is $399 per pair.

Laboratory Measurements. The averaged room response from a pair of Mission 700S speakers was notably flat and well dispersed through the high-frequency range, with less than 5 dB of difference between the axial and 30-degree-off-axis output at 20,000 Hz. The close-miked woofer response, including the contribution of the port, was flat within ±1.5 dB from 90 to 600 Hz, falling at approximately 7.5 dB per octave at lower frequencies to −18 dB at 20 Hz. Between 600 and 700 Hz there was a sharp dip of about 5 dB, and the curve had a downward-sloping characteristic above 1,000 Hz.

When we spliced the two curves to form a composite frequency-response curve, the dip between 600 and 700 Hz could still be plainly seen in the room response, which removed most of the usual ambiguity from the splicing process. The overall frequency response was flat within ±2 dB from 700 to 20,000 Hz and within ±1 dB from 2,200 to 20,000 Hz. The lower-midrange response was only slightly elevated, the output from 100 to 700 Hz being typically about 5 to 6 dB above the average high-frequency level. The overall variation of the composite curve was ±3.5 dB from 60 to 20,000 Hz, a nearly exact match for the manufacturer’s specifications (almost unheard of in our experience with speaker testing, given the different test conditions that usually prevail).

Beginning with this month’s speaker tests, we have slightly modified the conditions for the bass-distortion measurement. We used to measure bass distortion with a constant drive level to the speaker, equivalent to 1 or 10 watts into its nominal impedance. Since this test did not take into account the widely different sensitivities of some speakers, the results could be misinterpreted. Now, however, our speaker distortion measurements will be made at a fixed voltage input derived from the measured sensitivity of the speaker and corresponding to the voltage (in the midrange) that would give a 90-dB sound-pressure-level output at a 1-meter distance. This should enable more meaningful bass-distortion comparisons between speakers of widely differing sensitivities.

The woofer distortion of the Mission 700S was about 0.5 per cent from 100 to 80 Hz, rising smoothly to 3 per cent at 50 Hz and 9.5 per cent at 30 Hz. The sensitivity of the 700S was 92 dB, about 2 dB better than rated. Its impedance reached a minimum of 5 ohms in the 3,000- to 6,000-Hz octave, varying between 6 and 13 ohms over the rest of the audio frequency range.

Quasi-anechoic response measurements with the IQS FFT spectrum analyzer confirmed the excellent performance of the Mission 700S. The axial response varied ±5 dB from 180 Hz (the lower limit of the
The Realistic STA-112 is a compact stereo receiver rated to deliver 30 watts to 8-ohm loads from 20 to 20,000 Hz with no more than 0.05 per cent total harmonic distortion. Its AM and FM tuner sections feature digital frequency synthesis.

Except for a large volume knob, all the visible controls of the STA-112 are flat pushbuttons operated by very light pressure. Six of them are preset station selectors, each usable for both an AM and an FM channel, and another is the memory button used when storing a frequency in one of the station memories. Three longer buttons, pivoted at their centers, are used for tuning (up or down in frequency, depending on which end is pressed), selection of either AM or FM reception, and selection of either Mono or AUX/TV inputs. Small red lights on the input selectors show which source is connected. The remaining controls are mechanically latching buttons, including one for SEARCH (which, when pressed after the TUNING button, causes the tuning to scan in the selected direction until a signal is encountered), one for the tape-monitor function, and a square power switch. There is also a headphone jack.

Much of the front-panel area is devoted to a large black-out window through which can be seen the tuner frequency display, five signal-strength LED’s and a stereo indicator light, and two groups of LED output-power indicators calibrated from 0.01 to 40 watts per channel into 8-ohm loads. Pressing and releasing the upper left corner of the window causes it to hinge downward, revealing a number of small knobs and pushbuttons. They include the tone and balance controls, switches controlling mono/stereo mode, FM muting, an FM-multiplex filter, a 30-Hz low-cut filter, and loudness compensation, and switches for the two sets of speaker outputs.

On the rear apron of the STA-112 are spring-loaded speaker connectors, binding posts for the antennas (300- and 75-ohm FM feedlines and a wire AM antenna), and a hinged AM ferrite-rod antenna, in addition to the various signal jacks. There is a single unswitched a.c. outlet. The Realistic STA-112 is 17 1/4 inches wide, 14 1/2 inches deep, and only 3 1/4 inches high. It weighs about 15 1/2 pounds. Price: $339.95. The receiver is available from Radio Shack stores across the country.

Laboratory Measurements. After a one-hour preconditioning warm-up at 10 watts output (which left it only slightly warm), the Realistic STA-112 delivered just over 40 watts per channel (at 1,000 Hz) to 8-ohm loads at the clipping point. The 4-ohm clipping output was 54 watts, and into 2 ohms it was 55 watts per channel. The dynamic power output, using a 20-millisecond 1,000-Hz tone burst, was 56 watts, 78 watts, and 66 watts into loads of 8, 4, and 2 ohms, respectively. The measured 8-ohm clipping headroom was 1.3 dB, and the dynamic headroom was 2.73 dB.

The 1,000-Hz harmonic distortion with 8-ohm loads was less than 0.002 per cent up to nearly 20 watts output, increasing to 0.0034 per cent at 40 watts. The distortion with 4-ohm loads was nearly as low, in the 0.002 to 0.004 per cent range from 1 to 25 watts, rising to 0.054 per cent at 55 watts. Even 2-ohm operation did not faze the STA-112, whose distortion was under 0.0056 per cent up to 10 watts and 0.02 per cent at 40 watts. After sustained high-power testing we could not drive the amplifier into clipping with 2-ohm loads, since its protective relays shut it down before there was visible waveform distortion. When that occurs, the power must be shut off for a few seconds to restore normal operation.

The total harmonic distortion of the STA-112 was extremely low over most of the audio-frequency range regardless of the power output. Readings were typically in the range of 0.001 to 0.01 per cent from 20 to 10,000 Hz and beyond at power outputs from 3 watts to the rated 30 watts. The (Continued on page 35)
Your hi-fi dream minus the sci-fi nightmare.

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CIRCLE NO. 5 ON READER SERVICE CARD
No great work of art—no masterpiece of music—is created without commitment. Every great artist—every musician—is driven by an internal need to express an emotion. At Nakamichi, we understand that need. We too are committed—to excellence—to perfection in the realm of recorded sound. In short, we are committed to high fidelity!

What does that mean? What is “high fidelity?” For a company with Nakamichi’s reputation for outstanding specifications, it may be surprising to learn that specifications, in themselves, do not concern us! We are interested only in perfect music reproduction. When we attain that goal, excellent specifications follow automatically for they simply document technical performance. We believe that excellent specifications are the result—not the cause—of high fidelity—the means—not the result—of attaining our goal!

All too easily, this distinction is blurred and ultimately forgotten! Specifications become an end in themselves. This is not surprising for specifications are easily quantified and naturally appeal to the technical minds that create high-fidelity products.

Not so at Nakamichi! We are unlike many audio giants. To serve as a constant reminder that our goal is music reproduction, we constructed an excellent concert hall as part of our headquarters/research facility. We consider the concert hall our Ultimate Test Instrument—a place where the creation and recreation of music are directly compared.

The concert hall symbolizes Nakamichi Philosophy—a dedication to creativity, innovation, and musical excellence. Its location in our combined headquarters and research lab is symbolic in itself for the Nakamichi Philosophy permeates our entire organization.

We are proud to be small enough for our President to have a drafting board in his office and a sketch pad at hand as he prowls the laboratories keeping his finger on the pulse of research. We are proud to be large enough to have the finest staff and the finest test instruments in the industry. And we are proud of our dedication to music and to research—research that creates the products of the future—the products of the next decade and beyond.

This philosophy—this dedication to imagination and creativity—attracts the very finest engineers to our staff—engineers who are in love with music, in love with sonic perfection. Our philosophy sets us apart from others and, more than anything else, has helped establish our enviable reputation for innovation and musical perfection.

This philosophy created the legendary Nakamichi 1000—the world’s first Discrete Three-Head Cassette Deck—the first cassette recorder worthy of the name “high fidelity.” It led us to develop the Nakamichi 680—the world’s first high-fidelity half-speed recorder. It guided us in developing Hi-Com II—the world’s first 20-dB noise-reduction system without audible side effects. It produced the Nakamichi 1000ZX—the world’s first cassette deck with true random-access program selection.

Nakamichi Philosophy—the unending search for sonic perfection—has now created the world’s first automatic playback azimuth correction system—NAAC! Nakamichi Auto Azimuth Correction is found only in the incredible Nakamichi Dragon and Mobile Sound System. NAAC—the unique technological breakthrough that creates sonically perfect reproduction in a bi-directional playback system! NAAC—from Nakamichi—where devotion to music creates the products of the future—today!

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Come to Marlboro Country.

Marlboro Red or Longhorn 100's—you get a lot to like.
The "30 Hz filter," on the other hand, caused output clipping at low-bass frequencies (under 300 Hz) moderately at reduced volume settings, with a very slight high-frequency boost beginning at about 7,000 Hz and reaching 5 dB at 20,000 Hz. The RIAA phono equalization (measured at the tape-recording outputs) was flat within 0.5 dB overall from 50 to 20,000 Hz and down 2.5 dB at 20 Hz. It was not affected significantly by the inductance of a phono cartridge at the preamplifier input. The tuner's FM usable sensitivity (mono) was 10.3 dBf (1.8 microvolts, or μV). The stereo sensitivity was set by the switching threshold of 28 dBf (14 μV). The 50-dB quieting sensitivity in mono was 12.8 dBf (2.4 μV), and in stereo it was 36 dBf (34.7 μV). The tuner distortion at 65 dBf (1,000 V/m) was 0.11 per cent in mono and 0.16 per cent in stereo, with corresponding noise levels of -76.6 and -69.6 dB. The alternate-channel selectivity was an excellent 77.5 dB, and the adjacent-channel selectivity was 5 dB. The tuner's image rejection was a good 74.4 dB, its AM rejection was 36 dB at 65 dBf input, and the capture ratio was an excellent 0.97 dB at 45 dBf (100 μV). The muting threshold was 27 to 29 dBf (12 to 15 μV), the 19-kHz pilot-carrier level in the audio was -69 dB, and the tuner hum was -69 dB. The IHF FM distortion (14- and 15-kHz modulating frequencies) relative to 100 per cent modulation was in the range of -73 to -92 dB, depending on the specific distortion product and whether the tuner was operating in mono or stereo.

The FM frequency response was flat within ±0.5 dB from 30 to 15,000 Hz. The channel separation was 46 dB from 300 to 2,000 Hz, 35 dB at 30 Hz, and 38 dB at 15,000 Hz. The AM frequency response was flat from 40 to 1,500 Hz and down 6 dB at 30 and 2,600 Hz.

Comment. The designers of the Realistic STA-112 have succeeded in creating a full-featured stereo receiver whose appearance and operation should not intimidate even the least-technical-minded user. Although all the standard receiver amenities are provided, most are out of sight behind the hinged window on the panel. The low-profile AM- FM tuner also contributes to the ease with which the receiver can be accommodated in almost any home installation.

The ability of the STA-112 to drive 2-ohm loads at a substantial power level without distortion, damage, or interruption of operation sets it aside from most receivers with comparable power ratings. There has been no sacrifice of protection for the output transistors, as we discovered when the protective relay tripped under full drive conditions with a high-frequency square wave or when we approached clipping levels with 2-ohm loads.

All the control and operating functions of the STA-112 worked as expected, and we found no operating bugs during our use tests. During extended listening tests, the receiver always sounded excellent. It is also worth noting that the capture ratio and selectivity of the FM tuner section were both considerably better than we have measured on most tuners and receivers, including some priced well above the STA-112. Altogether, this receiver represents a lot of performance in a very compact and attractive package.

—Julian D. Hirsch

Circle 141 on reader service card

(Continued on next page)
The Model J216 is the smallest and least expensive speaker system to bear the JBL name. It is a two-way system based on a newly designed 6-inch woofer that operates in a vented enclosure only 14¾ inches high, 10 inches wide, and 9¼ inches deep. There is a crossover to a 1-inch soft-dome tweeter at 4,000 Hz. The system has a nominal impedance of 8 ohms and a rated sensitivity of 87 dB sound-pressure level at 1 meter when driven by 2.83 volts (equivalent to 1 watt in an 8-ohm load). It is rated for operation with amplifiers capable of delivering 10 to 60 watts per channel. Each speaker weighs 17½ pounds.

JBL’s aim in designing the J216 was to produce a small, unobtrusive speaker, suitable for today’s smaller living spaces, that would sell for no more than $100 and deliver a balanced and musical acoustic output suitable for all types of program material. To keep low-frequency distortion within acceptable limits despite a small woofer-cone diameter, the J216 uses a “symmetrical field” magnet structure, a JBL development introduced several years ago on some of the company’s more expensive speakers. The electrolytic capacitors in the crossover network are bypassed with smaller capacitors to compensate for the asymmetrical charge-discharge characteristic of large capacitors. This is said to improve midrange and high-frequency performance. To keep the cost low, the J216 production line was heavily automated, including totally computerized quality-control checks.

The wooden cabinet of the J216 is finished in oak-grained vinyl on the sides and in black vinyl veneer on the top and rear, and there is a removable black grille. The two drivers are vertically aligned, with the woofer port in the lower right corner of the speaker board. The two binding-post terminals are recessed in the rear to permit flush-mounting the speakers against a wall.

The JBL J216, with a suggested retail price of $99 per unit, is packed and sold in pairs. JBL, 8500 Balboa Boulevard, Northridge, Calif. 91329.

Laboratory Measurements. The averaged room response from a pair of J216 speakers in a typical wall-mounted installation was within ±4 dB from 250 to 20,000 Hz. The major departure from flatness was in the upper midrange, with a minimum output at 2,000 Hz and a broad maximum at 4,000 to 6,000 Hz, representing a total change of 8 dB. The close-miked woofer output, after combination with a separate measurement at the port, had a maximum at 150 Hz, falling off slightly down to 50 Hz and dropping at a 6-dB-per-octave rate from 200 to more than 2,000 Hz.

Because of their different shapes and slopes, splicing the two response curves was difficult without resorting to listening judgment and the results of quasi-anechoic response measurements made with the IQS FFT spectrum analyzer. The latter showed the same overall response contours as our other measurements, but they indicated approximately equal maximum output levels at low and high frequencies. Using this as a guide, we obtained an overall response curve of +6, −4 dB from 38 to 20,000 Hz relative to the 1,000-Hz level. The high-frequency dispersion of the dome tweeter was excellent, with negligible directivity below...
Technics introduces an awesome Computer-Drive Receiver. It stops distortion before it starts. And that's just the beginning.

The new Technics SA-1010 Computer-Drive Receiver. A receiver that combines so many technological advances it is the most sophisticated ever to carry the Technics name.

It starts with Technics innovative Computer-Drive technology: a microcomputer with the intelligence to sense potential causes of amplifier distortion. And to stop that distortion before it starts. So your music comes through with breathtaking clarity.

A second computer not only operates the world's most accurate tuning system, quartz synthesizer. It also scans and mutes unwanted signals before they interfere with your music.

And the SA-1010's intelligence touches other areas:

A microprocessor is also used in conjunction with Technics Random Access Tuning with Auto Memory. It allows you to pre-set and store up to 16 of your favorite stations. And to hear any one, in any order, at the push of a button.

And whatever music you do listen to can be made to virtually envelop you, surround you by engaging Technics Dimension Control circuitry.

Then there's the sheer power of the SA-1010: 120 watts per channel, minimum continuous RMS, both channels driven into 3 ohms, from 20Hz to 20kHz, with no more than 0.003% total harmonic distortion.

And of course, the SA-1010 is ready for digital. It will be able to reproduce the flawless sound of digital sources soon to come.


Technics
The science of sound
People who know music

When a musician is in a room writing, playing and taping, he wants the sound that comes out of his speakers to be as real as the sound coming out of his instrument. A guitarist wants to recognize his own fingerling on the frets. He wants to feel the unique acoustical character of the room in which he's working. When he listens to albums by other artists he demands the same honest accuracy. If his speakers dull the strings, break up the bass, and artificially color the room effects, he isn't hearing the music he bought.

Even a struggling musician could afford a pair of our new bookshelf speakers, the AR8B, 18B or 28B—and get the accuracy of systems costing many times as much. All three have the finest AR-built woofers and tweeters. All three were computer-designed in real rooms, not scientific test chambers. So they sound acoustically natural in any normal living space. Brighter in some rooms, darker in others. But always true to life. If you'd like to hear more, send for details and local dealer names.

know how music should sound.

Left to right, the AR8B, 28B and 18B. Affordably priced from $89 to $149 each.

Hear what you've been missing.
15,000 Hz and only about 15 dB difference between the axial and 30-degree-off-axis outputs at 20,000 to 23,000 Hz.

This is, to say the least, highly creditable performance for a $99 speaker with a 6-inch woofer! JBL does not publish frequency-response data for their speakers, but they supplied us with response curves made on the test samples using one-third-octave spectrum analysis. Although their measurement method differed from ours, the features of both sets of response curves were essentially similar.

While its frequency response extends to a surprisingly low frequency, the 6-inch woofer of the J216 cannot be driven too enthusiastically without generating distortion. Following our new procedure of measuring the distortion of a speaker using a constant drive level equivalent to one that would produce a 90-dB sound level in the midrange at a 1 meter distance from the speaker, we applied 4 volts to the speaker and measured harmonic distortion from 100 Hz down to the point where it was clearly excessive. The distortion started with about 1.8 per cent at 100 Hz and rose rapidly to 5.5 per cent at 70 Hz and 10 per cent at 56 Hz. These distortion readings must be interpreted in the context of the acoustic output level of the speaker, at least 90 dB over much of the measurement range.

The impedance of the J216 was a minimum of 6 ohms at 60 and 200 Hz, but it fell to only 3 ohms at 6,000 Hz. Paralleling these speakers with another pair should be done with caution and due consideration for the limitations of the amplifier being used. The J216 had a sensitivity of 87 dB at 1 meter with a 2.83-volt input, exactly as rated.

Comment. The sound quality of the JBL J216 belies its size and driver complement. It is not in the least “thin” or lacking in bass (or any other part of the frequency range, for that matter). The balance that JBL engineers sought has certainly been achieved in this speaker. As a matter of fact, we felt at times that the bass was slightly heavier than we would have wished (with the speakers against a wall and at ear level). Measurements showed why this was so, since the bass output reaches a maximum at about 150 Hz, giving an illusion of more bass than is actually present an octave or two lower.

When we drove a pair of J216’s with amplifiers in the 100- to 200-watt class (not recommended, but we exercised restraint), the available volume was more than sufficient for our taste, and the sound never became distorted or even strained at any reasonable volume. The quality was determined for the most part by the program source, which is as it should be. It was little short of amazing to hear the sounds these tiny speakers produced from digital Compact Disc programs. The J216 speakers are not a substitute for larger speakers, but they do a fine job of music reproduction. Of course, they will not crack the plaster in your walls, but neither will they shatter your budget.

— Julian D. Hirsch

Circle 142 on reader service card

Hitachi HT-68
Record Player

The Hitachi HT-68 two-speed direct-drive turntable uses a “Unitorque” motor said to have a constant (nonpulsating) torque characteristic that results in very low rumble and flutter levels. The rotation of the brushless, slotless, and coreless d.c. servomotor is controlled by a quartz-crystal oscillator, giving it a speed accuracy of 0.003 per cent at 33 1/3 and 45 rpm. The cast-aluminum-alloy platter (with its rubber mat) weighs about 2 pounds.

The inner surface of the straight stainless-steel tone-arm tube is chemically treated to damp its mechanical resonances. The HT-68 is furnished with a Hitachi MT-35 dual-magnet cartridge, but the detachable plug-in shell accommodates all standard cartridges having 1/2-inch mounting centers and weighing between 4 and 9 grams. The arm’s automatic operation is handled by a separate d.c. motor, so that record rotation is completely unaffected by tone-arm movement.

The HT-68 employs a photosensor system...
to detect the presence and size of a record on the turntable. This is done by means of small holes at 90-degree intervals around the platter and mat (at diameters of about 5½ and 11 inches), illuminated from above by a light near the turntable rim. As the platter rotates, light reaches a photocell beneath it through any holes not covered by a record. This information is used to determine turntable speed and the tone arm's indexing diameter (the arm will not leave its rest unless a record is present). At the end of play another optical sensor initiates the arm return and shut-off cycle.

All operating controls of the Hitachi HT-68 are located on its top front edge, where they are accessible with the clear plastic dust cover lowered. Very-light-touch push-buttons are used for power switching, speed selection, repeat-play mode, and the tone arm's up/down (cuing) function. LED indicators next to the last three momentary-contact buttons show when they are engaged. A large flat plate serves as the START/CUT switch, initiating and terminating a passing cycle or alternate operations. The player, of course, shuts off automatically at the end of a record, and it can be operated manually by lifting the tone arm from its rest (which starts the motor).

The HT-68 is mounted on a silver-colored plastic base molded of a compound that is claimed to minimize vibration transmission to the pickup and record, thus reducing acoustic-feedback tendencies. It is supported on four softly sprung mounting feet. The turntable specifications include 0.025 per cent wow-and-flutter (wrms), a tone-arm tracking error of less than 2 degrees, and a lead-wire capacitance of 140 picofarads. The adjustable counterweight has a tracking-force scale calibrated from 0 to 3 grams at intervals of 0.1 gram.

The Hitachi HT-68 record player is 17¼ inches wide, 14¾ inches deep, and 4¾ inches high. It weighs 13.2 pounds. The price, including the Hitachi MT-35 cartridge, is $259.95. Hitachi Sales Corp. of America, 401 West Artesia Boulevard, Compton, Calif. 90220.

**Laboratory Measurements.** Although the MT-35 cartridge was not being evaluated, we did measure its frequency response, tracking at the recommended 2 grams. With the CBS STR 100 test record the response was flat to 6,000 Hz, rising to +6 db in the 15,000-Hz region. Output level averaged 4.16 millivolts with a 3.54-cm/sec groove velocity. The cartridge could track up to the 70-micrometer level on the German Hi-Fi Institute HiFi:2 record.

The tracking-force scale calibration of the HT-68 arm was quite inaccurate on our sample. When the arm was initially balanced horizontally according to instructions, the actual force was typically 0.5 gram higher than the scale setting. When we rebalanced the arm for a correct reading at a typical operating force (1 to 2 grams), the error was 0.2 to 0.5 gram at all other settings. While the error was always in the safest direction (upward), we strongly recommend that this tone arm be set up with a separate stylus-force gauge.

The tracking error of the arm was within its 2-degree rating, and even when stated correctly (as a function of playing radius), it was less than 0.33 degree per inch over almost the entire record and a maximum of 0.67 degree per inch at a 3-inch radius. The antiskating compensation (adjusted by a small dial next to the base of the tone arm) was correct when set to match the actual (not indicated) tracking force. The capacitance of the tone arm and cable wiring was lower than rated, about 100 picofarads per channel. The combined effective mass of the arm and cartridge we used was 18 grams, suggesting that the arm's effective mass was in the vicinity of 12 grams, typical of many modern arms.

The weighted-rms flutter was 0.1 per cent, and the weighted-peak reading was ±0.13 per cent. The flutter energy spectrum was principally confined to the range 10 to 50 Hz. The rumble was nearly immune to most ordinary jarring applied to itself or to the supporting shelf (its most sensitive frequency was about 12 Hz, comfortably located between the audible range and the very low frequency of a physical impact).

The isolation afforded by the base mounting was slightly better than average at audio frequencies (with the major transmission occurring at 40 to 50 Hz), and it was considerably better than most turntables at infrasonic frequencies. The automatic cycle times of the HT-68 were 3 1/2 seconds to start or stop operation. The arm cued up in less than 1 second and lowered in about 4 seconds. The lateral drift during the arm's descent, a result of the antiskating torque, caused about 3 or 4 seconds of the record to be repeated each time the arm was raised and lowered.

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4 mg "tar," 1.1 mg nicotine av per cigarette, by FTC method.


Introducing Players 100's.
Regular and Menthol

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Designed for audiophiles who want to combine excellent performance with operational ease, the Yamaha K-2000 is a four-head, single-capstan cassette deck that includes both Dolby-B and dbx noise reduction and an automatic, microprocessor-controlled system for adjusting recording bias and tape sensitivity.

All the K-2000's tape heads are made of wear-resistant Sendust. The recording and playback heads are separate units held in a single case and permit instantaneous comparison between input and recorded signals. The regular erase head is an oversized unit that utilizes the large opening in the cassette shell to the left of the recording and playback heads, where a second pinch-roller would be located in a dual-capstan system. The fourth, "sub-erase" head, normal in size, is mounted to the right of the playback head—so it encounters the tape after it has been recorded or played. The sub-erase head serves two purposes in the K-2000. First, it erases the test signals that are recorded during the automatic biasing operation. Second, when used with a MONITOR ERASE pushbutton, it enables the user to erase, during playback, such accidentally recorded material as the first few words of an unwanted commercial. Provided that the pause created is not too long, this post-erase facility is very handy, making it possible to monitor the exact material to be deleted.

The single capstan of the Yamaha K-2000 is direct-driven by a servo-controlled d.c. motor, and a second d.c. motor is used for the reel hubs. The cassette-well door affords excellent label visibility (and is easily removed for head cleaning and demagnetizing), and interior illumination of the well shows the relative amount of tape on each hub. Transport modes are solenoid-operated by a touchplate that tilts left for rewind, up for play, right for fast-forward, and down for stop. All but the STOP function have illuminated indicators. We found this tilting arrangement a little awkward, and several times when we intended to press only the REWIND control we found ourselves also activating one of the adjacent buttons for RESET or MEMORY.

Yamaha has clearly spent considerable design effort to make the K-2000 as simple to operate as possible, however. Since tape type (normal, high-bias, or metal) is automatically determined by sensors that detect the cutouts in the rear edge of the cassette shell, the usual bias and equalization switch(es) have been eliminated. The type of tape in use, bias-tuning status, and the noise-reduction system that has been selected are all shown by appropriate legends on the front panel. The record and pause buttons, usually separate, have been combined into one REC/PAUSE button. When pressed, this button automatically initiates the bias-sensitivity optimizing program, which Yamaha calls "a-ORBiT." The program itself takes only two seconds, and since the test signals are automatically erased by the sub-erase head, the tape is not rewound. Thus, there is no difference between a general "factory-set" bias and an "optimized" bias, since every tape goes through the a-ORBiT process before being recorded. On the other hand, the system requires caution if you want to listen to a tape from which you have not removed the record-protect tabs on the cassette shell; if you press the REC/PAUSE button you'll erase 2 seconds of your recording, and if you then compound the error by hitting PLAY you will erase more of the tape.

The four-digit electronic tape counter of the K-2000 reads tape running time directly in all modes, and, while the accuracy is not that of a good clock (we found it off by about a minute, short on C-60's and long on C-90's), it is a great convenience compared with the usual hub-revolution counters. Recording level is set by a single slide control automatically determined by sensors that detect the relative amount of tape on each hub.

**Laboratory Measurements.** Yamaha did not make any tape-brand recommendations, so we tested the deck with a variety of samples we keep on hand. Using Type I (normal-bias) tapes, we obtained essentially equivalent results with TDK AD, Sony SHF, and the IEC Type I reference tape and very slightly elevated (+2 to +2.5 dB at 17 kHz) treble response with Maxell XLI-S and BASF Professional I. For best overall response we selected TDK AD-X. With Type II tapes, the flattest response, by the smallest of margins, was obtained from TDK SA-X, though Maxell UDNL-II, TDK SA, and Fuji FR-II were almost identical. The official IEC Type II reference tape showed a treble rolloff above 15 kHz. Among Type IV tapes we selected Fuji FR Metal over the IEC reference and TDK MAR on the basis of a very slight increase in high-frequency headroom, but again the frequency-response traces from our chart recorder were almost identical.

(Continued on page 44)
What the world’s most critical listeners think of JBL is a matter of public record.

To capture the excitement, intensity, and creativity of today’s popular music, recording engineers use some of audio’s most sophisticated equipment. From computerized mixing consoles to advanced digital recording systems. And to get the most out of these components, recording professionals rely on equally advanced monitor loudspeakers—JBL.

In fact, a recent Billboard magazine survey revealed that over 66% of the major recording studios in the U.S. use JBL speakers. But that’s only part of the story. Because, of the top 25 albums recorded in 1981, 22 were mixed or mastered in studios equipped with JBLs.*

So if you’d like to hear your music the way it was meant to be heard, visit the audio specialists at your local JBL dealer. JBL loudspeakers are available at selected AAFES-Europe Sound Centers and other (military or audio) retail outlets.

And now for studio quality sound in your car, JBL introduces its new line of automotive loudspeakers.

*Equipment information compiled from The Mix and Billboard directories and phone surveys.

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First with the pros.

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CIRCLE NO. 10 ON READER SERVICE CARD
The playback-only frequency response of the K-2000 using our BASF IEC-standard 70- and 120-microsecond calibrated tapes, was exceptionally flat, varying within 1 dB between the 31.5-Hz and 18-kHz limits of the tapes. Overall record-playback frequency response at the conventional -20 dB level was also extremely smooth and wide, varying less than 1 dB over almost all of the audible range. The -3 dB points were reached only at the 20-Hz and 20-kHz extremes of our measurements with TDK AD-X and SA-X, Fuji FR Metal rose gently above 10 kHz to +2.5 at 20 kHz. At 0 dB (the 250-nWb/m IEC reference level, which is several decibels above the manufacturer's 0-dB indicator marking), treble response dropped by 6 dB at approximately 10 kHz with our normal and high-bias tapes. Metal tape extended the rolloff point to 17 kHz.

At the IEC 0-dB reference recorded level the third-order harmonic distortion of a 315-Hz test tone measured only 0.25 per cent with the normal-bias TDK AD-X; TDK SA-X, Fuji FR Metal rose gently above 10 kHz to +2.5 at 20 kHz. At 0 dB (the 250-nWb/m IEC reference level, which is several decibels above the manufacturer's 0-dB indicator marking), treble response dropped by 6 dB at approximately 10 kHz with our normal and high-bias tapes. Metal tape extended the rolloff point to 17 kHz.

Because of its 2:1 compression/expansion characteristic the dbx system reduced distortion at 0 dB to 0.11, 0.36, and 0.38 per cent with the AD-X, SA-X, and FR tapes. Headroom before 3 per cent distortion also dramatically increased, to 17.8, 15.6, and 18 dB, respectively, and the CCIR/ARM-weighted S/N was 98.8, 96.4, and 100 dB. With our Teac MTT-11 test tape the wow-and-flutter of the K-2000 measured 0.064 per cent (wrms) and 0.09 per cent (DIN peak-weighted). These figures do not quite match the published specifications and may be characteristic only of our sample, but it is a point to check out in a listening test (sustained piano chords are good for the purpose) before purchase of any cassette deck. The dbx tracking was very good (within 1 dB up to 16 kHz) at -20 dB at -30 and -40 dB the Dolby error consisted of a slightly elevated midrange and treble (+2.5 dB), but this was not immediately apparent in listening tests.

An input signal level of 47 mV was required to reproduce an indicated 0-dB reading, at which point the output was 0.5 volt. These are entirely typical levels. With a C-90 cassette fast-forward and rewind times were a rather rapid 110 and 114 seconds; 76 and 79 seconds were required for a C-60. The pitch control varied tape speed by ±15 per cent, and at the control's normal, detented position the tape speed was 0.5 per cent fast.

Comment. Both with prerecorded Dolby and dbx tapes and with those we recorded ourselves the K-2000 acquitted itself admirably. If not the very best sonic materials available today the Dolby-B noise-reduction system is inadequate, and for this reason we wish that Yamaha has clearly accomplished its design intentions, and we are glad to be able to recommend the K-2000 for consideration by the serious audiophile.
The control panel of this Electronically Tuned Receiver (ETR) is simple—and deceptive. Simple so that the receiver is easy to operate. Deceptive because a very sophisticated technology lies behind it. A technology that produces high fidelity reception from the Delco-GM/Bose Music System under conditions that are even difficult for ordinary radio reception.

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

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

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

Delco GM BOSE
Sound so real it will change how you feel about driving.
Speaker Cables:
Can You Hear the Difference?

The results of blind listening tests with eleven audio experts

By Laurence Greenhill

SOME serious audiophiles strongly believe that the seemingly innocuous wires used to connect stereo amplifiers to loudspeakers actually have a considerable effect on a system’s overall sound quality. Unsatisfied with the performance of 16-gauge heavy-duty lamp cord or “zip” cord (“gauge” is a measure of thickness; the lower the number, the thicker the wire), these purists install exotic, expensive, and physically imposing cables instead. A 30-foot run of special audio cable may cost anywhere from $55 (for a pair of Monster Cables) to more than $300 (for Levinson wire). After purchase, these thick and massive wires are terminated with special lugs or pressure-fitting banana plugs ($25 per pair), coated with a contact cleaner (Cramolin), and installed with loving care.

Does it make any difference? Is all this trouble and expense necessary to achieve the best possible sound? The editors of Stereo Review have long maintained that for normal home cable runs (in the 20- to 50-foot range) to 8-ohm speakers, 16-gauge zip cord provides optimal power transmission between a system’s amplifier and speakers. The “official” view has been that heavier and/or more expensive audio cables represent—for ordinary home installations—electronic overkill.

Nevertheless, equipment-oriented audio hobbyists have continued to tinker and experiment with their systems’ connections. Quick to respond to a felt need, audio manufacturers have filled the marketplace with a variety of exotically named wires: Discwasher Smoglifters I, AudioSource UHD, Live Wire 301X4, Mogami Neglex 2477, Oracle Leonische, Fulton Golds, Monster PowerLine, Big Red Live Wire, and so on. Is this just another case of the mystique and glamour of high-end audio inducing otherwise sensible music lovers to waste their money? Or is there some real sonic advantage to using audiophile speaker cables?

Our view is that if there are audible differences among speaker cables, they probably derive from measurable differences in their respective electrical properties. Nelson Pass of Threshold Corp., for instance, claims that subtle sonic differences can be correlated with differences in electrical resistance, capacitance, and inductance, which vary according to overall cable length. And these factors can result in measurable differences in frequency response and signal level, depending on the particular speakers and amplifiers the cables connect. But the measurable differences in electrical characteristics and performance between audiophile cables and cheaper, 16-gauge zip cord seem too small to explain the apparently huge audible differences that are sometimes reported.

Just how different in electrical characteristics do cables have to be before there are audible effects on frequency response and signal level? In order to answer this question, among others, we embarked on a series of laboratory and listening tests. Because of logistical, time, and budget restrictions, only three cables were exhaustively tested: (1) 16-gauge heavy-duty lamp cord, purchased from a suburban hardware store for 30 cents a foot; (2) 30-foot lengths of New Monster Cable, costing $55 a pair; and (3) 24-gauge “loudspeaker cable,” available from many sources at about 3 cents a foot.

Although the high electrical resistance of 24-gauge wire makes it inadvisable for runs of more than a few feet, its low price and small diameter make it appealing to decorators, who use it unashamedly. It seemed the ideal “worst case” cable—if any cable would sound different, 24-gauge should be the one. The 16- and 24-gauge wires were cut to the same 30-foot lengths as the Monster Cable, and all the cables were terminated with Monster’s X-Terminators for consistency in the connections.

Lab Tests

For the first part of our tests, Julian Hirsch measured the three selected cables’ resistance and interconductor capacitance. The results are easily summarized: in 30-foot lengths, the 16-gauge zip cord had a resistance of 0.24 ohms, the Monster Cable 0.09 ohms, and the 24-gauge “loudspeaker cable” 1.8 ohms; their interconductor capacitances were 420, 600, and 400 picofarads, respectively.

The cables were then connected between a high-quality power amplifier (a Perreaux PMF 2150B) and two pairs of high-quality speakers (Spendor BC-1’s and KEF 105.2’s). A 1,000-Hz square wave was fed to the speakers through the cables, and the cables’ effects on the signal were monitored by subtracting the waveform at the speaker terminals from the waveform at the amplifier output. Photographs were made of the oscilloscope displays. There were no observable differences between any of the cables driving either speaker system. All the measurements were then set aside and not shared with the listening panel until after the listening tests.

Open Listening

In the initial open (non-blind) phase of the listening tests, the listeners individually evaluated the sound of seven different music selections played with each of the three different cables while knowing which cable was in use at each moment. They were asked to fill out an elaborate, eight-page questionnaire. In addition to ten questions about the sound of the different cables, the form asked about the panelist’s age, occupation, degree and kind of involvement with audio, and any prior attitudes toward the specific cables being tested. The procedure was designed to collect information on the panelists’ various biases and to suggest how those biases might change in a group-listening situation. For example, a listener’s preference might be influenced by knowledge of a friend’s preference or by the reputation that a particular brand or type of cable has acquired through reviews in the “underground” hi-fi magazines.

The results of blind listening tests with eleven audio experts
Controlled Listening

The heart of our whole project was the set of controlled listening tests. These differed from the initial open tests in that the listening procedure was designed to maximize psychoacoustical fairness. That is, in order to keep the listeners' biases about the weight, appearance, cost, or brand of the cables from influencing their sonic preferences, the tests in this part were double-blind—neither the listeners nor the test administrator knew which cable was being listened to. Switching between the different cables was practically instantaneous (less than 50 milliseconds) in order to make subtle sonic differences as apparent as possible (human beings have notoriously poor long-term memories for sounds).

To make possible such a double-blind, instantaneous-switching test, we used a laboratory-grade audio comparator developed and sold by the ABX Company. It consists of control circuits and relays that can rapidly switch between different inputs. The listener compares sounds and decides whether a particular source, designated X, is sonically the same or different from each of two other sources, designated A or B (hence ABX). The trick is that source X is actually either A or B; each connection is made at random by the ABX comparator and is not identified for either the listener or the tester. The listener writes his response on a test form. Digital memory circuits store the sequence of connections for retrieval and analysis at the end of the test.

Level matching between cables to compensate for their differing electrical-loss characteristics was not performed for every comparison in this part. The basic premise of these tests was that measurable differences among cables would become audible if they were large enough. Matching all measurable parameters—including signal loss—would make the hypothesis untestable. For one comparison, however, of Monster Cable with the 24-gauge speaker wire, we did compensate for level differences by switching in a precision attenuator between the preamplifier and the power amplifier whenever the lower-resistance Monster Cable was selected by the ABX system. The purpose of this was to determine if there were any audible differences between the two cables other than those resulting from a volume-level change.

Some audiophiles refuse to accept the validity of this kind of controlled listening test. They argue that either the test procedure or the switching systems will mask important sonic differences. The whole procedure and test setups are de-
signed to increase listeners' sensitivity to small differences and to bypass some of the limitations of the human hearing system so that the results will be applicable to all listeners, not just those participating in the tests. Let's review three of the main features of this phase of our tests: (1) The ability to switch almost instantaneously from one cable to another with a precision set of low-resistance relays makes perceived sonic differences as vivid as they can be given our limited sonic memories. (2) The double-blind listening setup relieves the tester and the listeners from having to compensate for preconceptions about the different cables. (3) The use of numerous listeners making a large number of comparisons produces sufficient data for meaningful statistical analysis and generalization.

The procedure for the controlled listening tests can be quickly summarized: six cable comparisons were carried out using the ABX comparator and either pink noise or a choral music selection. Monster Cable was compared with 24-gauge wire, gain matched and unmatched; next, Monster Cable was compared with 16-gauge zip cord; then the 16-gauge and 24-gauge cables were compared with each other. Each comparison consisted of a series of fifteen tests; in each test, as explained previously, the listener was asked to identify which of two constant sources, A and B, was the same as the switched source X. The choice and order of cables being compared and program sources being used were determined by a table of random numbers, with switching randomly controlled by the ABX comparator.

Results were examined only after each listener completed the series of comparisons, and results were held confidential so that each panel member knew only his own score—after all, the egos of these "golden ears" were on the line. Moreover, in our account of the results we will consider mainly the performance of the group as a whole; individual panelists will be identified by code letter—to protect the guilty! Further details of the test setup can be found in the box on page 51.

The listeners were all males with an average age of about thirty-nine years (ranging from thirteen to sixty). Although two were high-school students, most of the remaining nine were middle-aged professionals with a serious involvement with audio. Six panelists owned expensive esoteric twin-lead speaker cables, two owned interwoven audiophile cables, and one even used 14-gauge zip cord. Seven thought that controlled, double-blind tests like those we used were valid, but the others thought such tests missed the boat. Half the panelists thought that sonic differences between speaker cables could not be explained by measurable differences in the cables' electrical characteristics. Before the listening tests even began, ten out of the eleven listeners expected the "better" cables to show improved bass, "punchiness," and frequency response.

The left-hand portion of Table I on the facing page summarizes the pre-test attitudes of the listeners. In terms of attitudes, Monster Cable scored significantly higher on appearance and reputation than either 16- or 24-gauge cable. Although 16-gauge scored highest on frequency of use and cost-effectiveness, listeners expected the "better" cables to be "congealed and homogeneous," while the program could be played louder than with the other cables. In comparison, the sound with 16-gauge was said to be "concealed and homogenized," revealing less "space and expansiveness" in the music. Listeners also noted that 24-gauge produced a drop in level and rolloffs in frequency response at both ends of the audio spectrum. The "clipped and compressed" qualities of 24-gauge were even said to give it a "New England" sound!

It is important to emphasize again that these ratings and comments came from listeners who knew which cables they were listening to. The panelists' strong pre-test biases in favor of Monster Cable could have influenced their reactions during the open listening tests no matter how conscientiously they tried to ignore them. Eliminating the listeners' awareness of which cable was being auditioned was, therefore, a major consideration in our design of the controlled listening tests.

The Controlled Tests

The most striking result of the controlled listening tests (see Table II) was the selecting out of the 24-gauge wire. All the comparisons in which it was not matched in gain level with the other cables show a high degree of statistical significance. With pink noise, every panelist was able to distinguish non-level-matched 24-gauge wire from either of the two heavier cables in at least twelve out of fifteen tries, or 75 percent, which is an accepted threshold of significance in psychoacoustical testing. Even when the levels were matched between 24-gauge wire and Monster Cable (Comparison No. 2), four listeners still heard a difference. While one listener might have just been making lucky guesses, it is very unlikely that four out of eleven were doing so.

It is reasonable to assume that because Monster Cable is thicker and has lower electrical resistance than 24-gauge wire, it is a more electrically "accurate" signal conductor. The audible differences between them in our controlled listening tests strongly suggest, therefore, that 24-gauge is too thin for optimal audio performance—in 30-foot lengths, at least.

When 16-gauge wire was pitted against Monster Cable using pink noise as the program material (Comparison
In only two sets of results that are statistically significant—controlled listening comparisons gave responses (pink-noise) test signals. This suggests that both 16-gauge and Monster Cable are fine conductors for music signals of typical complexity, but a very sensitive listener under the best conditions might find an audible difference—not necessarily a preference—between them on wideband (pink-noise) test signals.

In sum, five out of the six sets of controlled listening comparisons gave results that are statistically significant using the binomial distribution (see caption for Table II). In only two sets of comparisons, however—both testing 24-gauge wire against a heavier cable using pink noise—were the results above the stricter 75 per cent threshold usually considered necessary to establish an audibly significant difference.

The ratings in the upper half of the chart are their standard deviations—\( \pm 1.5 \) for Monster Cable vs. 24-gauge, \( \pm 2.0 \) for Monster Cable vs. 16-gauge, \( \pm 2.7 \) for 16-gauge vs. 24-gauge. Thus, the higher the standard deviation, the wider the range of scores. The lower half of the table indicates whether the differences in the ratings of the three cables are statistically significant. The method of comparison used, the student’s paired t-test, estimates the probability that an observed difference in preferences could have occurred by chance. The number given for each comparison in each category or test represents the probability that the difference did not occur by chance alone. Probabilities below 95 per cent are considered statistically insignificant and are indicated by "NS."

Table I shows the results of the listening panel’s pre-test evaluations of the three cables tested (left part) and their ratings of the cables during the open listening tests (right part), together with a statistical analysis. The ratings in the upper half of the chart are mean scores derived by averaging the questionnaire responses of all the panelists; the numbers shown in parentheses below them are their standard deviations—\( \pm 1.5 \) for Monster Cable vs. 24-gauge, \( \pm 2.0 \) for Monster Cable vs. 16-gauge, \( \pm 2.7 \) for 16-gauge vs. 24-gauge. Thus, the higher the standard deviation, the wider the range of scores.

### Table I: Listening Panel Biases and Open-Listening Test Results

<table>
<thead>
<tr>
<th>Pre-Test Evaluations</th>
<th>Ratings During Open Listening Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monster Cable</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Changes</td>
<td>8.6 (±1.5)</td>
</tr>
<tr>
<td>Subjective Impression</td>
<td>NS</td>
</tr>
<tr>
<td>Perceived Changes</td>
<td>4.8 (±3.3)</td>
</tr>
<tr>
<td>Subjective Impression</td>
<td>NS</td>
</tr>
<tr>
<td>Perceived Changes</td>
<td>0.5 (±2.1)</td>
</tr>
<tr>
<td>Subjective Impression</td>
<td>NS</td>
</tr>
<tr>
<td>Pre-Test Evaluations</td>
<td>2.0 (±1.3)</td>
</tr>
<tr>
<td>Ratings During Open Listening Test</td>
<td>16-Gauge Wire</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Changes</td>
<td>5.2 (±1.9)</td>
</tr>
<tr>
<td>Subjective Impression</td>
<td>NS</td>
</tr>
<tr>
<td>Perceived Changes</td>
<td>3.8 (±2.0)</td>
</tr>
<tr>
<td>Subjective Impression</td>
<td>NS</td>
</tr>
<tr>
<td>Perceived Changes</td>
<td>0.0 (±1.0)</td>
</tr>
<tr>
<td>Subjective Impression</td>
<td>NS</td>
</tr>
<tr>
<td>Perceived Changes</td>
<td>7.6 (±1.3)</td>
</tr>
<tr>
<td>Subjective Impression</td>
<td>NS</td>
</tr>
</tbody>
</table>

#### Statistical Analysis (probability in %)

<table>
<thead>
<tr>
<th>16-Gauge vs. 24-Gauge</th>
<th>NS</th>
<th>NS</th>
<th>NS</th>
<th>NS</th>
<th>NS</th>
<th>NS</th>
<th>NS</th>
<th>NS</th>
<th>NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monster Cable vs. 16-Gauge</td>
<td>98%</td>
<td>99.9%</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Monster Cable vs. 24-Gauge</td>
<td>99.5%</td>
<td>99.5%</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

*1. except for deep-bass test*

### Comments

While it may not be news that the thin 24-gauge speaker cable sounded different from the other cables tested, what does this result mean in terms of cable measurements and their audible effects? A 1- to 2-dB decrease in sound level was measured for the 24-gauge wire during the pink-noise listening tests, and a number of panel members reported a loss of treble and bass response with 24-gauge during open-listening. Was the wire also changing the perceived frequency balance?

Julian Hirsch’s measurements of the 24-gauge wire showed it to be much higher in resistance than Monster Cable or 16-gauge wire. Its 1.8-ohm resistive load means that fully one-third of the amplifier’s output was being dissipated by the cable over the 30-foot runs we used. This accounts for the unanimously audible decrease in level. Frequency response was also affected because the 24-gauge cable’s relatively high series impedance resulted in a 1.76-dB insertion loss of the cable over the 30-foot runs we used.

The level-matching procedure corrected only for an overall level mismatch, not for frequency-response changes caused by the 24-gauge wire.

The panelists’ initial preference for Monster Cable was only partly vindicated by their ability to distinguish it from 16-gauge cable in the controlled pink-noise test (Comparison No. 3). What the panelists noticed during this comparison was either the result of the measured 0.16-dB insertion-loss difference between the two cables or the corresponding 0.04-dB frequency-response variation when they were connected to the KEF 105.2 speakers. The former is far more likely.

It seems that tests with real music signals decrease the ability of listeners to...
Table II: Results of Controlled (Double-Blind) Listening Tests

Table II. The two charts on this page show the results of the controlled, double-blind listening comparisons of the three cables. At right are the results for the panel as a whole, together with a statistical analysis of the comparisons. The scores for each member of the panel in each comparison are shown in the chart below.

The ABX comparator system is statistically similar to flipping a coin and predicting whether it will come up heads or tails. Each of the two results is equally probable, so random predictions are likely to be correct 50 per cent of the time. Since each of our comparisons comprised fifteen trials, a listener would have gotten a score of 7.5 if he could hear no differences between the cables and were just guessing. Any score much above 7.5 is thus better than chance and might be significant.

Using published tables of the binomial ("bell-curve") statistical distribution, we calculated the likelihood of correct scores in each comparison for the entire panel. We found that 91 or more correct answers out of a total of 165 in each comparison gave a probability of 95 per cent or more that the results were due to chance. Results meeting this criterion are thus indicated as statistically significant.

We also used, however, a stronger criterion: psychoacoustical significance. In psychoacoustical testing, it is generally accepted that the threshold at which a phenomenon can be considered definitely audible is when listeners are aware of it at least 75 per cent of the time. This is the basis for our definition of a "hit" as at least twelve out of fifteen correct answers. Applied to the scores of the whole panel, this meant that 124 answers out of 165 trials for each comparison had to be correct before we concluded that the differences between the cables were indeed audible.

Results that meet the 75 per cent rule are due to more vivid effects than those producing merely a statistically significant result. An additional clue to the magnitude of the differences between the cables tested is the number of listeners who scored a hit in each comparison; the more hits, the more striking were the audible differences.

INDIVIDUAL LISTENER SCORES

<table>
<thead>
<tr>
<th>Listeners identified by letters; &quot;hits&quot; shaded in color</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison 1: Monster Cable vs. 24-gauge wire with pink noise, levels unmatched</td>
<td>15</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Comparison 2: Monster Cable vs. 24-gauge wire with pink noise, levels matched</td>
<td>9</td>
<td>13</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>9</td>
<td>6</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Comparison 3: Monster Cable vs. 16-gauge wire with pink noise, levels unmatched</td>
<td>13</td>
<td>7</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>9</td>
<td>9</td>
<td>11</td>
<td>12</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Comparison 4: 16-gauge wire vs. 24-gauge wire with pink noise, levels unmatched</td>
<td>15</td>
<td>15</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Comparison 5: Monster Cable vs. 16-gauge wire with choral music, levels unmatched</td>
<td>4</td>
<td>6</td>
<td>11</td>
<td>8</td>
<td>9</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Comparison 6: Monster Cable vs. 24-gauge wire with choral music, levels unmatched</td>
<td>14</td>
<td>7</td>
<td>15</td>
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<td>10</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Average Scores</td>
<td>11.7</td>
<td>10.3</td>
<td>11.6</td>
<td>10.7</td>
<td>11.6</td>
<td>10.0</td>
<td>9.8</td>
<td>10.2</td>
<td>12.0</td>
<td>12.7</td>
<td>11.5</td>
</tr>
<tr>
<td>Percentage of &quot;Hits&quot;</td>
<td>66.7</td>
<td>50.0</td>
<td>40.0</td>
<td>33.3</td>
<td>40.0</td>
<td>40.0</td>
<td>33.3</td>
<td>33.3</td>
<td>50.0</td>
<td>80.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

* A "hit" means that the panelist chose correctly in at least twelve out of fifteen trials.

** The panelist's scores in this comparison had to be discarded.
to distinguish small sonic differences between cables. Although three panelists heard a difference between 16-gauge and Monster Cable with pink noise, the panel as a whole was unable to hear any significant difference between them with choral music (Comparison No. 5). Even when Monster Cable was compared with 24-gauge using choral music (Comparison No. 6), only three panel members had psychoacoustically significant scores (twelve out of fifteen or better), though the group’s score in this non-level-matched comparison did reach the less strict level of “statistical significance.” It seems likely that differences between 24-gauge and Monster Cable would be even harder to hear (if audible at all) if the levels were matched and typical music, not pink noise, were used.

Because of our short auditory memories, noticing very subtle sonic differences requires a more or less constant signal as well as instantaneous switching between the components being compared. One must wonder how real are the vast sonic differences reported in the underground audio press among such components as cables, preamplifiers, and power amplifiers, since the results derive from uncontrolled, nonlevel-matched listening tests using only wide-dynamic-range musical material.

The final significant conclusion one can draw from our data is that at least one genuine “golden ear” does exist. Listener J on our panel had 80 per cent “hits” (psychoacoustically significant scores) with an average score of 12.7 (out of 15). Obviously, certain listeners—whether through talent, training, or experience—can hear small differences between components. But the majority of the panelists, although by no means poor or unskilled listeners, heard only differences resulting from the relatively large, easily measured variations in signal level and frequency response in the 24-gauge comparisons. Note, however, that J was the only panel member to score a hit for both music and level-matched pink-noise comparisons between Monster Cable and 24-gauge (Nos. 2 and 6). In these two tests only a third of the listeners achieved psychoacoustically significant scores, showing that the audible differences in these tests were not very obvious despite the overall statistical significance of the group’s scores.

Conclusions

Our tests were certainly not exhaustive, since only three different cables were compared. Yet the results demonstrate that while Monster Cable and 16-gauge lamp cord are both audibly different from and probably superior to 24-gauge wire, 16-gauge is good enough to be indistinguishable from Monster Cable when playing music. An esoteric cable would have to be substantially better than Monster Cable in order to be demonstrably superior to 16-gauge wire. One of the listeners on the panel ran a quick but controlled listening test of Monster Cable against high-capacitance Mogami Cable (with its “damper” removed) and 8-gauge Levinson HF-10C twin-lead, both products more costly than Monster Cable. He did no better in distinguishing Monster Cable from the other two than chance would allow.

So what do our fifty hours of testing, scoring, comparing, and listening to speaker cables amount to? Only that 16-gauge lamp cord and Monster Cable are indistinguishable from each other with music and seem to be superior to the 24-gauge wire commonly sold or given away as “speaker cable.” Remember, however, that it was a measurable characteristic—higher resistance per foot—that made 24-gauge sound different from the other cables. If the cable runs were only 6 instead of 30 feet, the overall cable resistances would have been lower and our tests would probably have found no audible differences between the three cables. This project was unable to validate the sonic benefits claimed for exotic speaker cables over common 16-gauge zip cord. We can only conclude, therefore, that there is little advantage besides pride of ownership in using these thick, expensive wires.

Laurence Greenhill is a research psychoacoustic who is currently studying the effects of drugs on perception. He has been an audio enthusiast since the late Sixties and has written a number of articles on perception, audio, and subjective listening tests.

TEST METHODS AND EQUIPMENT

Both parts of the listening test, the open and the controlled, were performed in a sparsely furnished living room measuring 18 x 11 x 28 feet. The hardwood oak floor is covered with a Persian area rug, and sheet-rock walls and large glass windows rise to a “semi-cathedral” ceiling. Acoustically the room is very live, with a reverberation time of about 1 second.

High-end equipment was used throughout the test setup. The system included an Accuphase AC-2 moving-coil cartridge (stylus wear approximating cable would have to be substantially higher) running at 15 inches per second and a Magnavox FD-1000-L digital Compact Disc player. The Mark Levinson ML-7 stereo preamplifier that served as the control center was equipped with L-3 moving-coil phono sections. Levinson silver interconnect cable ran from the ML-7 to the power amplifier.

During interludes and after all listening sessions a number of high-quality power amplifiers were used, including an Electrocompaniet Ampliwire 1, a Mark Levinson ML-9, and a Perreaux PMF 2150B. Each of these high-power units had been tested previously and found to be in perfect working order. For the controlled listening tests we chose the Perreaux unit (more than 200 watts per channel).

The speakers were installed 6 feet apart along the room’s short wall and about 2 feet out from each side wall. Infinity RS-3A, Spendor BC-1, and KEF 105.2 systems were all employed in the early listening trials and during the open listening phase. Only the KEF’s were used during the controlled tests because of their built-in overdrive protection. Each listener was allowed to set the volume level to his taste at the beginning of his part of the controlled listening test; the volume was then left at that level for the entire test session. For one of the Monster Cable/24-gauge comparisons the two cables were matched in gain level within 1 dB using a potentiometer connected between the preamplifier and power amplifier and an Ivie IV-10 spectrumanalyzer.

Program material for the open listening tests included a wide range of sources and musical styles. Among the recordings used were the pink-noise band from Telarc’s “OmniDisc” test album (Telarc DG-10073/74), Mozart arias from Philips 90500098, percussion instruments from Harry Patch’s Delusion of the Fury (Columbia M2 30576), Karla Bonoff’s Restless Nights (Columbia JC 35799), Berlioz’s Symphonie Fantastique (Reference Recording R-11), and two selections from a Philips CD sampler disc (301 027 2). Elton John’s rendition of Blue Eyes and Once Upon a Time in the West by Dire Straits.

The program material for the controlled tests was restricted to only two selections. The 3-minute pink-noise band from the “OmniDisc” was chosen by the panel as most revealing of subtle sonic differences. Choral music sung by the 300-voice Jay Welch Chorale (Varese Sarabande VSD 1000) was chosen because of the disc’s unusual degree of stereo separation and the vocal resonances in the male chorus.
Tips for Speaker Buyers

By William Livingstone

YOUR loudspeakers have a greater influence on the sound from your hi-fi system than any other component. And since there is considerable variety in the sound produced by the speakers on the market today, it is in choosing the speakers for your system that you have the best opportunity to express your own taste in sonic quality.

The great variety in size, price, and design approach used in the many currently available speakers makes choosing one pretty complicated. But since you will be spending hundreds of hours with whichever speakers you decide on, it's worth the time and effort it takes to make a careful choice. The following advice is offered to help you make that choice whether you are buying your first speakers or trading up.

1 Consult the experts. You can do this by reading lab-test reports in audio enthusiast magazines such as STEREO REVIEW, which usually has at least one speaker review in each issue. Reviewers at different laboratories may argue about the best methods for testing, but, regardless of method, I don't think a really poor speaker has ever been given a good review by a reputable lab. You may not understand all the data in test reports, but you're permitted to skip to the reviewer's evaluating remarks in the summary. If you lack the time and inclination to do much comparative listening and shopping, you would not go wrong by choosing any speaker given a favorable review by Hirsch-Houck Labs in this magazine.

2 Educate your ears. Going to live performances is a lot of fun, but it's not a very effective way of training yourself to judge loudspeakers. Instead, try to hear as many speakers that have gotten good reviews as you can, listening particularly for qualities that have been commented on by reviewers. Also listen to the speakers that have been chosen by your most knowledgeable friends. When you start comparing speakers in audio showrooms, don't limit your listening to speakers in your price range. Try to find what you like best at any price, then look for the speakers that come closest to that ideal at the price you can afford to pay.
Compare only two different speakers at a time. It's confusing to try to pick the best from a group of speakers if you listen to them in sequence. You should switch back and forth between two pairs until you can decide which you like better. Then compare your choice with the next speaker under consideration. When making A-B comparisons, be sure the speakers are at the same volume level. In such comparisons, if one speaker (or pair of speakers) is louder than the other, almost everybody tends automatically to find the louder one more appealing.

Use familiar program material when trying out speakers. If you listen exclusively to rock or jazz at home, it doesn't make much sense to try to judge speakers in a showroom by listening to recordings of symphonic music and opera, or vice versa. And don't let a salesman demonstrate speakers using only music of his choice, which may have been selected to minimize a particular speaker's shortcomings. You should use recordings you know and like, and you should use enough different kinds of material to be able to check the way a speaker behaves over the whole frequency range.

Low notes on a pipe organ or a bass drum roll will show you how it handles bass. A male speaking voice will help you spot unwanted boominess in the upper bass and lower midrange. Peakiness in the mid-frequencies will add a honky, nasal quality to a female singing voice. Check for this with a record by a mezzo-soprano or alto such as—take your pick—Carly Simon, Stevie Nicks, Aretha Franklin, Rosemary Clooney, Lacy J. Dalton, or Frederica von Stade. For high frequencies you will need music that includes snare drum, cymbals, or triangles. Make a cassette with brief passages of each kind of material and take it with you whenever you plan to audition speakers.

Listen for accuracy and balance. Don't be overimpressed by a lot of bass or extra-brilliant highs. A speaker with midrange boost will have more presence than a speaker with the desired flat frequency response, and such exaggerations may seem momentarily impressive in the showroom or on one musical selection, but they quickly become tiresome. What you want from a speaker is absence rather than presence, which is to say that you want a speaker that reproduces all the music without adding any sonic coloration of its own.

Move about the showroom while you are auditioning speakers. At home a few of us listen to music only from the one ideal seat facing the two speakers of a stereo pair and placed equidistant from them. A good speaker should be able to disperse the high frequencies over a normal listening area, and if the sound coming from the speaker seems to change noticeably as you walk back and forth in front of it, this usually means that it has inadequate dispersion of highs. As you walk about, concentrate on the highs and check to see whether the stereo effect holds up reasonably well elsewhere in the room besides that one ideal seat.

Be sure you make your judgment on the basis of performance, not size or design approach. A bigger speaker is not necessarily a better speaker, and having a lot of drivers does not guarantee that a speaker system will outperform one with fewer drivers. Don't let talk of new design technology influence you unduly. We have tested excellent speakers that were designed in radically different ways, and although speakers on the whole have gotten significantly better in the last five years or so, some old solutions to problems of speaker design are still quite effective.

Try to hear the speakers you choose in your own listening room before you commit yourself finally. Speakers that sound good to you in a showroom may not please you as much at home, and it's a good idea to arrange for return privileges if you can. In any case, while shopping you should be prepared to give the dealer the dimensions of your listening room and a description of its furnishings, which will help him to advise you in making your choice. There are certain things you can do fairly inexpensively to fine-tune your room if it is acoustically too bright or dull, and the placement of speakers has a great deal to do with how they sound in a room. (See "Sound and Your Listening Room," which starts on the next page.)

Don't think you have to spend a fortune to get speakers of decent quality. It is true in audio as in other fields that you usually get what you pay for, and if you really wish to spend a great deal of money on equipment, there are some wonderful expensive models on the market. But if you are trying to put together a budget system, there are a number of good speakers made by reputable manufacturers that retail for under $100 each. In the range of $100 to $150 there are many excellent ones.

Remember that you are the one who will listen to the speakers, so buy to please yourself. Tastes in sound differ, and different people actually hear differently. Your choice should be made not to agree with a laboratory reviewer or to please your most knowledgeable audiophile friend, but to satisfy you. I hope you will wind up with a well-balanced, smoothly operating speaker that has no undue emphasis in any part of the frequency range, a speaker that will be so neutral you can forget it and concentrate on listening to the music.
Sound and Your Listening Room

Understanding the nature of acoustics can help you get the most from your speakers

By Robert Berkovitz
The listening room is one of the key components of a music system. It not only has a major influence on the sounds heard by a listener, but it is generally the element of a system that is hardest to alter or replace. While few listeners would be willing to change or rebuild their homes for acoustical reasons, some of the unwanted effects of listening-room acoustics can be avoided or minimized by less radical means: careful placement of loudspeakers, rearrangement or modification of the room's furnishings, and optimal selection of the prime listening position. Being able to manipulate these factors to best advantage, however, requires at least a basic understanding of acoustical principles and how they apply to listening rooms.

What Is Sound?

Sound is vibration in a material medium, usually air. Vibrations in liquids, such as water, can be heard directly as sound if one's ears are immersed, but vibrations in solids are heard because they generate vibrations in air that our ears pick up. Sound vibrations occur in waves that move through the medium. Water waves are visible as alternating crests and troughs moving across the surface of the liquid, as on a pond or lake. Sound waves in air are alternating regions or layers of higher- and lower-density air. In fact, changes in barometric pressure could be considered sound that is too low in frequency (around 0.00001 Hz) for us to hear. Typical sound waves are generated by vibrating objects, such as the reed of a wind instrument, the strings and body of a violin, or the membrane of a kettle-drum. Vibrating objects change the density of the air around them, creating waves that reach our eardrums, where they in turn cause vibrations in the small bones of our inner ears that are picked up by our auditory nerves and transmitted to our brains.

The length of a wave is the distance between two successive high or low points—in water this is the distance between two crests or two troughs, and in air it is the distance between two high-density or two low-density regions (see Figure 1). The scientific symbol for a wavelength is the Greek letter lambda, \( \lambda \). Wavelength and frequency are closely connected; for any kind of wave, if one of these characteristics is known, the other can be determined with a little arithmetic. For our purposes here it is enough to know that low-frequency sounds have long wavelengths and that high-frequency sounds have short ones. For a convenient frame of reference, take as an example the low-C note in music (such as that at the beginning of Richard Strauss’s Also Sprach Zarathustra, used as the theme music for the movie 2001): the frequency of the note is about 32 Hz, and its wavelength is about 35 feet. A note at the commonly accepted upper end of the audio band, with a frequency of 20,000 Hz, has a wavelength of about 0.6 inch.

Like waves in water and electromagnetic waves (light, radio, etc.), sound waves are reflected by some surfaces and are absorbed by others. If you drop a coin into still water in a sink or bathtub, you will see waves spreading out from the point of disturbance (where the coin hits the water) and then reflected back from the sides of the container. Also visible will be the way successive waves from the initial splash pass through the reflected waves without affecting the frequency (spacing of crests or troughs) in either direction. Waves that cross each other are not completely unaffected, however, since frequency is not a wave’s only characteristic. A wave also has a specific amplitude, which is exactly half the total distance between its highest and lowest points. In water, this is the height of the crest above the surface or the depth of the trough below it; in air, it is the degree of compression (increased density) or rarefaction (decreased density) compared with still air. The pitch of a sound is determined by the sound wave’s frequency, but its loudness is determined by the wave’s amplitude.

A waveform’s overall amplitude is its maximum variation from the “normal” or unexcited state of the medium (calm water or still air), and this number is always positive. But a wave always involves successive variations in opposite directions (up and down, in and out, denser or thinner), so at any one point along the wave it will have either a positive or a negative value relative to the normal state—which is why waves can reinforce each other or cancel each other out. Whenever two or more waves meet, the amplitude of the combined wave at the point where they meet is the sum of the amplitudes of the individual waves at that same point. Adding positive values creates a greater positive value, and adding negative values creates a greater negative value; but adding positive and negative values brings the total closer to zero.

Thus, if two water waves meet at their crests, the result is a crest bigger than either (their sum), if they meet at their troughs, the result is a deeper trough. But if a crest meets a trough,
the result will be a smaller crest or a shallower trough. If the amplitudes are exactly equal, but reversed in value (one positive and the other negative), the combined wave will have zero amplitude—the water will be smooth at that point. In just the same way, when a compressed portion of a sound wave meets a rarefied portion of another, they will cancel each other out to some degree, depending on the difference in their variation from the normal air density. If the amount of compression exactly equals the amount of rarefaction, there will be complete cancellation at that point; the air will be neither compressed nor rarefied relative to its normal state, and there will thus be no sound. A listener placed at such a point will hear nothing. Two sounds have canceled each other, producing silence. And this effect is entirely real, not just psychoacoustic. A microphone placed at that same point would also pick up nothing.

A room’s size and shape can cause sounds of certain wavelengths to be strongly suppressed because the direct and reflected waves cancel each other out; on the other hand, sounds of different wavelengths may tend to be boosted because reflections of a given wave may be delayed enough to reinforce it. There is no way to avoid such effects completely, but manipulating the locations of loudspeakers and listeners can reduce their severity.

But sound cancellation or reinforcement is not the only room effect. Think of a listening room as a kind of filter that the loudspeakers’ sound has to pass through before it gets to your ears. Sending music through such a filter is something like trying to tap out messages in Morse code on a bedspring (Figure 3). The first tap or two might be clear enough, but the reflections that the original tapping sets going in the other springs will soon drown out any message. In a listening room, the very beginning of a sound may pass from him only after being bounced off the room’s floor, ceiling, and/or walls. When two sound waves have the same frequency and amplitude but arrive at the listener’s ears at different times, they are more or less out of phase—that is, the peaks and troughs of the waveforms don’t match in position, though their size and shape are the same. When two identical waves are perfectly out of phase, so that each peak overlaps a trough, they cancel each other out (Figure 2).

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Acoustical Models
You are probably sitting in a room right now. If so, close your eyes for a moment and listen—you should be able to hear images of the room in every direction. Say your name aloud. Imagine that to your left, on the other side of the wall and just as far away from it as you are, another you said your name at exactly the same time. Upside down, above the ceiling, a third you did the same, and so did others in all the other directions—forward, behind, below, to the right—and beyond them still others in rows and columns of rooms extending outward in each direction. It is like sitting in a room faced on all sides with mirrors. Just as endless reflections in parallel mirrors get smaller and dimmer as they apparently recede further and further away, the sound images get weaker and weaker in volume as they become more distant in this imaginary space.

It is possible to use this model to analyze the acoustics of a real room. That is, we can derive valid, useful information about how sound behaves in a room by treating it as if it really were only one of an infinite number of rooms in a lattice that extends forever in all directions. Moreover, for most purposes the model can be adequately represented by a drawing in only two dimensions. Like an architectural plan, such a drawing will show where the acoustic images of a given room are relative to a given listening position with a given original sound source.

Using a computer, we generated such drawings for two different rooms, a large concert hall (Figure 4) and a living room (Figure 5). In each of them a cross marks the spot where the listener is sitting; to indicate scale, the lines of the cross each represent 2 feet. The sound sources—a single performer on stage in the concert hall, a pair of stereo loudspeakers in the living room—are shown as dots surrounded by concentric squares representing their acoustic images. The size of each square represents the sound level of that image as heard by the listener; the sources themselves have the biggest squares, of course. The nesting of squares results from our attempt to represent a three-
dimensional lattice in only two dimensions. Both diagrams show the rooms from above, and the smaller squares inside the larger squares represent the receding images upward and downward from the level of the sound source and the listener's ears. We thus see several generations of reflected acoustic images in all directions, as produced by the original sound bouncing off the walls, ceiling, and floor.

The diagrams involve several simplifications compared with concert halls and living rooms in the real world, but their merit is in their simplicity, which makes certain aspects of sound behavior more obvious. First, the shapes of the rooms are simple rectangles; we have ignored the structural complications of most real rooms. Second, we have assumed that the sound sources are perfectly omnidirectional—that is, that they radiate equally strongly in all directions. (They behave, in other words, like typical high-fidelity loudspeakers below about 250 Hz.) Third,
we ignored such complications as seating, curtains, rugs, wall or ceiling moldings and decorations, etc. and simply used the right sound-absorption numbers for each surface of the rooms to give an overall reverberation time typical of a real room of similar size and shape. For the concert hall in Figure 4, we assumed a reverberation time of just over 2 seconds, and for the living room in Figure 5, just under 1 second.

Let's consider the concert hall first. The model closely resembles Boston's Symphony Hall in its overall dimensions and shape—75 feet wide and 140 feet long. We assumed there was a single performer on the stage and placed the listener in a good, central position. There is not a great deal to this pattern, but it does clearly show the hall's strong side-wall reflections and weaker but distinctly noticeable rear reflections. The time scale is important: it takes sound about one-seventh of a second to travel a length of the hall. Thus, strong lateral reflections reach a listener in a good seat about one-fiftieth of a second later than does the direct sound from the stage.

The time scale is very different, to say the least, in a typical home listening room. The room we modeled in Figure 5 is 15 feet wide and 20 feet long with a 9-foot ceiling. The two speaker systems are placed 6 feet apart, centered against the long wall; their woofers are near the floor. As with the concert hall in Figure 4, the room is much simpler than a real room; there is nothing in it except two speakers, treated as point sources, and one listener, and the shape of the room is perfectly rectangular. The images of the left and right speakers are indicated by black and colored squares, respectively.

The most obvious feature of Figure 5 is how similar it is to Figure 4; the main difference, besides there being two sound sources instead of only one, is the scale. The sound images are distributed in roughly the same pattern as in the concert hall, but all of the distances are much shorter and the delays between reflections are correspondingly smaller. As a result, the concert hall's sense of spaciousness is lacking in the smaller room. This is not because there are more early reflections, because these exist in the concert hall too, but because of the absence of strong delayed reflections. These can be restored by an electronic ambience system—a device that delays the stereo signals for about a fifth of a second and then plays them through extra speakers placed in appropriate positions.

Note that while the lattice pattern with a stereo pair of speakers is perfectly symmetrical, if the listener is anywhere in the room except exactly between the speakers, the sound field will no longer be symmetrical with respect to him. When a centered source—a singer or instrumental soloist—is being reproduced, the differences in the delay times and levels of each speaker's set of images can interfere with an off-center listener's sense of the directionality of the sound source.

**Localization**

How does the distribution of stereo sound images throughout the lattice affect perceived localization? After all, when the microphone picked up the original sound source (which, for simplicity, we are still assuming to be a single performer), it was in one place. But during stereo playback, it is coming from two places, plus all the reflected images generated by the room boundaries. So how do we process the reproduced sound in our brains in such a way that we hear something resembling the original sound?

The full answer is still unknown. In some way that we can only speculate about at this time, "the brain takes care of that." What we do know is that the ear-brain system manages to extract directional information from the earliest elements of the sonic information it receives—just the first few thousandths of a second of each tone. Everything that follows, if it has the same tonal character, is treated simply as a continuation of the same sound and more or less ignored as a source of direction information. This seems to be a result of the brain's general tendency to focus on changes in sensations as sources of significant data. If sound from the same source arrives at each ear at slightly different times, it is heard as being located off to one side—even if the time difference is only a few microseconds (millions of a second)! Room reflections can affect sound localization if a reflection is so strong and so quick that the ear and brain confuse it with the original sound, which can happen with certain speaker placements in small rooms. When a speaker system with wide high-frequency dispersion is placed close to a window or a smooth wall surface (for instance, in a corner), the reflected image of its sound may be nearly equal in strength to the direct sound but seem to come from off to the side, causing an overall shift in the localization of the composite stereo image (see Figure 6). The easiest cure for this problem is just to move the speaker away from the reflective surface, causing the reflected image to be delayed and weakened enough to be perceived as a reflection, not a displaced source. An alternative approach is to reduce the high-frequency acoustic reflectivity of the surface next to the speaker by use of acoustic tile, a highly absorbent wall hanging (a rug or tapes-try), or some other treatment.

Given the choice, most listeners prefer home listening rooms that are more absorbent than reflective of high frequencies, because the dry, crisp sound that results provides stereo imaging that is undiluted by the effects of room reflections. Manipulating the absorption of middle- and low-frequency sounds is nearly impossible in a typical home, however, so acoustical problems in these areas are usually best solved through careful placement of loudspeakers and adjustment listening positions—or perhaps by electronic signal processing.

**Standing Waves**

As we explained earlier, sound waves can cancel out or reinforce each other
**SOME DO'S AND DON'T'S OF SPEAKER PLACEMENT**

**DO** follow the manufacturer’s recommendations about where your speakers should go. For instance, although many people put bookshelf speakers on the floor, they are usually designed to sound best when installed at least 1 1/2 to 2 feet above the floor. Put only those speakers on the floor that are meant to sit there.

**DO** place speakers with inadequate bass response in or near corners—or at least near one wall. Bringing the speaker and its acoustical mirror image as close together as possible permits maximum reinforcement of low frequencies.

**DON'T** choose listening positions at distances from room boundaries that are simple fractions of the room’s overall dimensions. Bass response suffers if your listening position is, say, exactly one-half, one-third, or one-fourth of the way between two walls or between the floor and ceiling.

depending on their wavelength, amplitude, direction, and phase. In any room, certain wavelengths of sound are exact fractions or multiples of one or more of the dimensions of the room. When a tone having one of these wavelengths is sounded continuously, the room boundaries will bounce the sound waves back and forth so that they fall on their own previous path. At perfectly regular intervals—so precise that they can be tested and marked out on the floor—there will be zones of cancellation or reinforcement where sustained sounds of the appropriate frequency are either extra loud or cannot be heard at all. (The effect does not occur with brief sounds, called transients, that are over before their reflections have had time to reach the ears.)

The dead spots are called nodes (see Figure 7), and the whole phenomenon is often called a standing wave (because the peaks and nodes are constant in position). The particular tones that produce the effect in a given room, identified by their frequency (or wavelength), are called eigentones (the German word eigentones means something specific to an individual and signifies in this case that the standing-wave tones are specific to each room). The frequencies at which nodes are most likely to be noticed are those at the low end of the audio range, below 200 Hz or so. In most rectangular listening rooms, low-bass nodes fall along lines drawn across common fractions of the room dimensions: 1/8, 1/6, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, and 5/6 (see Figure 8). Where these lines drawn through the length, width, and height of the room cross, the quietest dead spots will form. The portions of the room that are away from these intersections will provide clear reproduction of the corresponding frequencies.

The implications for loudspeaker and listener placement should be obvious: if you are listening in a node, you will hear little or no sound at the frequency associated with that node, and the reverse is true if you are listening in the peak points (anti-nodes) of standing waves. Interestingly, in a rectangular room there are exactly eight points where there can be no nodes, where speakers will excite the air most efficiently at all frequencies, and where a listener can be assured of hearing all frequencies fully. These are the eight corners of the room—awkward places to listen from, to be sure, but very effective placements in cases where a speaker needs help in order to deliver adequately strong bass.

Corner placement is an extreme measure, however, since it can help too much—the bass response can be boosted to the point where it is hard to take. It works best for minispeakers that cannot reproduce bass adequately because they are simply too small to move enough air. Most good loudspeakers that are bookshelf-sized or larger, however, are designed to give the most uniform frequency response when they are placed against a wall away from a corner—or, in some cases, at the junction of a wall and the floor. Put into a corner, such speakers will have exaggerated bass; they will sound boomy and bottom heavy, not realistic.

The accompanying box lists some do’s and don’t’s of speaker placement to avoid the various undesirable side effects of room reflections and absorption. There is no one solution that will be right for every room or every system, but understanding some of the reasons why listening rooms can have such a strong influence—for good or bad—on the ultimate sound quality of a music system should help you to find the optimal solution for your situation.

Robert Berkovitz is an audio-industry veteran who has worked for Jensen, Dolby, and Acoustic Research. He is now an independent consultant in acoustic measurement, signal processing, and audio applications of computers.
For some years critic Richard Freed, a contributing editor of Stereo Review, has listened to all available recordings of the nearly two hundred symphonic works that form the essential core of orchestral programs and classical record collections, selecting those versions he considered the best. We have published his choices in a pamphlet, which we have updated annually, and we are now publishing his selections of the best current recordings of the Basic Repertoire in a regular series in the magazine. If you want the pamphlet, the most recent updating (1982) is available for $1 (check or money order) and a stamped (40c) self-addressed No. 10 envelope; send to Basic Repertoire, P.O. Box 506, Murray Hill Station, New York, N.Y. 10156.

All the selections are two-channel analog stereo discs unless otherwise indicated by one of our usual symbols: ○ for a digitally mastered analog disc, © for a digital Compact Disc, © for a stereo cassette, and, in a few instances, © for a mono recording.

Debussy: La Mer. Karajan’s third recording (Angel S-37438, © 4XS-37438) is especially stunning in Mobile Fidelity’s half-speed remastering (MFSL 1-513). The 1956 Charles Munch/Boston Symphony version has responded impressively to similar treatment (RCA ATLI-4157), but the best-sounding recording of all is the new one by Leonard Slatkin with the Saint Louis Symphony (Telarc © DG-10071). Reiner’s (RCA AGL-1-1523, © ARK1-1523) and Martinon’s (Angel S-37067, © 4XS-37067) are both first-rate performances, if less spectacularly recorded.

Debussy: Nocturnes. Almost equal in appeal are the evocative Ormandy recording (CBS MG 30950), the idiomatic Martinon one (Angel S-37067, © 4XS-37067), and the opulently recorded Haitink version (Philips 9500 674, © 7300 769, © 400 023-2). Stokowski’s oldish one on Seraphim (S-60104) is not a bad buy.

Dohnányi: Variations on a Nursery Song. First choice among the five fine versions now available has to be Earl Wild’s with the composer’s grandson Christoph von Dohnányi conducting (Quintessence PMC-7054, © P4C-7054). The one by pianist Béla Siki and conductor Milton Katims has the advantage of being coupled with the only recent recording of Dohnányi’s orchestral Suite in F-sharp Minor (Turnabout TV 34623).

Dukás: The Sorcerer’s Apprentice. Leonard Bernstein (CBS MS 6943) and Jean-Pierre Jacquilat (Angel S-36518) give the most satisfying performances. On cassette, there’s the economical Munch reissue (RCA Victrola © ALK1-4469) or the glittering recent David Zinman recording (Philips © 7300 677).

Dvořák: Cello Concerto in B Minor. Pierre Fournier, with George Szell and the Berlin Philharmonic, is at once patrician and impassioned in this work (DG Privilege 2535 106, © 3335 106). Maurice Gendron’s reading with Haitink is remarkably fresh-sounding, and he plays two additional Dvořák pieces (Philips Festivo 6570 112, © 7310 112). In Mstislav Rostropovich’s six fine recordings of this work, his most sympathetic conductors are Václav Talich (Quintessence © PMC-7142, © P4C-7142) and Sir Adrian Boult (Seraphim S-60136, © 4XS-60136).

Dvořák: Symphony No. 7, in D Minor. Carlos Paita’s majestic, sumptuously recorded version (Lodia © LOD 782, © LOC 782) is expensive but worth the price. The radiant one by Pierre Monteux now shows its age but is quite a buy (London STS 15157). Also first-rate: the luminous Ormandy recording (RCA ARLI-3555, © ARKI-3555), the fierce one by Rostropovich (Angel SZ-37717, © 4ZS-37717), and the well-balanced Colin Davis version (Philips 9500 132, © 7300 535).

Dvořák: Symphony No. 8, in G Major. The lambent stereo Bruno Walter version remains uniquely appealing (Odyssey Y 33231, © YT 33231), but the gorgeously recorded new one by Lorin Maazel and the Vienna Philharmonic (DG © 2532 034, © 3302 034) comes very close to it, and the economical cassette reissue of the brilliant Munch/Boston reading is perhaps closer still (RCA Victrola © ALKI-4628).

Dvořák: Symphony No. 9, in E Minor (“From the New World”). With the present abundance of fine versions, it is not easy to narrow a choice down to this top half-dozen: a galvanic, brilliant new one by James Levine and the Chicago Symphony (RCA © ATCI-4248, © ATKI-4248, © RCDI-4552); Enrique Bátiz and the London Philharmonic (Varèse Sarabande © VCDM 1000 190); Jascha Horenstein and the Royal Philharmonic (Quintessence PMC-7001, © P4C-7001); István Kertész and the London Symphony (London Jubilee JL 41022, © JLS 41022); Eugene Ormandy and the Philadelphia Orchestra (RCA ARL-2949, © ARK1-2949); Carlo Maria Giulini and the Chicago Symphony (DG 2530 881, © 3300 881).

Elgar: Enigma Variations. The new Andrew Davis recording (CBS © IM 37755) benefits from spacious sound, but Sir John Barbirolli’s final one of this work strikes me as the best of all, and it comes with a glorious account of Elgar’s Cockaigne Overture (EMI/UK import ESD 7169, © TC-ESD 7169). The recordings by Bernard Haitink (Philips 6500 481) and Sir Adrian Boult (Angel S-36799, © 4XS-36799) are nearly as fine.

Enesco: Romanian Rhapsody No. 1. Constantin Silvestri and the Vienna Philharmonic bring out all the charm and brilliance of this lovely piece, and the fine 1959 recording doesn’t show its age (Quintessence PMC-7070, © P4C-7070). Antal Doráti’s Detroit Symphony remake (London CS 7119, © CS5 7119) and the latest Ormandy version (in RCA CRL3-0985) are almost as fetching.

Falla: Nights in the Garden of Spain. With both of pianist Gonzalo Soriano’s recordings gone now, the most appealing among the few remaining is the earlier of two by Alicia de Larrocha, with Jesús Arambarrí conducting (Turnabout TV 34761, © CT-2278).

Falla: The Three-Cornered Hat. The complete score of this ballet seems to be superseding the two suites in the concert hall, and Enrique Bátiz has given us a virtually unsurpassable recording of it (Varèse Sarabande © VCDM 1000 170). Eduardo Mata’s recording is available on cassette (RCA © ARK1-2387).
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Every story has a protagonist and an antagonist. And this one's no different.

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CIRCLE NO. 8 ON READER SERVICE CARD
ZZ Top's "Eliminator": Hard-Rocking, Low-Riding, Sleazy, and Funny

I have this fantasy about bursting through the doors of a road-house bar on a Harley, grabbing two cold beers and the best-looking girl in the place, and riding away in a swirl of gravel and dust. If I ever work up the moxie, I want ZZ Top's new album, "Eliminator," playing when I do it. At its best, ZZ Top defines "raw power": Billy Gibbons's fuse-blowing, fuzztone blues-rock chords, Dusty Hill and Frank Beard slamming out that knee-buckling backbeat. Even their names sound burly. And "Eliminator" is ZZ Top at its best: hard-rocking, low-riding, sleazy, and frighteningly funny. It may also be something of a landmark. On Got Me Under Pressure, the band finally answers the question of what kind of woman could be a match.
for ZZ Top. Turns out she likes French cuisine, art museums, and “flippin’ out with great danes,” and she’s apt to take out a nightstick and beat her man by the roadside “real, real bad” when things don’t suit her. You know a band that could take that and can play great rock-'n'-roll.

—Mark Peel

ZZ Top: Eliminator. ZZ Top (vocals and instrumentals). Gimme All Your Lovin’; Got Me Under Pressure; Sharp Dressed Man; I Need You Tonight; I Got the Six; Legs; Thug; TV Dinners; Dirty Dog; If I Could Only Flag Her Down; Bad Girl. WARNER BROS. 23774-I $8.98, ©23774-4 $8.98.

Elegant, Passionate, and Committed Mozart from Sir Clifford Curzon

BRITISH pianist Sir Clifford Curzon, who died last September 1 at the age of seventy-five, kept returning throughout his career to several of Mozart’s late piano concertos, especially the last one, No. 27, in B-flat Major. He made three recordings of this work: one in 1964 with George Szell and the Vienna Philharmonic, paired with Concerto No. 23; one in 1967 with István Kertész and the London Symphony, paired with No. 26 (the Coronation Concerto); and one in 1970 with Benjamin Britten and the English Chamber Orchestra, paired with No. 20, in D Minor. The 1964 and 1967 recordings were never released, and the 1970 set has only now been issued by London Records. It is a remarkable pair of performances, but Curzon agreed to the release only on condition that he first be allowed to make still another recording of No. 27 embodying his latest interpretive refinements, this time coupled with No. 21. Illness on his part and difficulties in engaging a compatible conductor delayed the project, and the pianist died before it could ever be completed.

London’s decision to release the album posthumously was certainly a wise one, for it offers an ideal of modern-style Mozart piano performance. Curzon’s elegant playing and unerring sense of phrase and nuance, together with the urgency and underlying nervous intensity of the orchestral contribution, give these readings immense vitality and passionate commitment. Britten’s sympathetic accompaniment comes as no surprise given his similarly distinguished Mozart symphony recordings with the English Chamber Orchestra. Moreover, the work of both soloist and orchestra is superbly enhanced by the airy acoustic ambience of the Maltings, the converted brewery that served as the concert hall for Britten’s famed Aldeburgh Festival. And everything has been flawlessly captured by the production team.

The Don Giovanni aspect of the opening pages of the D Minor Concerto gets its full due here. The ensuing solo passages are played with the utmost fluency and subtlety of dynamic shading, and there is a singularly impressive rendering of the Beethoven cadenza. The Romanza slow movement is characterized by a melting tenderness, and the finale comes off as a wonderful amalgam of fierceness and elegance. Curzon and Britten bring the greatest spirit and sophistication to Mozart’s last concerto. Especially noteworthy are the handling of the minor-key episode in the opening movement, the soloist’s exquisite phrasing throughout the slow movement, and the keyboard runs in the finale, which Curzon succeeds in making go “like oil” (in Mozart’s own words). This is an altogether exceptional disc—a must for any collection of Mozart piano concertos. —David Hall

MOZART: Piano Concerto No. 20, in D Minor (K. 466); Piano Concerto No. 27, in B-flat Major (K. 595). Sir Clifford Curzon (piano). English Chamber Orchestra, Benjamin Britten cond. LONDON CS 7251 $10.98, ©CS5 7251 $10.98.

Vintage Joan Baez, Recorded in Concert In the Early Sixties

LISTENING to “Very Early Joan,” an exquisite two-record Vanguard set of early, previously unreleased concert recordings by Joan Baez, caused an almost cinematic wash of images in my mind’s eye: Baez leading thousands in singing We Shall Overcome at a massive political rally; Baez reacting angrily to Al Capp’s joltingly witty “Joanie Phoanie” cartoon character; a slick magazine layout with a photo of Baez sitting on the floor in the administrative office of her school for non-violence; Baez strolling on stage as part of the Rolling Thunder Revue; Baez dressed as Bob Dylan’s twin for a Rubin “Hurricane” Carter benefit concert; . . . .

But the twenty-four performances preserved in this set were recorded during fifteen concerts between 1961 and 1963—long before Rolling Thunder, before the invention of heavy-metal, before “gay” generally meant something other than lighthearted, before Watergate, and before a lone folk singer out on stage with nothing but a guitar was suddenly deemed uncool, old-fashioned, and somehow even quaint.

If you have not listened to early Baez since her first records came out, you will have forgotten, as I had, what an extraordinary voice hers was then, how powerful and penetrating it was, what exceptional presence, pitch, and diction she had, how her shimmering, rabbit-quick vibrato hung in the air like jas-
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BEST OF ALL...IT'S A CADILLAC.
mine on a summer night. It is all here, though, in a breathtaking set that focuses more on her ballads than on her activist material, which grew more tiresome, didactic, and sanctimonious through the years. Some of it, such as Tears in My Eyes, punctuated with Baez's filigree guitar work, is so moving it will cause your bottom lip to tremble. Other songs, such as In the Pines and Come All Ye Fair, will simply chill your bones. And still others, including Baez's wicked send-ups of Peter, Paul, and Mary, prove she had as good an ear for humor as for music.

Although it is hard to believe we let it happen, folk songs in the balladeer tradition went out of style in the mid-Sixties, and Vanguard held off releasing these recordings until, as the liner notes say, "a more favorable time." Those of us who always loved folk music have maintained for quite a while that another folk revival is under way, even if Time magazine and the evening news haven't caught on to it yet. I can think of no better way of officially ushering it in than with "Very Early Joan," a spellbinding album by one of the most compelling and influential popular artists of our time.

—Alanna Nash

JOAN BAEZ: Very Early Joan. Joan Baez (vocals, guitar); Pete Seeger (vocals, in Lonesome Valley and The Riddle Song). Last Night I Had the Strangest Dream; Willie Moore; She's a Trouble Maker; Tears in My Eyes; Somebody Got Lost in a Storm; The Water Is Wide; Man of Constant Sorrow; Freight Train; Lady Gay; Johnny Cuckoo; Lonesome Valley; The Riddle Song; Streets of Laredo; Railroad Bill; My Good Old Man; Little Darlin'; In the Pines; Pilgrim of Sorrow; Where Have All the Flowers Gone; Rambler Gambler; Come All Ye Fair; Hallowed Be Thy Name; Twelve Gates to the City; Silver Dagger. VANGUARD VSD-79446/7 two discs $12.98.

An Exceptional Schubert B-flat Piano Sonata from Stephen Bishop-Kovacevich

W e can be happy and grateful that Hyperion, a small but enterprising independent British label, was able to borrow Stephen Bishop-Kovacevich from Philips to record Schubert's Piano Sonata in B-flat Major for the benefit of Amnesty International. Not only is the cause one with which hardly anyone is likely to be unsympathetic, but two of Philips's other star pianists, Claudio Arrau and Alfred Brendel, have recorded Schubert's valedictory sonata in recent years, so it is not too likely that Bishop-Kovacevich would have done it for the same label. We would otherwise, then, have missed an exceptional realization of a great work.

Bishop-Kovacevich is so unquestionably "inside" this music that comparisons with Arrau and Brendel, or with any other pianist, are almost beside the point. There are moments in which his playing reminded me a bit of Clara Haskil's recording of the work (which Philips might do well to reissue), although Haskil did not take the big first-movement repeat, as Bishop does, and his approach overall is a good deal more dramatic than hers. The scherzo is less precipitous in Bishop's reading, for example, but its trio is uniquely radiant. The restraint that tempers his intensity in the first two movements is abandoned in the all-stops-out finale. In his own way, Bishop's heart beats with Schubert's, which may be the least as well as the most one can ask from a performer of this music. And one unarguable advantage his version enjoys over all others is the quality of the sound—a warmly realistic digital recording and, thanks to Direct Metal Mastering, impeccable surfaces. —Richard Freed


Carlos Santana's Exuberant "Havana Moon": Soulful, Fresh, and Personal

B orn in Mexico, the son of a mariachi singer, Carlos Santana honed his chops in seedy Tijuana night clubs before moving to San Francisco in the late Sixties. His new album, "Havana Moon," reaches back to the music he
Best of the Month
Recent selections you might have missed

POPULAR

- Angela Bofill: Too Tough, ARISTA AL 9616. "Polished, powerful, and pretty." (June)
- Phil Collins: Hello, I Must Be Going!, ATLANTIC 80035-1. "An eclectic, well-crafted album." (June)
- Michael Jackson: Thriller, EPIC QE 38112. "Lives up to its title." (April)
- Kate and Anna McGarrigle: Love Over and Over, POLYDOR 422-810-1. "An aural delight." (May)
- John McLaughlin: Music Spoken Here, WARNER BROS. 23723-1. "Further explores and enlarges the acoustic/electric synthesis." (May)
- Lou Reed: Legendary Hearts, RCA AFL 1-4568. "Passionate and inspiring rock-and-roll." (July)
- Simon & Bard Group: Tear It Up, FLYING FISH FF 262. "Sophisticated music played with feeling." (July)
- Mel Tillis: After All This Time, MCA MCA-5378. "One of country music’s real vocal masters." (July)

CLASSICAL

- Bartók: String Quartets Nos. 1-6, CBS I3M 37857. "The Juilliard Quartet’s third Bartók set ranks among the very finest." (May)
- Beethoven: Piano Sonatas Nos. 4 and 11, CBS M 36695. "Murray Perahia’s first Beethoven recording is uncommonly convincing." (April)
- Mozart: Opera Arias, PHILIPS 8514 319. "Marvelous music, gorgeous singing by Kiri Te Kanawa." (July)
- Poulenc: Solo Piano Music, EMI PATHE MARCONI C 069-73101. "A glowing new collection from Gabriel Tacchino irresistibly." (June)
- Purcell: The Fairy Queen, DG ARCHIVE 2742 001. "A peak in the performance of English Baroque music." (March)
- Rachmaninoff: Symphony No. 3; The Isle of the Dead, DEUTSCHE GRAMMOPHON 2532 065. "Definitive interpretations by Lorin Maazel, stunning digital sound." (July)
- Strauss: Death and Transfiguration; Four Last Songs, ANGEL DS-37887. "Profoundly satisfying." (June)

Carlos Santana

Carlos Santana cut his teeth on—the blues, rock-and-roll, mariachi. Divided between classics or near-classics (such as the Chuck Berry title song and Bo Diddley’s Who Do You Love) and idiomatic blues, r- & -b, and Latin originals by Santana himself, “Havana Moon” is a more personal statement than his recent commercial efforts and the best thing I’ve heard from him in a long time.

That “Havana Moon” manages to avoid sounding like a museum piece or a plastic, prefab review of “authentic American music” and instead captures the music’s real exuberance is largely due to the impeccable sidemen: Booker T. Jones and the Fabulous Thunderbirds, a Texas blues band. Booker T.’s organ gives an overriding soulfulness to every track, and no one plays the blues more freshly and faithfully than the T-Birds. Jerry Wexler and Berry Beckett’s production is right on the money: there’s a big, fat sound that’s exquisite.

The most interesting thing about the album is the way Santana’s roots, suggested by his instrumental tributes to Lightnin’ Hopkins and John Lee Hooker (Lightnin’ and Mudbone), are exposed in his original numbers, such as Tales of Kilimanjaro. (The most annoying thing is Willie Nelson’s dreadful vocal on They All Went to Mexico—Nelson sounds as if he were just awakened from a nap, unable to find the beat and irritatingly nasal.) The album concludes with a performance by Carlos’s father, José Santana, and a ten-piece mariachi band of the nearly fifty-year-old Vereda Tropical, a song the younger Santana recalls his father serenading his mother with after a quarrel. Sharing this memory and this music is, like all of “Havana Moon,” a gift from Carlos Santana.

—Mark Peel

SANTANA: Havana Moon. Carlos Santana (guitar); Booker T. Jones (vocals, keyboards); the Fabulous Thunderbirds (vocals and instruments); other musicians. Watch Your Step; Lightnin’; Who Do You Love; Mudbone; One with You; Ecuador; Tales of Kilimanjaro, Havana Moon; Daughter of the Night; They All Went to Mexico. VEREDA TROPICAL. COLUMBIA FC 38642, FCT 38642, no list price.

68 STEREO REVIEW
FLY WITH THE EAGLES

EAGLE GT

If it goes fast, it goes Goodyear.

Quick.
Name the fastest cars in America.
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GOOD YEAR
QUALITY AND INNOVATION

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Touring buddies and movie co-stars Elton John and Rod Stewart

The British rock star Rod Stewart is in the midst of the biggest tour of his two-decade-long career. In support of his latest album, "Body Wishes" (see review on page 80), the tour includes twelve European countries, Australia, New Zealand, Japan, Southeast Asia, and Israel, all in a seven-month period. It is the first time Stewart has performed in a number of major outdoor arenas (capacity 30,000 to 50,000), and for the first time his band features a second keyboard, played by John Corey.

The grand finale is planned for Hawaii in December. Although the "Body Wishes" tour skips the mainland U.S., Stewart is planning a 1984 tour in this country with none other than Elton John. The British superstars will not only appear together in concert, but they will be releasing a feature-length comedy film patterned after the old Bob Hope/Bing Crosby "Road" pictures. If album sales by these performers are any indication, the forthcoming movie should be called The Road to Riches.

P.W.

The commercialization of Columbia's megaplatinum act Journey continues apace. First a video game, "Journey Escape," was created in the band's honor, and now they are set to become the subject of a documentary film made by the National Football League. NFL Films is treating Journey exactly as they would treat a football team. Their filmmakers are traveling with the guys on their current tour and shooting concert footage as well as behind-the-scenes stuff after the gigs. (If the video game is to be believed, the band members spend most of their time running a gauntlet of "shift-eyed promoters.") One of the highlights of the movie, still untitled, will be "the voice of the NFL," John Facenda, who will provide the narration when the film is aired as a TV special in the fall. What's the connection between a bunch of high-decibel arena rockers and football? According to NFL Films' producer/director Steve Sabol, Journey is a lot like the Dallas Cowboys: "Both are well organized and well disciplined." Of course, Journey doesn't have those lissome cheerleaders the Cowboys have. Yet... S.S.

Once one-third of the popular soul group LaBelle, Nona Hendryx ran into some opposition when she began striving for a more rock-oriented sound. With her new album, "Nona," on RCA, Hendryx may finally have shaken the "soul sister" tag that lingered after LaBelle's demise in 1976. Keep It Confidential, a single from the album, is climbing the charts at this writing.

"In the last few years, I've found out about myself and the kind of music I want to make," Hendryx said recently. "After LaBelle, I had an album on Arista International that was never released. They wanted me to be 'more girly,' poppier. I wanted to do more rock material." "Nona," a mixture of rock, funk, and techno-pop, features a wildly varied lineup of guest artists, including Nile Rodgers, Valerie Simpson, Tina Weymouth, Nancy Wilson, Laurie Anderson, and former bandmate Patti LaBelle. "I just went and listened to them in concert," Hendryx said. "I'd go backstage and ask if they'd like to play this part for the album—they were all open to just being asked."

Not only did Hendryx co-produce (with the funk-jazz group Material), co-write, and perform for her album, but she has been involved in all aspects of the video made of the Keep It Confidential single, which features several Alvin Ailey dancers and choreography by Kenneth Ard of Broadway's Cats. With all the star power involved in Hendryx's projects, confidentiality is unlikely.

P.W.

Jazz bandleader Count Basie, drummer Kenny Clarke, and tenor saxophonist Sonny Rollins all received this year's prestigious Jazz Master award from the National Endowment for the Arts. The award is in recognition of "lifelong contributions to jazz" and is presented as a $20,000 fellowship to each artist, to be applied to any project of his choosing in the area of jazz. This is only the second year of Jazz Master awards. Last year's winners were Roy Eldridge, Dizzy Gillespie, and Sun Ra.

While Basie, Clarke, and Rollins have earned the title "Master," jazz vocalist Sylvia Syms can add "Doctor" to her name. Last spring the Northwood Institute in Dallas granted her the honorary degree of Doctor of Humanities. Syms, whose last album, "Syms by Sinatra" on Reprise, was produced by one of her biggest fans, Frank Sinatra, has led musical-theater workshops at the institute for the past six years.
JOAN ARMATRADING: The Key. Joan Armatrading (vocals, guitar); instrumental accompaniment. Call Me Names; Drop the Pilot; Everybody Gotta Know; Tell Tale; What Do Boys Dream; Foolish Pride; Bad Habits; and four others. A&M SP-4912 $8.98, © CS-4912 $8.98.

Performance: Clinical Recording: Good

Joan Armatrading baffles me. She writes of love affairs with perception and detail, but she sings as if she's giving a recital; she never bites into a song. The production and instrumentation of her albums (loud drumming, berserk guitars) is almost offensively overbearing, but her approach remains scientific; the emotions of her characters are reported, not felt. Her new assortment of characters includes a man who chases all the girls (Tell Tale), a couple who exchange sadomasochistic roles (Call Me Names), and an emotional loan shark (The Dealer). There are songs about romance itself but they are unisexual, even asexual. I'm afraid Armatrading's clinical approach leaves me as uninterested in her music as she seems to be in her subject matter. J.V.

STEVE A Arrington's HALL OF FAME-1. Steve Arrington's Hall of Fame (vocals and instrumentals). Nobody Can Be You; You Meet My Approval; Last Nite/Nite Before; Strange (Soft & Hard); Weak at the Knees; and three others. ATLANTIC 80049-1 $8.98, © CS-80049-1 $8.98.

Performance: Lots of handclaps Recording: Satisfactory

"Hall of Fame" is a misnomer, for there is little here that is memorable. At most, Steve Arrington (formerly of Slave) and his gang of seven generate modest interest by simulating the coy entreaties of lovers (Last Nite/Nite Before) or by coming on with some gritty innuendoes (You Meet My Approval). The octet is at its best rapping or handclapping. When it comes to melody, some of these tunes have a haunting sweetness, but the musicians seem to lack the imagination or knowledge to develop them sufficiently. There's something to work with here, but there's also enormous room for improvement. P.G.

JOAN BAEZ: Very Early Joan (see Best of the Month, page 64)

PAUL BARRÈRE: On My Own Two Feet. Paul Barrère (vocals, guitars); vocal and instrumental accompaniment. Sweet Coquette; High Roller; Love Sweet Love; Who Knows For Sure; She Lays Down the Beat; Fortune Cookie; and three others. MIRAGE 790070-1 $8.98, © CS-90070-1 $8.98.

Performance: Little Feat redux Recording: Good

Several times during the first listening of Paul Barrère's first solo album, you think there's been a mistake, that what you have is actually an old Little Feat album. Although it's natural for Barrère to bring something of his old band with him, since he was such an integral part of it, the gut feeling you get from this album is that Barrère means to continue the band's basic sound
and spirit on his own. That's pretty tough to do, since Little Feat often sounded like two or three different bands, but Barrère has it pinned down rather well in some areas. First he's called in ex-Little Feat keyboardist Bill Payne, found himself a horn section to replace the Tower of Power, and sought help from Bobby Lakind, Keith Knudsen, and Nicolette Larson, all of whom are connected with Ted Templeman, who produced Little Feat at one time.

It really starts to get spooky when you get to specific songs. There's a slowed-down, mellow encore of Barrère's Hi Roller (now spelled "High" for some reason), on which he does some slide guitar work that's more than reminiscent of Lowell George. Another original tune, Love Sweet Love, owes its very essence to George's Dixie Chicken, right down to its New Orleans-style r’n’b funk. There's a lot about Little Feat that's not here, of course, including the country flavor that both George and Bill Payne used to contribute, but it's clearly Feat blood that flows through Barrère's veins. A.N.

LAURA BRANIGAN: Branigan 2. Laura Branigan (vocals); vocal and instrumental accompaniment. Solitaire; Deep Dark; Lucky; Mama; Find Me; and five others. ATLANTIC 80052-1 $8.98, © CS 80052-4 $8.98.

Performance: Lively
Recording: Good
Laura Branigan is her usual lively, engaging self here, particularly in a flip little song called Lucky. But somebody made a gross error of judgment in the choice of Solitaire as the first track. From its harmonic structure through its arrangement, production, and vocal performance, it might be more aptly named Gloria 2. It is understandable that many recording artists, particularly new ones, try to repeat their initial success in one way or another, but to manufacture an outright clone of a previous hit, in this case one that is still receiving an enormous amount of airplay, smacks of the kind of short-sighted greed that has killed many a budding career.

ELENA DURAN AND STEPHANE GRATPELLI: Yesterday/A Recklection of the Beatles. Elena Duran (flute), Stéphane Grappelli (violin); Laurie Holloway Trio (instrumentals). Yesterday; Michelle; Hey Jude; Eleanor Rigby; A Hard Day’s Night; and five others. RCA CPL-1-4603 $6.98, © CPK1-4603 $6.98.

Performance: Real charm
Recording: Good

Here's a quirky and totally charming album of famous songs by the Beatles that should be avoided by Beatles fans at all costs. Beatles Believers will probably find this witty, discursive music making by Elena Duran on flute and Stéphane Grappelli on violin insulting and/or trivializing to the work of their heroes. Think of Thelonious Monk playing Cole Porter, and you've got the idea. If you were a Porter fan you’d hate it, if you were a Monk fan you’d love it. I'm a Duran/Grappelli fan, so naturally I liked this album enormously.

MICKEY GILLEY: Fool for Your Lore. Mickey Gilley (vocals, piano); vocal and instrumental accompaniment. Fool for Your Love, Wish You Were Mine Again, It’s Just a Matter of Time, Shakin’ a Heartache, I Don’t Want to Hear It Anymore, Ruby Louise; and four others. EPIC FE 38583, © PET 38583, no list price.

Performance: Suburban
Recording: Good

“Whatever did happen to the Urban Cowboy?” asked a Western wear catalog I got in the mail the other day. “Did he move to the suburbs?” I already knew the answer from listening to "Fool for Your Love," hardly what I’d call music to buck your mechanical bull by. The first hint comes in the jacket photo, picturing a carefully coiffed, tuxedo-clad Mickey Gilley leaning against a white piano. And it’s not the old-fashioned upright kind, mind you, but the cocktail-lounge variety. It doesn’t fit the Urban Cowboy image, and neither does the music on “Fool for Your Love.”

Mostly, this album is a slow-paced mix of MOR love ballads with occasional pieces of ersatz honky-tonk performed with all the conviction and spirit of a beached whale. It’s almost a repeat of Gilley’s last album, “Put Your Dreams Away,” right down to the includeion of another steamy Delbert McClinton tune, Ruby Louise, which is the album’s one combustion point and the only Delbert McClinton tune, Ruby Louise, which is the album’s one combustion point and the only
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The U.S. debut of the Australian band INXS (or "in excess") is a welcome sur-
pring—an intelligent coupling of silicon-chip-age polyrhythms and slashing, flesh-and-blood guitar-based rock. "Shaboo Shoobah" has a raw, wild sound, as if it had been recorded in a tropical rain forest. There are weird grinding noises, hoots, and whistles, and even the bass drum and tom-tom have a sticky, humid resonance. Michael Hutchence's versatile vocals range from Gary Numan-like matter-of-factness to the hungry come-on of a Mick Jagger—in a single tune! And if the lyrics are teasingly oblique, at least you have the challenge of trying to figure out what INXS means by lines like, "I'm dancing and shaking hands, we're learning the primitive rites. We're doing as the Romans do." Frankly, I'm perfectly happy just to listen to Kirk Pengilly's frayed lead guitar and frantic sax (he plays both) slice the scenery into neat little pieces.

**RECORDING OF SPECIAL MERIT**

**AL JARREAU:** Jarreau. Al Jarreau (vocals); instrumental accompaniment. Mornin', Boogie Down, I Will Be Here for You, Save Me, Black and Blues, Trouble in Paradise; and three others. WARNER BROS. 23801-1 $8.98, © 23801-4 $8.98.

**Performance:** More mainstream

**Recording:** Very good

Al Jarreau portions out his releases with just enough time between them to let us build up an appetite for more of his fresh, imaginative music. A special but difficult-to-define quality pervades each of his excellent albums. It goes beyond his obvious musicality, craftsmanship, and superb vocal virtuosity. His profound sense of joy in doing what he does and his deep involvement in his music must be part of it.

Like every other Al Jarreau record I have heard, this new one makes me feel good inside. It is a cornucopia of immediately appealing songs that leap across categories, though generally they lie much closer to the popular mainstream than his most notable offerings of the past. On most of the selections he has collaborated with other composers, including Jay Graydon, who served as producer. Yet the lyrics with their upbeat love messages and the lovely winding melodies with their interesting changes bear the distinctive Jarreau mark. Mornin' is most representative of the style we have come to associate with him. It sailes forth on a silver cloud that is likely to turn to gold in terms of audience response. Trouble in Paradise and I Will Be Here for You (Nitakungodea Milele) are so buoyant that they nearly bound from the turntable, and Not Like This is a rare gem, even for this fine artist. Here is Jarreau at his most intimate and lyrical, displaying the rich textures of his balladry and singing as though the music is coming straight from his soul.

If there is any reason for disappointment here, it is that Jarreau has pulled back considerably from the sort of daring instrumental-like vocals with which he earned his reputation as "the man with a whole orchestra in his throat." He does some brief scatting, but there are only a few teasing snatches of it. He seems to have settled for a straighter, less demanding approach, at least for the time being. Now that the brilliant newcomer Bobby McFerrin has come onto the scene as a more experimental and jazz-oriented singer than the current Jarreau, I do hope that this master of the form will not be content to rest in the calmer waters of the mainstream.

P.G.

**MADNESS.** Madness (vocals and instruments). Our House; Tomorrow's Just Another Day; It Must Be Love; Primrose Hill; Rise and Fall; Shut Up, House of Fun, and five others. GEFFEN GHS 4003 $8.98, © M5 G-4003 $8.98.

**Performance:** A bit sedate

**Recording:** Very good

Madness may not have been the best of the Two Tone label groups, but it was the nest and the most fun. The group's move from the New Wave label Sire to the Geffen stable of rock all-stars finds their insanity somewhat strait-jacketed. "Madness," several steps removed from the ska-based sound of their first album, is almost completely in the music-hall style of Ian Dury. It's also much safer, saner music—still a clever blend of manic horn charts, racing guitars, tinny piano, and Vaudevillian vocals, but ratcheted down a couple of notches from "panicked" to "perky." The outrage of Razor Blade Alley or Tarzan's Nuts has been replaced by the considerably tamer slice of working-class life of Our House (backed by a string section, no less). Even when the lyrics get a little darker, as in

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CIRCLE NO. 26 ON READER SERVICE CARD

AUGUST 1983
Echo and the Bunnymen

If Echo and the Bunnymen have any antecedent, it is probably the Doors. And if there exists a visual analog for their music, it must be the glacier pictured on the cover of their new album, "Porcupine." The music is gloomy and forbidding, yet powerful and highly original rock.

Echo and the Bunnymen started out as a band with the moxie to get up in front of an audience without being able to play. With time, their very lack of formal training has freed them to explore music they might otherwise have dismissed as unapproachable. Though still basically a guitar, bass, and drums outfit, on "Porcupine" the Bunnymen occasionally add a saxophone, an electric violin, and percussion to the mix, creating a dense, grating, even terrifying wall of sound. The melodies are direct to the point of minimalism and sometimes incorporate Oriental elements. The rhythms are taut and mechanical. It's extremely difficult music, and it's made even more so by the oblique lyrics, which are all but indiscernible without a lyric sheet.

The best clue to the puzzle of this uncompromising, challenging album may be the tone of the lead vocals by Ian McCulloch, which suggest a prophet of doom proclaiming that the end of the world is upon us. Not a likable release, certainly, but one that's hard to dismiss.

—Mark Peel

ECHO AND THE BUNNYMEN: Porcupine. Echo and the Bunnymen (vocals and instrumental). The Cutter: Back of Love; My White Devil; Clay; Porcupine; Heads Will Roll; Ripeness; Higher Hell; Gods Will Be Gods; In Bluer Skies. SIRE KRONOVA 23770-1 $8.98, © 23770-4 $8.98.

Performance: Eclectic
Recording: Snappy

On this debut album for Geffen Records, twenty-five-year-old Mac McAnally comes across not as the eccentric young wizard he's cracked up to be but rather as the Rich Little of popular music. McAnally may have grown up in Mississippi and recorded his album in Muscle Shoals, Alabama, but his music is a studied hybrid of L.A. pop/rock/folk and jazz, and almost every one of his original songs sounds like something already recorded by the likes of Andrew Gold, James Taylor, Christopher Cross, and America. His melodies are light, airy, unimaginative, and only occasionally catchy, and his lyrics, to cite Dorothy Parker, run the gamut of emotions from A to B. When he's not being "introspective" and "personal," he's making fun of somebody's social situation.

Oddly enough, McAnally is the co-writer of Alabama's Old Flame, a damn good tune. Oh, well. He must have had somebody else's mask on that day.

A.N.

RONNIE MCDOWELL: Personally. Ronnie McDowell (vocals); instrumental accompaniment. Love Like We Were Strangers; I Should've Lived; 38 Special; It's a Dirty Job; You're Gonna Ruin My Bad Reputation; Huggin' My Lady, Kissin' My Baby, After You; and three others. Epic FE 38514, © FET 38514, no list price.

Performance: Not bad
Recording: Very good

Ronnie McDowell has always been a far better singer than he's been given credit for, mainly because he came into the business as an Elvis Presley coffin rider and then allowed himself to be turned into a heartthrob for the over-the-thrill set. This time we get a piece of hokum called 38 Special and a breathily delivered version of Karla Bonoff's wonderful pop/r- & -b hit Personally (in a regrettable disco arrangement), but otherwise the album is a cut above McDowell's usual material. It has a wider variety of material and better-crafted songs, including It's a Dirty Job by Don Cook and Rafe Van Hoy. Heck, I might even listen to this one on my own time.

A.N.

SERGIO MENDES: Sergio Mendes (keyboards, synthesizers, percussion); vocal and instrumental accompaniment. Carnaval and Voo Doo, to mention only two, are in his familiarly perfunctory, complex "Technicolor Amazon Jungle No. 5" style. It comes as something of a surprise, then, that the most effective track in the album is a run-through of the ancient Barry Mann and Cynthia Weil hit Never Gonna Let You Go, wrapped in a mild MOR arrangement with appropriately soppy vocals by Joe Pizzulo and Leza Miller. The recorded sound throughout is sharp and clear enough to please even Rima the Bird Girl.

P.R.

RONNIE MILSAP: Keyed Up. Ronnie Milsap (vocals, keyboards); vocal and instrumental accompaniment. Stranger in My House, Show Her; Don't Your Memory Ever Sleep at Night; I'm Just a Redneck at

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CIRCLE NO. 16 ON READER SERVICE CARD
the four singers appeared to have distinctly different and interesting personalities, their early tunes, such as *Ya'll Come Back Saloon* and *Come On In*, were spritely and infectious, and their only real competition, the Statler Brothers, had become about as exciting as watching the weather channel on cable TV.

The Oak Ridge Boys continued to enjoy a fantastic popularity and to rack up truckloads of CMA awards over the years, but for me their charm had begun to tarnish long before *Elvira*, the hit that established their crossover career. If I hadn't already decided that the Boys were far more dedicated to commercial success than to music, *Elvira* would have convinced me. My first exposure to the tune was Rodney Crowell and Emmylou Harris's thrillingly low-life, chicken-pickin' version of 1978. The Oak Ridge Boys' homogenized rendition reduced all that raunchiness to the blandest common denominator.

Now they are back with another formula album, "American Made." Like its predecessors, it has a strong, commercial country-pop title song, a couple of ballads and uptempo numbers chosen purely as vehicles for the lead vocals of the various members, and at least one token nod to gospel. The Oak Ridge Boys' homogenized rendition reduced all that raunchiness to the blandest common denominator.

When you slice through the undergraduates of this album, it is strictly formula Floyd: leaden tempos, vaguely folk-rock riffs, but they extend it with other references. At times the group vocals sound like early Manfred Mann circa 1964, there's a bit of Blondie, and they have no hesitation in taking on Smokey Robinson's "One More Heartache," the best song and most wretched recording.

The Persian Gulf War is over. Stanley Kubrick's *Dr. Strangelove* was released five years ago. But for a few moments you might be able to ignore the fact that songs like "Paranoid Eyes" are several light years beyond banal. I like a band with a social conscience, but if this is what happens when Pink Floyd contemplates the sorry state of the world, I think they should go back to recording leaky faucets and birds chirping in the night. That, at least, said something.

S.S.


Performance: Good

Recording: Good

Neo-rockabilly is a big thing in Britain, and English bands and expatriate American groups like the Stray Cats are re-exporting the style to the U.S. On "Make That Move" the Rockats begin with neo-rockabilly, especially on "Go Cat Wild" with its Carl Perkins guitar riffs, but they extend it with other references. At times the group vocals sound like early Manfred Mann circa 1964, there's a bit of Blondie, and they have no hesitation in taking on Smokey Robinson's "One More Heartache," the best song and...

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CIRCLE NO. 13 ON READER SERVICE CARD
Waylon and Willie and Waylon

There's a new energy on Waylon Jennings's "It's Only Rock & Roll," a vibrancy of spirit that's been missing in his work lately. It shows up not only in his confident vocal performances, but also in his choice of material, including three new tunes of his own, and in some instrumental touches that reflect the obvious care that went into the album. To my way of thinking, Waylon's done well being his own producer, but he may have found someone even better in Randy Scruggs, his co-producer here. With the Waylors and Richie Albright, Waylon's long-time drummer, back on board, the sound is cleaner, fresher, and more out front than we've heard from him in a while.

There's not a weak cut on the whole thing. It showcases the Jennings persona, whether he's thoughtful, are Breakin' Down, which features the best dramatic use of the harmonica since early Dylan, and Living Legends (A Dyin' Breed), which is almost an insider's song, poking fun at some familiar Nashville characters.

"It's Only Rock & Roll" ends up with a medley of Waylon's outlaw hits, suggesting a return to (or a new dedication to) his original direct, no-nonsense style. There's not much to suggest the Outlaw days in the production of Waylon's latest collaboration with Willie Nelson, however.

In the past, Jennings has hired Chips Moman to produce some of his solo albums, and Moman is responsible for Willie and Waylon's recent "Take It to the Limit." His production relies a good deal on gimmickry rather than straight-ahead good sense, and on several cuts his orchestrations create a sound almost as shapeless and slick as the Nashville Sound that drove Willie down to Austin to start with. Moman also produced last year's Jennings-Nelson collaboration, "WWII," an undisciplined package mixed with something that sounded like a Sunbeam beater. There are no such problems here, but the famous Moman tunnel sound is back on No Love at All, We Had It All, Take It to the Limit (also juked up by some female back-up singers), and Till I Gain Control Again.

Despite production failings, "Take It to the Limit" is a collection of fine vocals: two proven artists singing proven songs. There's Willie on his own Why Do I Have to Choose and Rodney Crowell's classic Till I Gain Control Again (which he's recorded before). Waylon on Why, Baby, Why, and both of them on Blackjack County Chains, Old Friends, and the title song. Willie sings most of the songs on the LP, which is as clearly his album, released on his label, as "WWII" on RCA was Waylon's. But you'll be surprised at how many songs Waylon steals here by just showing up.

Willie's just fine, but the prize goes to Waylon this time out. With what passes for country music these days, it's comforting to know that at least somebody hasn't forgotten how to do it right.

WAYLON JENNINGS: It's Only Rock & Roll. Waylon Jennings (vocals, guitar); vocal and instrumental accompaniment. It's Only Rock & Roll; Living Legends (A Dyin' Breed); Breakin' Down; Lucille (You Won't Do Your Daddy's Will); Angel Eyes; No Middle Ground; Let Her Do the Walking; Mental Revenge; Love's Legalities; Medley of Hits. RCA AHL-4673 $8.98, © AHK1-4673 $8.98.

WILLIE NELSON AND WAYLON JENNINGS: Take It to the Limit. Willie Nelson, Waylon Jennings (vocals, guitar); vocal and instrumental accompaniment. No Love at All; Why, Baby, Why; We Had It All; Homeward Bound; Till I Gain Control Again; Would You Lay with Me (In a Field of Stone); Why Do I Have to Choose; Take It to the Limit; Blackjack County Chains; Old Friends. COLUMBIA FC 38562, © FCT 38562, no list price.

performance on this six-cut EP. Of course, the Rockets affect the DA haircuts and sleazy Elvis clothing of the 1950's, as neo-rockabilly bands are required to do, but there's substance in their music too. Quite a solid group, especially drummer Mike Osborne, and fun to hear. J.V.

SANTANA: Havana Moon (see Best of the Month, page 67)

PATRICK SIMMONS: Arcade. Patrick Simmons (vocals, guitar); vocal and instrumental accompaniment. Out on the Streets; Don't Make Me Do It; Too Long; Dream About Me; Knocking at Your Door; Sue Sad; and four others. ELEKTRA 60225-1 $8.98, © 60225-4 $8.98.

Performance: Fair
Recording: Good

Patrick Simmons is a former member of the Doobie Brothers, who disbanded last year to go their separate ways as solo artists. He is assisted here in part by Michael McDonald, another former Doobie (lead singer), with the result that "Arcade" sounds like a Doobie Brothers album. Your move. J.V.

RECORDING OF SPECIAL MERIT

ROD STEWART: Body Wishes. Rod Stewart (vocals), vocal and instrumental accompaniment. Dancin' Alone; Baby Jane; Move Me; Body Wishes; Sweet Surrender; Ghetto Blaster; and four others. WARNER BROS 23877-1 $8.98, © 23877-4 $8.98.

Performance: Very good
Recording: Very good

With every Rod Stewart release since "Foot Loose and Fancy Free" I've found myself thinking, "All right, this is it: this is the one that's going to finish off his career for good." Album after album, Stewart has flirted with disaster, walking a thin line between being high spirited and being just plain raucous, being put-onny, between being saccharine or—worse—sexist. And just when it looks as if he's gone too far, a million people prove me wrong and buy the record. By Stewart standards, "Body Wishes" never really comes close to the fine line. For once he has managed to give free reign to his raucous, fun-loving nature without being offensive or sounding like a wimp. But if I like this album, does that mean the end for Stewart? Don't bet on it.

For one thing, there's still The Voice, burnished by years of smoke, Scotch, and touring. It may actually be a little less raspy these days, though softened by rays of V.S.O.P. from a dressing-room atomizer, but it still sandpapers everything it touches—whether disco, romantic ballad, or Stones-style blues—into something instantly recognizable as a Rod Stewart song.

"Body Wishes" finds The Voice backed by the same band Stewart has worked with since 1981, and Tom Dowd is back as producer after a one-album sabbatical. It's sure to wind up on a few dance floors with such thumping rockers as Ready Now (a classic "You'll get yours, honey" crunche), Move Me ("Your dog gets more attention than I do"), and the slyly Body Wishes (Rod's obligatory look at this year's sexual mores). The hottest cut is Dancin' Alone. (Continued on page 82)
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Every Rod Stewart album has at least one song that borders on outright plagiarism of the Rolling Stones, and this is it—complete with swaggering beat, raunchy harp, and high-pitched backing vocals. It won’t surprise anyone to hear Stewart suggest that we’re better off dancing than worrying about the troubles of the world, but it is surprising to hear his plea for the fight against world hunger on the funk anthem *Ghetto Blaster* (the plans to give a portion of its royalties to World Vision). If the message doesn’t sell records, the rippling synthesizer break and driving conga beat will.

“Body Wishes” is by no means a masterpiece. Some tracks, including the droopy ballad *Sweet Surrender* (do we really need another song with that title?) and the aimless *What Am I Gonna Do*, fall out of the speakers with a dull thud. But there’s plenty of cocksure rock-'n'-roll here, so I don’t think we’ll be hearing the last of Rod Stewart for a long time.

**U2**: Inspired “War”

U2: bottom left, Bono; left to right, Adam Clayton, Larry Mullen, the Edge

L*ast* year was to have been the year for the Irish band U2 to make its mark in the States. The group had even planned to have its own float in New York City’s St. Patrick’s Day parade. But the presence of leaders of the Irish Republican Army threatened to turn the event into a pro-IRA demonstration; joining it could have been seen as tacit approval of the IRA’s terrorism. Instead, U2 returned to Ireland and began work on its first political album after two critically acclaimed but socially noncommittal releases.

“War” is the inspired result. It is an album of brutal power and aching emotion. Everything about it is harsh, jagged, and unyielding, from the muffled bashing of the drums to the impassioned vocals and shattered guitar chords to the gloomy piano that wanders through the beat like a survivor picking through the rubble of a bombed-out city. Lead vocalist Bono’s cracking, boyish timbre gives an added intensity in terms of the death of the spirit as well as the flesh: “A new heart is what I need./Oh God, make it bleed.”

U2 doesn’t pretend to have the answers to human conflicts—the band doesn’t even take sides. What “War” does instead is to convey, in violent sounds and terrifying images, a picture of war’s reality that may disturb even us Americans, accustomed as we are to watching the devastation in places like Ulster or Beirut on TV while we calmly eat our dinners. For a people so saturated with reality, yet so safely removed from it, “War” is more than a shock—it’s a devastating reproach.

**U2**: War. U2 (vocals); vocal and instrumental accompaniment.

Sunday Bloody Sunday; Seconds; New Year’s Day; Like a Song; Drowning Man; The Refugee; Two Hearts Beat As One; Red Light; Surrender; “40.” Island 90067-1 $8.98, © CS-90067-1 $8.98.

It would be easy to dismiss “Kilroy Was Here” as boilerplate sci-fi, a sort of poor man’s “The Wall.” The story line is familiar *Twilight Zone* stuff about a future where robots have taken control. A Big Brother villain, Dr. Righteous, keeps the populace sedated with mind-control programming over his MMM (Machinery for Musical Morality) Cable Network. Rock-and-roll, of course, is outlawed. And our heroes are—what else?—rock stars.

It sounds so predictable that you could finish this review for me—except that you’d probably write the wrong review. Because U2 actually makes it work. The nine songs all manage to stick pretty close to the story (something that’s almost unheard of on “concept” albums), and one or two unexpected twists make the concept a little easier to swallow. For instance, there are two heroes (possibly because the band has two men with teen appeal, Dennis DeYoung and Tommy Shaw) who don’t even meet until the end of the album. DeYoung is the imprisoned rock legend Kilroy, Shaw the young rock-and-roll guerrilla Jonathan Chance. Most of what happens on “Kilroy” revolves around their attempt to rendezvous at the Paradise Theatre, presumably to do a little clandestine jamming. The best thing on the album is what isn’t on the album: the obligatory battle scene between the young rock heroes and the robots, played out on synthesizers and drum machines, never materializes. Styx is probably saving that for a sequel, since the plot is not resolved on “Kilroy Was Here.”

The Styx veterans of the arena have no problem coming up with music to match their grand, futuristic adventure story. While “Kilroy” suffers from a couple of saccharine, pomp-rock ballads—the kind that finally drove me to kill my car radio the two-hundredth time I heard Lady—that’s plenty of that bone-shaking Stygian wall of guitars that loosens the rivets in college beams. That’s not to say Styx can’t do a plausible ballad; *Just Get Through This Night*, with its quietly stirring introduction on the Japanese shami-sen (a stringed instrument), will stop even the unruliest crowd dead in its tracks when Styx takes “Kilroy” on tour. With 1984 just around the corner, could “Kilroy” be a vision of a future saved by rock-and-roll? Frankly, as anyone out of high school who works for a living will tell you, the robots are going to win this one. But never mind. “Kilroy” is still good fun.

**STYX**: Kilroy Was Here. Styx (vocals and instrumental); Mr. Robots; Cold War; Don’t Let It End; High Time; Heavy Metal Poisoning; Just Get Through This Night; and three others. A&M SP-3734 $8.98, © CS-3734 $8.98.

Performance: Fun

Recording: Very good

**B. J. THOMAS**: New Looks. B. J. Thomas (vocals); vocal and instrumental accompaniment. New Looks from an Old Lover: Rock and Roll You’re Beautiful; The Wind Beneath My Wings; Memory Machine; I Just Sing; and five others. COLUMBIA/
I've long admired B. J. Thomas. For warmth of tone and the ability to ingratiate himself with an audience there hasn't been anybody like him since Bing Crosby. All you have to do is point him at a song and he'll do it more than justice. Unfortunately, he's sometimes pointed at songs that don't deserve his efforts. Such is the case with this new album.

Producer Pete Drake has dropped Thomas into the center of an album that sounds like what Southerners call "gentlin'-up music," which is supposed to get you in the right mood for bed. But the arrangements and material here are so sweet and bland as to induce sleep instead of pucker-ups. Thomas himself is in fine voice, and his subtle readings attempt to give some flavor to the mush. But it's still mush.

THE TUBES: Outside Inside the Tubes. The Tubes (vocals and instrumentals). She's a Beauty; No No Again, Out of the Business; The Monkey Time; Glass House; Wild Women of Wongo; and five others. CAPITOL ST-12260 $8.98, © 4XT-12260 $8.98.

Performance: Sellout Recording: Very good

This is the Tubes? I thought these guys were supposed to be funny. If this is satire, then it may be time to re-evaluate Toto and Asia. Maybe all AOR is parody. Tubes fans will be alarmed by this album: the songs are characterless, hook-riddled, heavy-metal contrivances; the sound is hackedneyed, hammering, high-distortion guitars; the vocals are strident, unbuttoned-to-the-waist posturing. I can see this album going to the top of the AOR charts, it's that good a rip-off. And I can see Tubes fans throwing themselves off the tops of tall buildings, it's that big a sellout.

M. P.

THE WAITRESSES: Bruiseology. The Waitresses (vocals and instrumentals). A Girl's Gotta Do; Make the Weather; Everything's Wrong if My Hair Is Wrong: Luxuppy; Open City; Thinking About Sex Again; and four others. POLYDOR 422-810 980-1 Y-1 $8.98, © 422-810 980-4 Y-1 $8.98.

Performance: Running out of steam Recording: Okay

The Waitresses are a terrific bunch of musicians. Chris Butler, who pulls the strings, is a bright guy, and lead singer Patti Donahue has an adorable voice. Fine. None of that has changed on their new album, either. It's just that, well, it's becoming obvious that this is a one-joke act that has outlived its usefulness. The point of this band was a satire of sexism, about which they pretty much said all they had to say on their first single, I Know What Boys Like, and since nothing on this new album suggests they've even come up with interesting ways of repeating themselves, I think it behooves them to stop beating the concept into the ground.

S.S.

THE WHISPERS: Love for Love. The Whispers (vocals); instrumental accompaniment. Tonight; Keep On Lovin' Me; Love for Love; This Time; and five others. SOLAR 60216-1 $8.98, © 60216-4 $8.98.

Performance: Looking up Recording: Good

When the Whispers are given the proper material and production, they can sing rings around most other male soul ensembles. Fortunately, after a series of disappointing discs, their new album gives them the opportunity to blend their five voices with velvet-like harmony on several songs worthy of their abilities. The first side, called "Dancin'," would be totally ho-hum were it not for the wonderful solo This Time, a beautiful ballad. The Whispers come into better focus on the second side, called "Romancin'," particularly on Had it Not Been for You and Do They Turn You On. There are several throwaways here, but the better moments are really worthwhile.

P. G.

DON WILLIAMS: Yellow Moon. Don Williams (vocals, guitar); vocal and instrumental accompaniment. Stay Young, The Story of My Life; Wrong End of the Rainbow; Love Is on a Roll; and six others. MCA MCA-5407 $7.98, © MCAC-5407 $7.98.

Performance: Consistent Recording: Flawless

Don Williams is so laid back that sometimes I wonder how he stands up. From his...
Feliciano
On Motown

It has been about seventeen years since José Feliciano approached me at a benefit I was producing for a New York radio station. “I sing and play guitar,” he said, “and I would like to perform for you tonight.” I thanked him but declined his offer, explaining that we were already overbooked. After days with the Pozo Seco Singers in the mid-Sixties, Williams has always delivered a song as if he never got uptight or even hurried in his entire life. Now, with essentially the same core of studio pickers he’s used for ten years, songs just seem to roll out of him in perpetual, effortless motion.

Like Williams’s other albums, “Yellow Moon” is made up of personal, well-crafted tunes about love and the things worth valuing in life. There aren’t any songs here that I would like to perform for you tonight.”

José Feliciano (vocals, guitar, bass); instrumental and vocal accompaniment. Lonely Teardrops; If You Have a Heart; Play Me, Let’s Find Each Other Tonight; So Into You; Abrazo; Taking It All in Stride; One Night; I Feel Fine; Romance in the Night. MOTOWN 6035ML $7.98, © M75-6035 $7.98

Performance: A winning duo
Recording: Very good

Yarbrough and Peoples are a good bet to succeed Peaches and Herb as the public’s favorite male-female soul duo. They certainly have the talent, and Cavin Yarbrough’s hot, buttered baritone is a perfect match for Alisa Peoples’s rich, honey-sweet soprano. Some of the material here is clearly not up to the level of their abilities, with the title song being the dumbest and most repetitious dance tune on the album. Yet there are several real high points. One is the instrumental arrangement of “Like Williams’s other albums, “Yellow Moon” is made up of personal, well-crafted tunes about love and the things worth valuing in life. There aren’t any songs here that

YARBROUGH AND PEOPLES: Heartbeats. Cavin Yarbrough, Alisa Peoples (vocals), instrumental accompaniment. Heartbeats; Innermost Feelings; Feels So Good; You Love Me, What’s That You Slipped Into My Wine, and four others. TOTAL EXPERIENCE TE-1-3003 $8.98, © TE5-1-3003 $8.98.

Performance: Superb
Recording: Excellent

Ron Carter can’t make an album that is anything less than excellent. For “Etudes,” his latest Elektra/Musician release, the distinguished bassist, in assembly in a fine quartet with a former fellow sideman in a celebrated Miles Davis group, drummer Tony Williams; a Davis sideman of more recent vintage, saxophonist Bill Evans; and, on trumpet, the ever-reliable, smooth-moving Art Farmer. The six selections, four of them written by Carter, are all diversified studies in cohesive musical interaction. This album is a worthy addition to anybody’s collection.

CHICK COREA: Again and Again. Chick Corea (keyboards); Steve Kujala (flute, saxophones); Carlos Benavent (electric bass); Don Alias (percussion); Tom Brechtlein (drums). Quintet #3; Waltze; Again and Again; I-2=1234; and two others. ELEKTRA/MUSCIAN 60167-I $8.98, © 60167-4 $8.98.

Performance: Fidgety fun
Recording: Excellent

Chick Corea’s quintet recorded this music during a tour of South Africa. Done in a
European Fiasco

PRICE SLASHED
Suggested Retail $129—July 1982 Dealer Cost $75.40
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It's sad. If you thought the last recession was bad in the United States, you should have been in Europe. Cybernet made 16,000 of these super high quality personal stereo cassette players complete with FM tuner packs for the European Market. The instruction manual is printed in 7 languages, and luckily, one of them is English.

Unfortunately, things got so bad in Europe, that Cybernet figured the only way to sell them would be to send them to the U.S. But, there were two problems.

First, Cybernet USA already had all the personal stereos they needed, and they didn't want these or know what to do with them.

Second, all the time these were sitting, first in Europe and then in the U.S., the price of personal stereos kept dropping.

Cybernet made these to sell for $129 with a dealer cost of $75. But, they really never got around to selling them here in the U.S.

DAK has been trying to buy them since January. But Japan Cybernet wouldn't let U.S. Cybernet budge on price. Finally, in April, the dam broke and frankly we've stolen them.

So, you'll get a fabulous personal cassette stereo, made in Japan, not Hong Kong, complete with an FM stereo tuner pack. And, you won't pay the suggested retail price of $129, or even the $75 dealer cost.

The Cybernet PS103, complete with all its accessories, is now just $39 only from DAK (we have all 16,000). And of course, it's backed by a limited warranty from Cybernet USA (of KLH-Kyocera fame), right here in the U.S.

Now thanks to a terrible recession in Europe, you can get a fabulous sounding Cybernet Personal Cassette Stereo with its FM tuner pack for just $39. And, there's no catch.

It's a fact. The price of both cassette and FM personal stereos has plunged. The market has become so competitive that the makers have done everything they can to lower their prices.

Gone are the days when they could make $199 personal stereos in quantity. But, there are good reasons why the prices have come down.

Many makers now use plastic tape transport to save money. Plus, you'll find only one headphone jack, and you certainly won't find a mute switch on most portables.

You won't find linear volume controls, or a really heavy protective case. Plus, there's a lot you can't see that's missing too. Competition has caused cutbacks.

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Cybernet built the PS103 when they thought they could get $129 for it. They didn't cheapen it to compete. So, it's still loaded with all the features, sound quality and output power.

The sound quality is incredible and there's lots of power to run two headphones (one pair included). After all, sound this good should be shared.

One look at the heavy case, and a few minutes with the headphones is all it will take to convince you that Cybernet cut no corners on this high quality stereo.

FM STEREO TOO
Wait till you hear the quality of the sound from the slip-in FM tuner pack. It picks up stations that even some home tuners won't get. It's got a mono/stereo switch and it uses the headphone cable as an antenna for great reception.

It direct connects to the recorder via 5 retracting pins, so it works off the deck's power and feeds the FM signal directly into the deck's amplifier for powerful clean dramatically dynamic sound.

Plus, the deck is intelligent enough to know when you are listening to a cassette or the tuner pack. It will automatically switch to the correct mode.

ENGINEERED FOR STRESS
Most fine stereo equipment is designed to be lovingly placed on a shelf and never moved. Obviously, this isn't a practical way to listen when you're walking your dog, jogging or skiing.

The Cybernet PS103 incorporates a special shock mounted drive system to keep your music smooth and stable even when you aren't.

BUT, IT'S THE SOUND
You won't be 'roughing it' when you leave home. You can play all your cassettes since there is a Metal/Chrome or standard equalization switch.

The sound is nothing short of awesome. This personal stereo can easily beat the sound quality of a several thousand dollar home stereo.

The combination of superb electronics, and meticulous craftsmanship will be evident to you from the feel of the controls and the reproduction of sound.

The deck weighs only 14 ounces, and comes with full protective leatherette case, cassette/tuner case, super 1/2 oz stereophones and a shoulder strap.

It operates on 3 standard AA batteries, (not included). You'll be amazed at the kaleidoscope of sound you'll hear when you put on the headphones.

MULTIATIONAL WARRANTY
Cybernet is an extremely large Japanese Company with a very large presence here in the U.S. They are part of the Kyocera group which also includes KLH.

So, you know their quality is top notch. Cybernet backs the PS103 with a limited 90 day parts and labor warranty.

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Be prepared for a shock. You'll get music quality that you'd be pleased with if you paid $100 for this incredible personal stereo. The sound quality is as high as our price is low. Wow.
Saxophonist Chico Freeman

Young Lions Of Jazz

One of the highlights of 1982's Kool Jazz Festival in New York was a Carnegie Hall concert titled "The Young Lions," and a recording of it has now been released on Elektra/Musician. It features seventeen outstanding performers, most of whom still find themselves perched on the brink of a promising career.

Some of the names are familiar. Wynton Marsalis, Chico Freeman, and Paquito D'Rivera already have their own albums on major labels; vocalist Bobby McFerrin recently made an impressive debut on Elektra/Musician. James Newton, Anthony Davis, and Jay Hoggard have also appeared, both together and independently, on labels dedicated to new music. Some of these "young lions" are in their thirties, and Hamiet Bluiett, the oldest, is forty-two, but recognition often comes late to talented jazz performers. If the lesser-knowns represented here maintain the same high quality of performance and composition, however, and if jazz-oriented recording executives such as Nesuhi Ertegun and Bruce Lundvall (who were responsible for preserving this concert) continue to get their pet sounds onto vinyl, I doubt there is a name on this set that will not soon ring a bell when dropped in jazz-loving circles.

It is particularly noteworthy that the compositions are all originals, in keeping with the Ertegun/Lundvall concept of presenting as many facets of fresh jazz talent as possible. The most interesting track is the opener, B 'n W, written (actually, largely improvised) by trumpeter Marsalis with McFerrin and performed by them with splendid support from bassist Avery Sharpe. As far as I'm concerned, Marsalis can do no wrong. Combining a clear, sharp tone with extraordinary improvisational skill, dazzling technique, and youthful fire, he sparkles on five of the album's ten tracks, and when he duets and exchanges licks with McFerrin, his keen sense of humor also comes to the fore. McFerrin's voice is so lilte, and he manipulates it with such stunning results, that I can forgive his occasional lapses in taste.

Tenor saxophonist Chico Freeman makes five appearances here, one of which features him in a marvelous quintet with Marsalis, Sharpe, guitarist Kevin Eubanks, and drummer Ronnie Burage. They play Breakin', a boppish composition by Eubanks. Hearing this youthful quintet blow up a storm proves that even if jazz has not made significant inroads into the popular field in the past two decades, it can still send sparks flying. Eubanks, who also has his own album on Elektra/Musician, is twenty-six and full of promise, some of which he fulfills on F MW, a composition by pianist Anthony Davis that is played by a different quartet including the exceptionally gifted flutist James Newton. At thirty, Newton is still largely unrecognized by the general public, but he has already picked up an impressive following among critics and fellow musicians.

Trombonist Craig Harris's Nigerian Sunset and Jay Hoggard's Pleasant Memories are inspired by the sounds of Africa. The former features all seventeen musicians; the latter is a solo performance with Hoggard playing vibes and a xylophone-like African instrument, the balafon. Only Hoggard is absent from Freeman's What Ever Happened to the Dream Deferred, a sometimes brooding, sometimes boiling composition that derives its title from a poem by Langston Hughes. Freeman's Dream begins on the border of a nightmare, then conjures up images of beauty rising from the ruins. I still think Freeman is the most exciting saxophone player to turn up in the past ten years. One of the highlights of the set is when trombonist Jenkins counts among his influences Jascha Heifetz, Charlie Parker, and Eddie South, but there is little to suggest any of them in the two extended works in this newly released 1979 album. Shapes, Textures, Rhythms, Moods of Sound. BLACK SAINT BSR 0060 59.98 (from PolyGram Special Imports, 137 West 55th Street, New York, N.Y. 10019).

Performance: Mixed Recording: Good

In Miles Davis's new Columbia album, "Star People," a great trumpeter deteriorates before our very ears, selling up close to an hour of simple, fragmented shards of his own past against a horrendously sluggish rhythmic background. The notes seem to indicate some involvement in this session by Gil Evans, but the reference is rather vague, and there is nothing about the music that suggests Evans was involved. Some of the sidemen here are capable musicians, but none of them seems much involved either. Miles may eventually come back, but this is no way to do it.

LEROY JENKINS: Mixed Quirter. Leroy Jenkins (violin, viola, cello); John Clark (trombone); James Newton (flute); J. D. Parran (clarinet); Marty Eriel (bass clarinet). Quirter #3: Shapes, Textures, Rhythms, Moods of Sound. BLACK SAINT BSR 0060 59.98 (from PolyGram Special Imports, 137 West 55th Street, New York, N.Y. 10019).

Performance: Mixed Recording: Good

Violinist/composer Leroy Jenkins's music is not for everyone. More closely associated with jazz than any other form of music, Jenkins counts among his influences Jascha Heifetz, Charlie Parker, and Eddie South, but there is little to suggest any of them in the two extended works in this newly released 1979 album. Shapes, Textures, Rhythms, Moods of Sound is the more interesting piece. A sometimes dragging five-way conversation, it builds nicely into a coherent jumble of sounds that move with the composer's shifting moods, but then Jenkins throws judgment to the winds and recites some of the worst poetry I have heard in a long time. Profound it is not.

Quirter #5 is free of bad poetry, and Jenkins also gives himself a less prominent role as an instrumentalist, but I am bothered by long passages that sound like warmups from an orchestra pit. Still, there is much here to
One note of interest: Jenkins composed this music under a grant from the National Endowment for the Arts, and the recording took place in New York City, but the album is available only as an Italian import.

**BILL KIRCHNER NONET: What It Is to Be Frank.** Bill Kirchner Nonet (instrumentals). On the Sunny Side of the Street; Brother Brown; Theme for Gregory; Da-Dah; and three others. SEA BREEZE SB 2010 $8.98.

Performance: Okay, but... Recording: Very good

The Bill Kirchner Nonet is a New York outfit that is gradually building a reputation. Its members have worked individually with many well-known jazz men. Kirchner is primarily an arranger, and he's good, but I just don't care much for neo-bop. The so-called primarily an arranger, and he's good, but I just don't care much for neo-bop. The soloists go on at some length here, but if they're communicating with the audience (or the band) it must be in code. V.J.

**PAT METHENY: Travels.** Pat Metheny (guitar and guitar synthesizers); Lyle Mays (keyboards); Steve Rodby (bass and bass synthesizer); Nana Vasconcellos (vocals, percussion, berimbau); Dan Gottlieb (drums). The Fields, the Sky; Goodbye; Phase Dance; Farmer's Trust; San Lorenzo; Extravagant, Song for Bilbao; and four others. ECM 1-23791 two discs $13.98.

Performance: Smooth
Recording: Excellent remotes

Pat Metheny has taken his music in a different, more ethereal direction since his first ECM outings, and his playing has improved considerably. His music is still souped-up, more so than ever perhaps, and the energy tends to be more physical than emotional, but he is capable of generating genuine musical excitement. When he tones his guitar down to a ballad tempo, he shows a sensitivity that I did not find in evidence three years ago.

“Travels” is a double album of Pat Metheny Group performances recorded at several concerts. The program includes selections that have appeared on previous albums, including As Falls Wichita. So Falls Wichita Falls, the tune that played a big part in garnering for the Missouri-born guitarist his current popularity. Metheny's audience includes devout jazz fans but consists largely of people whose taste straddles the borders of jazz and electronic funk. Anyone who thrives on the subtleties of a Lester Young or Chico Freeman solo will find the Tomita sound of Wichita too contrived and might like the jazz groove of Song for Bilbao better. This album contains a good collection of Metheny moods, so it is bound to have wide appeal.

**ERIC ROSSER: Making a Night of It.** Eric Rosser (piano). Over the Rainbow; Cry Me a River; Two Sleepy People; Georgia on My Mind; and ten others. REDBUD 1010 $7.98 (from Redbud Records, 611 Empire Mill Road, Bloomington, Ind. 47401).

Performance: Okay
Recording: Good

Eric Rosser claims that he “always wanted to do a piano bar album.” His wish has been
"Say Amen, Somebody"

If you haven't already seen the remarkable film Say Amen, Somebody, do. It is an unforgettable, heartwarming documentary that captures the feeling, the flavor, and much of the living history of black American gospel music. And fortunately the film's soundtrack has been preserved on a new two-disc album from DRG Records along with some additional material recorded live.

Say Amen, Somebody centers on a tribute to "Mother" Willie Mae Ford Smith, a seventy-eight-year-old gospel pioneer, at her home base, the Antioch Baptist Church in St. Louis. Although she cut only one record before this album, she is considered to be one of the nation's greatest gospel singers and a major influence on some who went on to claim a greater share of the spotlight. The threads of history are skillfully interwoven with Mother Smith's personal story as her fellow travelers on the gospel highway come forward to speak—and sing—for themselves.

By showing the complex thinking and richly textured lives of the ostensibly simple church folk who create this thunderously impassioned religious music, Say Amen, Somebody slices through cultural barriers and layers of conditioning. Although the soundtrack can convey only one dimension of the story, much of the spirit and fervor so evident in the film shine through anyway.

The gospel roots of contemporary pop are very evident in the film and album's examination of the life and work of Thomas A. Dorsey—the man who coined the term "gospel music" and is widely acknowledged as its "father." Well into his eighties when the film was made, Dorsey was an accomplished blues composer and pianist for Ma Rainey back in the 1920's, when he was known as "Georgia Tom." Turning from secular to sacred music, Dorsey brought along the spirited rhythms and blues intonations of his past, and his aesthetic synthesis remains a dominant force in gospel to this day. In turn, the symbiotic relationship between gospel and pop helped to feed the heavy rhythm-and-blues directly into rock. Many of the best black pop artists got their start in the gospel ensemble of a Black Belt church, from Dinah Washington and Sam Cooke to Aretha Franklin.

Say Amen, Somebody offers the rewards of hearing the superb singing of contemporary gospel artists, such as the O'Neal twins (Mother Smith's St. Louis protégés) and Delois Barrett Campbell and the Barrett sisters, with consistently inspired and robust support from the Gospel Unlimited Choir of the Antioch Baptist Church. But the most touching moments on the album and in the film have nothing to do with the delights of fine singing. It is simply extraordinary to hear Willie Mae Ford Smith in her own milieu or the poignant, quavering vocals of the aged Thomas A. Dorsey (in one case paired with a close associate of earlier years, Sallie Martin). Time has worn away such earthy endowments as beautiful tone or perfect pitch, and what is left in their performances is the very soul of the music—the most important music of all.

Mother Smith said of her own singing at this stage in her long, fruitful life, "I may have cracks in my voice as wide as the banks of the Mississippi River, but that old Mississippi just keeps rollin' along." And so will gospel music, as this very special album singers cannot fail to convince any listener. Amen.

—Phyl Garland

Say Amen, Somebody. Original soundtrack recording. "Mother" Willie Mae Ford Smith, Thomas A. Dorsey, Mahalia Jackson, Zella Jackson Price, the O'Neal Twins, Delois Barrett Campbell, the Barrett Sisters, the Interfaith Choir, Kansas City Kitty, Sallie Martin, Gospel Unlimited Choir (vocals). I'm His Child; I'd Trade a Lifetime; We Are Blessed; Say Amen -Phyl Garland

SAY AMEN, SOMEBODY. Original soundtrack recording. "Mother" Willie Mae Ford Smith, Thomas A. Dorsey, Mahalia Jackson, Zella Jackson Price, the O'Neal Twins, Delois Barrett Campbell, the Barrett Sisters, the Interfaith Choir, Kansas City Kitty, Sallie Martin, Gospel Unlimited Choir (vocals). I'm His Child; I'd Trade a Lifetime; We Are Blessed; Say Amen; Never Turn Back; The Storm Is Passing Over; It's Gonna Rain; He Brought Us. SB2LC 12584 two discs $10.98. DRG SB2L 12584 $10.98.

RECORDING OF SPECIAL MERIT

JIMMY WITHERSPOON: Sings the Blues with Panama Francis and the Savoy Sultans.
JIMMY WITHERSPOON (vocals); Panama Francis and the Savoy Sultans (instruments). I Want a Little Girl; Good Morning Blues; Rain Keeps Falling Down; Gee Baby, Ain't I Good To You; and five others. MUSE MR5288 $9.98.

Performance: Rare treat
Recording: Excellent

Recorded digitally and pressed with unusual care, the third album by Codona (the trio's composite name) offers a compelling mix of sounds with roots in Indian, Japanese, African, American, and Brazilian music. Laid against that broad tapestry are vignettes that seem to recapture some of the individual players' personal past, the most intriguing being Clicky Clacky and Inner Organs, both by Don Cherry and both absorbing glimpses of black Americana. "Codona" is an album that gets better and better with each listening by a group that's also getting better and better. C.A.
Classical Music

News Briefs

The Beethoven Society is by no means prodigal in bestowing its coveted medal upon those it recognizes for conspicuous "dedication to the works of Beethoven," but this spring the award was given to two pianists, both Philips Records artists, in less than three months' time. The first to receive his Beethoven Medal from the society's president, Robert E. Becker, was Claudio Arrau, who was celebrating his eightieth birthday with a recital at Avery Fisher Hall. Then it was Alfred Brendel's turn. Brendel received his medal backstage at Carnegie Hall following the first of the seven recitals in his now memorable Beethoven sonata cycle. Reflecting the general reaction to Brendel's performances of this music, both here and abroad, the society cited the pianist's commitment to the works of Beethoven "on the most profound musical and philosophical level."

Beethoven's piano sonatas get performed in complete cycles at least occasionally, but the Mozart sonatas almost never are. This summer, however, the complete Mozart cycle is a highlight of the Santa Fe Chamber Music Festival, July 10 to August 15. The seventeen sonatas plus the three movements sometimes grouped together as No. 18 will be performed by six different pianists, one of whom is the Hungarian-born Andras Schiff, who has already recorded the complete set for London (only two single LP's have been released in the U.S. to date). The other pianists playing in Santa Fe are Edward Auer, Kenneth Cooper, Ursula Oppens, Alicia Schachter, and André-Michel Schub.

The Mozart Mafia never rests. Following swiftly upon the completion of the big symphony project undertaken by Christopher Hogwood and the Academy of Ancient Music for L'Oiseau-Lyre comes the news that the American pianist Malcolm Bilson and John Eliot Gardiner, conductor of the English Baroque Soloists, have begun work on the complete piano concertos. They are being recorded in London for Deutsche Grammophon's Archiv label and, of course, are being performed on period instruments and according to authentic stylistic practices. Bilson's piano, in fact, is a modern replica of an instrument built by Mozart's preferred piano maker. The first multiple-record set will arrive in American shops toward the end of the year.

This year for the first time the Pulitzer Prize for Musical Composition was awarded to a woman, Ellen Taaffe Zwilich. The licensing organization that controls performances of her music, Broadcast Music, Inc. (BMI), promptly held a reception honoring the twenty-two BMI affiliates (including Zwilich) who have won Pulitzer Prizes over the last four decades. At the reception Zwilich was introduced to the guests by William Schuman, the first recipient of the Pulitzer Prize for Music, which was awarded in 1943. Schuman said, "How tired she must be of being asked what it feels like to be the first woman to win the Pulitzer Prize for Music! She was not given the prize because she is a woman, but because she is a composer and a very good one."

Acknowledging the introduction, Zwilich said that one of the nicest things about winning was that it put her "in the unique position of being able to ask Bill Schuman, 'What did it feel like to be the first man to win the Pulitzer Prize for Music?'"

The George Foster Peabody Award, for "the most distinguished and meritorious service" rendered each year by radio and television, rarely goes to a corporation, but this year Texaco, Inc. received one jointly with the Metropolitan Opera Association in recognition of their forty-three years of radio broadcasts from the Met stage. This unique affiliation, the longest corporate sponsorship of a program in broadcasting history, brings live opera every Saturday, twenty weeks a year, to a loyal audience of about seven million listeners.

Stereo Review
THE International Schallplatten Prize, the German record industry's top award, equivalent to the American Grammy, has gone to the performance by Riccardo Muti and the Philadelphia Orchestra of Stravinsky's Petrouchka (Angel ODS-37822, © 4XS-37822) as the best symphonic recording of 1982. The album of oboe concertos by the eighteenth-century composer Ludwig August Lebrun, performed by Heinz Holliger and the Camerata Bern (Deutsche Grammophon Archiv O 2742 005), was chosen best solo concert recording, and Wagner's Tristan und Isolde with René Kollo and Margaret Price, Carlos Kleiber conducting (DG © 3382 006), was chosen best opera recording of 1982. The album of oboe concertos on record, and Wagner's Tristan und Isolde with René Kollo and Margaret Price, Carlos Kleiber conducting (DG © 3382 006), was chosen best opera recording of the year.

HONORARY doctorates were given during the commencement season just past to audio pioneer Avery Fisher, at the Mannes School of Music; the harpsichordist, conductor, and musicologist Gustav Leonhardt, at Southern Methodist University in Dallas; conductor Leonard Slatkin, at Saint Louis University; mezzo-soprano Frederica von Stade, at the Mannes School in New York; pianist Garrick Ohlsson, at Thiel College in Greenville, Pennsylvania; and Elliott Carter, at Cambridge University in England, the first American composer to be so honored.

THE young French pianist Cécile Ousset, who for years was virtually ignored in her native land, had to cross the English Channel to establish herself, unquestionably, as one of the leading performing artists of the day. Her latest EMI album of French music for piano solo (see the review on page 100) will be followed up by new recordings of the Poulenc Concerto and the Prokofiev Third, Rudolf Barshai conducting. Ousset is featured in a recital at the Edinburgh Festival this month and then goes into EMI's London studios again to record Rachmaninoff's Second Piano Concerto and his Rhapsody on a Theme of Paganini with the young British conductor Simon Rattle.

CONDUCTOR Andrew Davis was greeted recently by Diana, the Princess of Wales, in London. Looking on was Christopher Bishop, the managing director of the Philharmonia Orchestra, which Davis conducts under his contract with CBS Masterworks. Due for release next month (September) is a three-record set containing the three most popular Dvořák symphonies, Nos. 7, 8, and 9, performed by the Philharmonia under Davis (CBS M3 36946, © M3T 36946). In a sense Princess Diana is also a CBS recording artist in that she can be heard saying her vows on "The Royal Tribute" (CBS 37655), a two-disc recording of the wedding service and the music associated with her marriage to the Prince of Wales in 1981.

Disc and Tape Reviews

By RICHARD FREED • DAVID HALL • GEORGE JELLINEK
STODDARD LINCOLN • ERIC SALZMAN

RECORDING OF SPECIAL MERIT


Performance: Superb
Recording: Superb

Although the use of early instruments generally makes it somewhat easier to cope with the almost insoluble problems of balance in Bach's Brandenburg Concertos, these recorded performances are the only ones I have heard in which all the soloists are clearly in focus. The harpsichord is never lost in the Fifth Concerto, and the recorder can be heard even against the aggressive trumpet part of the Second. The sonority of the low strings in the Sixth is limpid, and the sound of the full strings in the Third is breathtaking. While favoring rapid tempos and displaying brilliant virtuosity, the English Concert never overlooks the lyricism of the slow movements. These are some of the most exciting performances of these difficult concertos on record. S.L.


Performance: Very good
Recording: Good

Although the heavy bowing and constant legato in this performance of the Bach concerto make its complex textures rather muddy and hard to hear, the simpler textures of the concertos by Leclair and Vivaldi come off very well here. The Vivaldi is elegantly played indeed, and the Gallic wit and charm of the splendid Leclair piece do the Bernard Thomas Chamber Orchestra proud.

S.L.

RECORDING OF SPECIAL MERIT

BARTÓK: Sonatas Nos. 1 and 2 for Violin and Piano. Pinchas Zukerman (violin); Marc Neikrug (piano). CBS O IM 36697, © IMT 36697, no list price.

Performance: Idiomatic
Recording: Warmly realistic

Bartók's two sonatas for violin and piano have not wanted for attention in the last few years. Pinchas Zukerman's response to the Bartók idiom, even more here than in his recording of the big Violin Concerto, is complete and convincing, and in Marc Neikrug he has a vital partner. The approach here is measurably more expansive, but hardly less impassioned, than that of Zukerman's mentor, Isaac Stern. While the appeal of Stern's disc (also CBS) is in no way diminished, the warm immediacy of Zukerman's new digital recording and the silent surfaces may tip the scales in its favor for many collectors.

R.F.

(Continued on page 95)
Conductor Varujan Kojian is off to a most auspicious start in his American recording career with a Berlioz Symphonie Fantastique that is outstanding musically and an audiophile's dream sonically. The 45-rpm two-disc Reference Recordings set is certainly premium-priced at nearly $30 for a forty-eight-minute piece of music, but, like a Rolls-Royce, the quality of the product will make it money well spent.

As I have noted before in these pages, the Symphonie Fantastique is a fiendishly difficult piece to record properly, not only because of the complex sonorities and very wide dynamics of the spectacular final movements, "March to the Scaffold" and "Dream of a Witches' Sabbath," but also because of the delicate balance requirements and the mercilessly exposed melodic lines of the opening "Reveries—Passions" and the long-drawn-out "Scene in the Fields." Interpreatively, there is also the ever-present problem of achieving a convincing balance between Berlioz's Gluck-like melodies and the violent passions evoked by the blockbuster instrumentation of his climaxes and the passages leading up to them.

Musically, Kojian and the Utah Symphony have surmounted all these obstacles with the greatest of ease. Their performance ranks with the best of its recorded predecessors, including those led by Pierre Monteux and Jean Martinon and Leonard Bernstein's with the Orchestre National de France. And that brings us to matters of production and recording techniques. Keith Johnson's San Francisco-based Reference Recordings label has been dedicated to the proposition that with painstaking care and advanced technology it is possible to produce analog master tapes and discs that can equal or surpass digitally mastered records in sonic realism. (As a test of this belief, the Berlioz sessions were simultaneously recorded with digital equipment by Varèse Sarabande, which is releasing the results on a single 33⅓-rpm LP.)

Listening and relistening to these 45-rpm discs (the fourth side of which is a duplicate of side three, containing the big final movements), I sense that what Johnson and his producer, Jeffrey Kaufmann, sought was the closest possible approximation to what one would hear in a live performance from an ideal seat in the concert hall. Achieving this required the most careful calculation of microphone placement and monitoring of orchestral balances and perspectives. For instance, the bass drum is more apparent in the two final movements than is usual in recordings of the symphony, but the balance of sonorities really does correspond almost exactly to what one hears in a good concert hall, in this case Salt Lake City's Utah Symphony Hall.

Conductor Kojian rightly added Berlioz's cornet obbligato to his lovely reading of the "Ball" movement, and the producers added some other touches that work very effectively and without exaggeration. For instance, in the third movement the cornet obbligato to his lovely reading of the symphony, but the balance of sonorities really does correspond almost exactly to what one hears in a good concert hall, in this case Salt Lake City's Utah Symphony Hall.

As with other super-audiophile discs that have been released over the past few years, for full enjoyment the high relative cost of the records must be matched by correspondingly high-quality playback equipment maintained in peak operating condition. Musically and sonically, this Symphonie Fantastique is one of the very best recordings you can buy, and nothing but the best will do to play it.

—David Hall

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BERKELEY: Flute Concerto; Flute Sonata; the limpid digital recording, and you have perb artist at the top of his form, then add technique, both performances are exemplary.

The E-flat Sonata may seem a bit less playful than the Labeque sisters' version, but the more one listens the more one acquires the sense of solidity and proportion without any hint of self-consciousness, and a feeling of quiet satisfaction, a fairly reticent fellow, but I really think that even he would have been seduced by the dynamic musicality and personality of these performances.


These are the Brahms Hungarian Dances, all twenty-one, in their original versions for one piano, four hands. No fiery Romantic virtuosos of the last century, no Gypsy-blooded Hungarians, ever played them, I'm sure, with more fire, zip, dash, feeling, style, and excitement than the Labeques do here. Johannes Brahms was, by all accounts, a fairly reticent fellow, but I really think that even he would have been seduced by the dynamic musicality and personality of these performances.

E.S.

DEBUSSY: La Daïmoussell Élée. RAVEL: Shehérazade. DUPARC: Chanson Triste; L'Imitation au Voyage. Ely Ameling (mezzo-soprano); Janice Taylor (mezzo-soprano); San Francisco Symphony Orchestra and Chorus, Edo De Waart cond. PHILIPS 6514 199 $12.98, © 7337 199 $12.98.

One may fancy a somewhat dappled vocal coloration for the three songs of Ravel's exotic Shehérazade. Nevertheless, Ameling, by Edo De Waart's sensitive feeling for Ravel's orchestral nuances, achieves a lovely performance.

The somewhat somber songs of Henri Duparc whose fourteen mélodies are among the masterpieces of the genre, provide welcome contrast to the Debussy and Ravel pieces. Duparc orchestrated the songs years after writing the voice-and-piano originals, and the orchestration for L'Imitation au Voyage is much more effective of the two here. In any case, Ameling conveys the poignancy underlying them both with telling intensity. D.H.

DUPARC: Chanson Triste; L'Imitation au Voyage (see DEBUSSY)

FRESCOBALDI: Keyboard Works (see Going on Record, page 106)

(Continued on next page)
GLUCK: Alceste. Jessye Norman (soprano), Alceste; Nicolai Gedda (tenor), Adrète; Tom Krause (baritone), High Priest; Robert Gambill (tenor), Evandre; Siegmund Nimsgern (baritone), Hercole; Bernd Weikl (bass), Apsydrus; Roland Bracht (bass), Oracle; Kurt Rydl (bass), God of the Underworld. Chorus and Symphony Orchestra of the Bavarian Radio, Serge Baudo cond. Orfeo O S 27823 three discs, © CS 27823, no list price.

Performance: Very good
Recording: Very good

There are really two operas named Alceste by Gluck. The Vienna original of 1767, based on the Italian text by Calzabigi, and the Paris edition of 1766, with a vastly different French libretto by Le Blanc du Roullet. There is a great deal of musical material common to both, but the changes in the text as well as the music were so far-reaching that the Paris version simply cannot be thought of as a mere "adaptation" of the original. Curiously enough, while the Paris version was edited for the occasion by conductor Geraint Jones but has not been re-published since 1769. The French edition, fortunately, was published by Bärenreiter in 1957, and the orchestral score I consulted (courtesy of Prof. Edward Downes) shows that this new recording is quite complete. It omits only the final (and anticlimactic) ballet divertissement, which Gluck added reluctantly to conform to Parisian tradition and which modern audiences are not likely to miss. In any case, as the lengthy and highly informative preface to the Bärenreiter score makes clear, the ballet was largely the work of Gluck's friend François Gossec.

Alceste is by no means a fast-moving opera. It is solemn, cast in prevailingly dark colors, and its noble-sounding music yields few surprising turns. But there is much beauty in the work; the choruses especially make effective comments on the tragedy of Alceste, the heroic queen who offers her own life to save that of her husband, Adrète. Not surprisingly, Alceste has the best music, not only the familiar "Divinités du Styx," but at least two other splendid arias. Dramatically, the third act of the French Alceste is rather silly: it follows Euripides by allowing Hercules, as deus ex machina, to bring the opera to a happy ending. But at least his aria is a jolly one.

Serge Baudo's tempo choices for this dignified and carefully prepared performance seem unfailingly right, with sensible appoggiaturas and tiny embellishments imposed on the printed vocal lines, although the excessive reverence to which Gluck's music is all too often subjected is not entirely absent here. The choruses, in particular, could have used more incisiveness, as well as a sharper verbal articulation, but this is a relatively minor point.

The casting is luxuriant, with major artists of the caliber of Tom Krause, Siegmund Nimsgern, and Bernd Weikl lending weight to episodic roles. Jessye Norman brings passion and poignancy to Alceste's important dramatic recitatives and sings the arias with eloquence, particularly "Ah, malgré moi," in which her voluptuous midrange is displayed. Nicolai Gedda, who sang Adrète at the Metropolitan Opera in 1960, returns to the role here with barely diminished resources. Robert Gambill brings a slight but pleasant tenor to the part of Evandre, but Kurt Rydl, a good bass, finds his high tessitura hard going. The sound is fine. Libretto and annotations were not included with my review copy, but they are supposed to come with the set. They will be supplied to any buyer who happens to get an album in which they are missing. (Write to Pantheon Records, 211 East 43rd Street, New York, N.Y. 10017.)


Recording: Crisp
Performance: Crisp

Addressing himself to Haydn's two great sonatas in E-flat Major, Malcolm Bilson again reveals his unrivaled mastery of articulation and precision. The music glistens with crystalline clarity of phrase and texture. Haydn's wit is certainly also
present, but I suspect that Bilson could have achieved more warmth by using more pedal and drawing out the fortepiano’s rich variety of tonal colors. Haydn exploited more of this potential.

JANEQUIN: Chansons. Le Chant des Oiseaux; Toutes le Nuit; J’Attends le Temps; Il Estoit une Fillette; Un Grand Bais; Ma Peine n’Est Pas Grande; Les Herbes et Fleurs; A Ce Joly Moys de May; Assouvy; Chansons. Le Chant des Oyeaux; Quelqu’un Me Disoit; M’y Levay ung seaulx;

The result is a rich but clear sound with a feeling of lightness and grace, which is rarely achieved in such performances. The recording Suave and elegant, is the best of the modern reproductions I have heard. I think it is a very distinctive one.

Performance: Suave
Recording: Voivody

The Ensemble Clément Janequin achieves its lush sonority by limiting its membership to male singers, and its clarity and precision by assigning only one singer to each part. The result is a rich but clear sound with well-articulated inner lines. The articulation of old French is a miracle, and in Janequin’s beloved bird calls the sound is enchanting. This album offers many sustained moments of great beauty.

S.L.

LECLAIR: Concerto for Violin and Orchestra in F Major, Op. 7, No. 4 (see J. S. BACH)

RECORDING OF SPECIAL MERIT MAHLER: Symphony No. 4, in G Major. Lucia Popp (soprano); London Philharmonic Orchestra. Klaus Tennstedt cond. ANGEL DS-37954 $12.98, © 4XS-37954 $12.98.

Performance: Keenly felt
Recording: Spacious

After the First, the Fourth is the most often recorded of the Mahler symphonies, and it has been the luckiest in terms of receiving distinguished recordings, beginning with Bruno Walter’s in 1945. Klaus Tennstedt’s new reading with the London Philharmonic and Lucia Popp as the excellent angelic soprano in the last movement at once takes a place in the “distinguished” category—and it is also a very distinctive one.

While there is nothing willful about Tennstedt’s interpretation, it has a very individual character in its articulation and phrasing. The inner textures are highlighted without any undue exaggeration of details, most notably in the first movement and in the macabre half-lights of the second with its scoratura solo violin. The heart of the symphony, its deeply reposed slow movement, has all the needed serenity without ever becoming static. The mighty visionary outburst toward its close comes off almost as splendidly here as in Walter’s recording—and, of course, the modern sound is incomparably richer and more brilliant. The recording overall is rich in body and superbly detailed.

S.L.

MOZART: Piano Concertos Nos. 20 and 27 (see Best of the Month, page 64)

RECORDING OF SPECIAL MERIT


Performance: Spacious
Recording: Splendid

The Collegium Aureum here offers the perfect opportunity to hear Mozart’s magnificent Serenade in B-flat Major on original instruments. The ensemble sound of two oboes, two clarinets, two bassoons, four horns, and a double-bass is glorious. Mellerow than their modern counterparts, the instruments have a velvety sonority that brings a noble quality to the music. Beautifully paced and scrupulously in tune, this performance sheds new light on the wind music of the period, and the recorded sound is splendid.

S.L.

MUSORSKY/RAVEL: Pictures at an Exhibition. RAVEL: La Valse. London
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A Joyous French Piano Recital

A newly imported EMI/Angel album of French piano music joyously and evocatively played by Cécile Ousset offers a selection something like what one would encounter at a live recital. While it is convenient, of course, to have records devoted to the works of a single composer, and even more desirable to have such collections as Ravel’s Miroirs and Chabrier’s Dix Pièces Pittorquesques in their entirety, performances such as Ousset’s surely count for a good deal more. No matter how many integral sets of the piano music of Ravel, Debussy, such as Ousset’s surely count for a good counter at a live recital. While it is convenient, of course, to have records devoted to the works of a single composer, and even more desirable to have such collections as Ravel’s Miroirs and Chabrier’s Dix Pièces Pittorquesques in their entirety, performances such as Ousset’s surely count for a good deal more. No matter how many integral sets of the piano music of Ravel, Debussy, Fauré, or Satie you may have in your collection, this is the sort of record you’ll take off the shelf and play again and again just for the listening pleasure it affords.

With brilliance to burn and a technique so sure it needn’t be discussed, Ousset is so impassioned and yet so elegant in her celebration of the contrasting colors and moods in her varied program that no one whose ears are in working order is likely to be less than simply swept away by the magic of it all. If my language sounds like puffery—well, see how restrained you can be after hearing this record and after feeling it get to you on a deeper level each time you re- hear it. Although I detected the faintest hint of pre-echo at the start of side two, the sound is for the most part as spectacular as Ousset’s playing—gloriously vivid and enhanced by flawless German pressing.

—Richard Freed


Symphony Orchestra, Claudio Abbado cond. DELTISCHE GRAMMOPHON @ 2332 057 $12.98, @ 3302 057 $12.98; © 410 033-2, no list price.

Performance: Good
Recording: High-powered

Claudio Abbado’s new DG recording of the Pictures lacks some of the sonic color and verve of Telarc’s Maazel/Cleveland Orchestra recording, but it is still a performance of considerable distinction. The opening “Promenade” suggests a meditative ambience rather than a purposeful stride, and the “Gnomus” episode seems to me rather on the analytic side, but there is a fine elegiac feel to “The Old Castle.” “Tuileries” boasts exceptionally fine orchestral playing in the middle section, and the very deliberate handling of the “Bydlo” ox-cart episode is highly effective. The “Unhatched Chicks” do their thing with great precision. The “Two Jews” are expertly depicted, and the “L’images Marketplace” has great verve and virility. “Catacombes” is mostly very impressive, notably in its final pages, but Abbado fails to elicit from the crucial solo-trumpet lamentation all the eloquence it needs. The middle section of the “Hut on Fowl’s Legs” is marvelously eerie thanks to the detail picked up by the digital recording, and the final “Great Gate at Kiev” emerges from the speakers with tremendous weight and brilliance. Outstanding throughout is the capture of transient peaks across the audible spectrum.

Abbado does an excellent job with Ravel’s terrifying La Valse. He displays Toscanini power and control, and yet there is a satisfying flexibility in tempo as the moment demands. Again the recording is finely detailed. D.H.

RECORDING OF SPECIAL MERIT

PERGOLESI (attrib.): Concerti Armonici, Nos. 1-6. Academy of St. Martin-in-the-Fields, Neville Marriner cond. ARGO © ZRDL 1002 $10.98; © KZRD 1002 $10.98.

Performance: Overwhelming
Recording: Superb

Although the Concerti Armonici are still generally cataloged under Pergolesi’s name and have also been attributed to various minor composers (such as the publisher, Carlo Ricciotti), Michael Talbot’s fine notes to this album present a convincing case that they were written by the Dutch music enthusiast Count Unico Wilhelm van Wassenaer. But whatever their authorship, there is no doubt about their beauty. To my mind they are on a level with the concerti grossi of Corelli and Handel and with Vivaldi’s L’Estro Armonico—which is a very exalted level indeed. The strings of the Academy of St. Martin-in-the-Fields are at their best in these warm and glowing performances, and Neville Marriner’s direction brings out the music’s incredible subtleties. Not to be missed.

S.L.

RAVEL: Sheherazade (see DEBUSSY)

RAVEL: La Valse (see MUSSORGSKY)

SCHUBERT: Piano Sonata in B-flat Major (see Best of the Month, page 67)

Performance: Wayward first movement

Recording: Good

RECORDING OF SPECIAL MERIT


Performance. Irresistible

Recording: Good

While Sviatoslav Richter has consistently performed a number of Schubert sonatas and has recorded several of them over the years, it appears that this recording of the great B-flat Sonata, made in Salzburg in 1972, has never before been issued in the U.S. The performance may strike some listeners as more than a little wayward, at least in the sprawling first movement, which really does sprawl here. Richter not only takes the exposition repeat but favors a very leisurely tempo, which draws out the movement to nearly twenty-five minutes' playing time. It is episodic, but apparently deliberately so—held together tenuously by the undercurrent of intensity alone. Many listeners will find this approach too cluttered to be convincing, but many others may be won over by Richter's unquestionable absorption and commitment. The remaining three movements show these same qualities and do not stray from what we have come to regard as the norm in interpreting this work. In the final movement Richter is especially mindful of the "ma non troppo" appended to the Allegro marking, which ensures that the substance of the piece emerges in full to provide a satisfying balance.

The two shorter and earlier sonatas on the Vox Cum Laude disc were recorded live by JVC in Tokyo in 1979. Although the digital sound is not appreciably better than Eurodisc's analog product and is, in fact, a little dullish in the opening of the A Minor, for the most part it is certainly realistic enough. These two performances otherwise are more thoroughly appealing than that of the B-flat Sonata. Claudio Arrau, in his recent Philips recording of the A Major Sonata, replaces the work's traditional character of naïve sweetness with an unsuspected sense of depth and restlessness; Richter seems to juxtapose these two conflicting notions quite effectively in the opening movement, which he takes even more broadly than Arrau, and in the middle movement. The finale comes off with great charm and spirit.

The A Minor Sonata overside is equally successful. Curiously, while the opening of this work has always suggested a certain "Russian" character to me, it does not do so here in the hands of this Russian pianist. The final movement has all the drama and fire one could want, kept free of excess by a superb sense of balance in which lyricism is given its due. This record is a definite winner—indispensable, I would think, in any good collection. R.F.

(Continued on next page)
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Performance Solid

Recording: Excellent

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tury performance practices can still be a valid approach to older music. Pina Carmi-
relli plays the solo violin part with a dash that highlights the onomotopoeic aspects of Vivaldi's writing. Fine sound too.

S.L.

COLLECTION

RECORDING OF SPECIAL MERIT

VLADIMIR HOROWITZ: In London.

Chopin: Polonaise-Fantaisie. Op. 61; Bal-
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Kinderscenen, Op. 15. Scriabin: Etude in D-


$12.98, © 1951 ARCI-4572 $12.98.

Performance Compelling

Recording: Harsh

"Horowitz in London" was taped live in the Royal Festival Hall in May 1982 at Vlad-

imir Horowitz's first European concert in more than thirty years. The Prince of Wales

was there, and, through television, so were millions of home viewers on both sides of

the Atlantic.

There seems to be no end to the gimmick possibilities for such historic-event records. This one has a minute of applause at the start followed by Horowitz's playing of God Save the Queen—not a fantasy or vari-

ation, plain old God Save the Queen. Then there's a little bonus tucked inside the

jacket: a small "flexible disc" with recorded excerpts from a televised interview with the artist about his life and music. On it Horo-

witz is disturbingly fatuous about almost everything, but he does say one thing that made me sit up. He says, "I play and carry it

so much simpler than I used to, says. In the old days, he (and everyone else) exaggerated everything for an audience that didn't know

the music—"selling" the music, so to speak. That isn't necessary now, he says.

In fact, however, what makes Horowitz so precious to us is precisely that he "sells" the music; he makes us know it in his

way. He plays the music, not the notes. The performances on this record are not examples

of technical perfection. Neither is the recording. The piano sounds harsh and met-

tallic, and big passages, especially in the bass, are so ugly and blurred that it is hard

to tell what notes he is playing. But musi-

cally we always know.

Only a very great artist could choose Schumann's Kinderscenen (Scenes from Childhood), a work of utter simplicity and understated lyric poetry, as the major work and focus for a concer-

t program and carry it off totally. Horowitz's Chopin is always worth listening to, and the Polonaise-Fantaisie, rare enough in my experience to seem a novelty, is especially fine here. Both it and the ballade, however, while magnifi-

cently interpreted, suffer from a few smears and from the generally ineffective record-

ing; the soft and nonpyrotechnic Schumann emerges much more clearly.

E.S.
MORE BRAHMS AND OTHER ANNIVERSARIES

I was bound to happen. Some scurrilous soul has had to undermine the lofty spirit of the Brahms sesquicentennial celebration this year by leaking to the press that, when he was a kid, this revered composer paid his rent by playing the piano in Hamburg's brothels. Most affected by this shocking news, according to the Times of London, were music lovers who believed that only the Beatles got their start in Hamburg and others who labored under the misapprehension that only Jelly Roll Morton got his start playing in a cat house.

The Brahms Year has survived all this, however. Record companies and performing organizations large and small have all had, and will continue to have, their contributions to make. The New York Public Library has published a handsome facsimile edition of its treasured manuscript of Brahms's Alto Rhapsody. An American Brahms Society was formed during a recent international conference at the festival of Brahms's music at the Library of Congress. And any number of more modest observances will follow in the wake of these.

Meanwhile, the new records and tapes devoted to Brahms are marvelously diverse in the repertoire they explore and the artists they bring to the fore. Most welcome is the reprinting permitted to raid the catalog of another repackaging by Philips of the three string quartets played by the Quartetto Italiano (Philips 6717 010, three discs). The other offers a generous sample of some of Sir Lennox's most engaging orchestral music (Lyrita SRCS 7409) and Pygmalion (Pro Arte PAL 1082, © PAC 1082)—are real winners.

But I guess it helps if you're still around. Elliot Carter and Olivier Messiaen are both seventy-five this year; Morion Gould is seventy; Ned Rorem is sixty. And not one of them is being allowed to forget it. One composer who is much loved by those who know him and his music is Sir Lennox Berkeley, who was eighty in May. I happen to be a fan myself and can wholeheartedly recommend him and his music is Sir Lennox Berkeley, composer who is much loved by those who know

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