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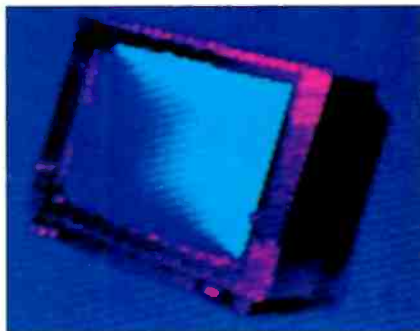
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Reference Standard Plate System





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On the cover: The Cambridge SoundWorks Ensemble loudspeaker system (left); the NHT Model II loudspeaker (right).



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### ADVERTISING OFFICES

**New York:** ABC Consumer Magazines, Inc., 825 Seventh Ave., 8th fl., New York, N.Y. 10019. Tel. (212) 265-8360. Peter T. Johnsmeyer, Vice-President, Advertising; Walter Stolz, Associate Advertising Director; James R. McCallum, Advertising Director (Music/Books); Maria Manser, Classified Advertising Director.  
**Midwest:** **HIGH FIDELITY**, 580 Waters Edge, Lombard, Ill. 60148. Tel. (312) 691-1165/7. Starr Lane, Midwest Advertising Director.  
**Los Angeles:** ABC Consumer Magazines, Inc., 2029 Century Park East, Suite 800, Los Angeles, Calif. 90067. Tel. (213) 284-8118. Howard Berman, National Sales Manager.

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## The Politics of Loudspeakers

By Michael Riggs

**N**o, this has nothing to do with the election. Actually, it doesn't have all that much to do with politics in the usual sense of the word.

One of the subjects of Gordon Brockhouse's article on Canadian loudspeakers (page 38) is the Athena Project. In cooperation with most of the country's loudspeaker manufacturers, the Canadian National Research Council (NRC) is embarking on a research program designed to find ways of eliminating the listening room's effect on what you hear from a pair of loudspeakers. This is interesting and important work. In fact, there probably is no task more vital to improving the fidelity of music reproduction in the home.

Canada's effort is not the only one of its kind. In Europe, KEF (of England), Bang & Olufsen (Denmark), and the Technical University of Denmark have set their sights on similar goals with the Archimedes Project—one of a number of high-technology research initiatives sponsored by the governments of the EEC (European Economic Community) under their Eureka Program. I don't think I have to tell you that the idea of spending tax revenues on audio research of this kind would get laughed out of Congress if it were proposed here.

I am not saying that it necessarily *is* appropriate for our government to get involved in research aimed at developing improved consumer products (although one could argue that we are prone to spend incomprehensibly large amounts of money on projects of more dubious value). But let's look at another consumer-technology frontier affected by this difference in approach: HDTV (high-definition television). There seems little doubt that Japan and probably Europe as well will enjoy HDTV long before the United States. Why should we trail the world's other technologically advanced nations in this field? At least part of the reason, I think, is that most other countries have strong government involvement in radio and television. In many, the main—sometimes the only—television network is operated by the state. If the government decides that development of HDTV is in the public interest, it can put money behind it without worrying about when the investment will pay off.

Such an arrangement has drawbacks of its own, but it has advantages as well. American television networks naturally seek a good and reasonably prompt return on their investments—neither of which HDTV guarantees. Technological leadership alone is not enough of an incentive, and, in the absence of a domestic consumer-electronics industry that could prosper from HDTV, who is going to push for it?

The situation in loudspeaker research is far more encouraging, since our nation does have a large and thriving speaker industry that dominates its domestic market and does a reasonable export business as well. Indeed, the largest American loudspeaker manufacturers are also among the largest and most profitable in the world. One or two of them could afford to fund something like the Athena or Archimedes projects out of their own pockets. But their work would be theirs alone.

Perhaps it's time to reexamine our traditional aversion to all forms of cooperation among competing companies and to government support of research that will lead to private gain. The Canadian loudspeaker industry has benefited immeasurably from its access to the National Research Council. Indeed, if not for the work of the NRC, that country's speakers would not be nearly as competitive in the United States and other world markets as they are today. Maybe we have something to learn from that success.

### UltraVideo

This issue brings another in the series of special sections I promised a couple of months ago. For an in-depth look at Super VHS, camcorders, and spiffing up your home videos with a little amateur postproduction, turn to page 51. □





**CD DECAY**

Lately I read that some Compact Discs have been made with labels whose ink eats through the protective lacquer coating on the top of the disc and that this eventually makes the afflicted disc unplayable. What is the record industry doing to deal with this problem for future CDs (as well as those already made and sold)? What different materials (other than costly gold plating) or labeling processes are being used to extend the life expectancy of CDs or to prevent ink-induced erosion?

I buy an average of ten CDs per month to establish a well-stocked home music library that will last for my lifetime (I am 31 years old). Will I eventually have a worthless collection of discs, or will the record companies replace defective CDs with noncorroding ones when I notice this defect on my CDs in the years ahead?

*Jeffrey L. Crunkleton*  
New Castle, Pa.

*If the problem you describe exists, it must be of rather limited extent. Our technical editor, David Ranada, says that he has had one CD (out of thousands in his collection)*

*succumb to oxidation, apparently because of a hole in the lacquer coating. None of his other discs—even those dating back to the dawn of CD, six years ago—has shown any deterioration or even any significant measurable increase in error rate. And no one else on our staff has had any discs fail because of corrosion or oxidation.—Ed.*

**REISSUE WISH**

With the reissue on Compact Disc of numerous Fritz Reiner recordings with the Chicago Symphony Orchestra, is there any chance RCA might also reissue his *Eroica*? I believe this was one of Reiner's earliest releases with that orchestra, still recorded in mono sound. Regardless of any deficiencies in reproduction, I would instantly buy this CD, since I vaguely remember this to be one of the most exciting performances of Beethoven's Third Symphony I have heard.

*Jacob Opper*  
Gaithersburg, Md.

*RCA reports that, as of the moment, there are no plans to reissue this particular recording.—Ed.*

**IT'S A GAS**

I own a GAS (Great American Sound) Sleeping Beauty moving-coil phono cartridge that has a dull stylus and a bent cantilever. I would like to get it fixed, but apparently GAS is out of business. Do you know where I can get service or spare parts for this product?

*Scott Socha*  
Chicago, Ill.

*We think you're out of luck on your Sleeping Beauty (made in Japan, by the way). However, you probably would be better off getting a new cartridge anyway, since better models are available now for less money than you probably would have to spend to get yours repaired.—Ed.*

**ANALOG IS OKAY**

Like most audiophiles, I appreciate the great advantages of the Compact Disc. To me, its sonic superiority to cassette or LP is obvious; the complaints some critics have made about the medium stem, I think, from the very exactness of the format's performance. However, the record and audio industries often seem intent on

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# L E T T E R S

promoting the idea that for music to be worth buying, it must have been produced entirely in digital—not just in the final stage, when it is released as a CD.

As a recording engineer, I have used both analog and digital tape recorders, and though I must agree that most digital machines perform as claimed and are easy to operate and maintain, they are still very expensive. They are, in fact, beyond the means of most average-size recording facilities. Consequently, many studios are still equipped with high-quality analog decks, which in the hands of a skilled engineer will give superb results. If the engineer has taken the time to maintain and align the machine properly, making sure that all the many variables are within specification, the sound upon playback will be accurate. (A normal alignment procedure for an analog tape recorder can take from 15 minutes to two hours; the digital units I have used require no alignment and no maintenance except for head cleaning.)

What about tape hiss? If one of the many professional noise reduction systems is employed, this problem will quickly disappear. I admit that many such systems sometimes slightly alter the sound quality, but there is one that comes close to being perfect: Dolby Spectral Recording, or SR. In fact, a recent demonstration convinced me that there is no sonic difference between a digital recording and a well-made Dolby SR analog recording.

Finally, it is important to realize that there is much more to making a good recording than picking the right tape deck. It takes a committed attention to a large number of details, ranging from aligning the tape machines to choosing the mikes to something as simple as making certain everyone involved knows where to go, and when. I would still rather work with a digital recorder, but that alone will not guarantee a good recording. In short, don't pass up a recording just because it lacks the coveted "DDD" symbol: You may never know what you missed.

Ray D. Fishel  
Austin, Texas

Hear, hear! Our technical editor, David Ranada, expresses similar sentiments in his July 1986 "Bits & Pieces" column.—Ed.

## SHATTERED DREAMS

In your June "Crosstalk" column, someone asks about making dubs of tapes containing subliminal messages. His question was whether the subliminal message would be erased if a dub were attempted, as claimed by the manufacturer. Mr.

Klein answers that he should not bother with such things because their effectiveness has not been proved.

But this does not answer the reader's question. You should have said that the original tape cannot tell whether it is being listened to, copied, or both, so a conditional erasure of the subliminal message would be impossible. The reader did not seem dissatisfied with the product, so by telling him to get real, you destroyed the placebo effect. His question was about dubbing, not about the efficacy of subliminal messages on audio tape.

James K. S. Hahn  
(no address given)

## THE BEATLES: ALMOST ALL IS SAID AND DONE

Thank you and your writers for the excellent job you have done in reviewing the Beatles on Compact Disc ["One, Two, Three, Four!," June 1987; "Glimpse the Truth," November 1987; "Coming Down Fast," February 1988; *Past Masters, Vols. 1 and 2*, July 1988].

Now that all is said and done, I would like to see a listing of the Beatle tracks that still have yet to see the laser of digital: mono/stereo versions, alternate takes, etc. I would also appreciate some idea of what the CD versions of *The Decca Sessions* and *The Silver Beatles* are all about.

Drew Daubenspeck  
Germantown, Tenn.

Popular Music Editor Ken Richardson replies: *Every Beatle album from Please Please Me to Yellow Submarine originally appeared on both mono and stereo LPs. On CD, the first four albums are mono, all others stereo. Therefore, we have yet to hear the stereo versions of Please Please Me, With the Beatles, A Hard Day's Night, and Beatles for Sale and the mono versions of Help!, Rubber Soul, Revolver, Sgt. Pepper's Lonely Hearts Club Band, The Beatles, and Yellow Submarine.*

As for alternate takes—separate mixes with varying vocal or instrumental characteristics that go beyond the basic sonic difference between mono and stereo—J. P. Russell's *The Beatles on Record* lists the following songs that appear in versions additional to those now on CD: "All My Loving," "All You Need Is Love," "And I Love Her," "Blackbird," "Blue Jay Way," "Day Tripper," "Don't Pass Me By," "From Me to You," "Help!," "Helter Skelter," "I Am the Walrus," "I Call Your Name," "I Feel Fine," "I Should Have Known Better," "If I Fell," "I'll Cry Instead," "I'm Looking Through You," "I'm Only Sleeping," "Komm, Gib Mir Deine Hand," "Money," "Norwegian Wood,"





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"Ob-La-Di, Ob-La-Da," "Paperback Writer," "Penny Lane," "Please Please Me," "Sexy Sadie," "Sgt. Pepper's Lonely Hearts Club Band (Reprise)," "Slow Down," "Tell Me Why," "Thank You Girl," "We Can Work It Out," and "Why Don't We Do It in the Road?" In addition, reader Howard Weber of Los Angeles, California, mentions the following tracks as having alternate takes not yet on CD: "Back in the U.S.S.R.," "Birthday," "Got to Get You Into My Life," "Honey Pie," "I

Don't Want to Spoil the Party," "Matchbox," "Savoy Truffle," "She's a Woman," "Taxman," "Tomorrow Never Knows," "What Goes On," "While My Guitar Gently Weeps," and "Yellow Submarine." And remember that the mono Sgt. Pepper is in general somewhat different from the stereo version: Beatle authority Allan Kozinn identifies alternate mixes not only for the title track's reprise but also for the title track itself, "Lucy in the Sky with Diamonds," and "She's Leaving Home." We

don't have the space here to specify exactly what all of the above variations are—and many of them are slight—so I'd suggest that you pick up a copy of Russell's book, as well as the July 29 "Beatles Spectacular!" issue of Goldmine magazine.

I'd also suggest that you not pick up copies of *The Decca Sessions* and *The Silver Beatles on Compact Disc: This material, recorded during the Beatles' studio auditions for Decca in January 1962, was never meant to see the light of day, much less the laser of digital. In fact, lawyers for the Beatles are working to stop the manufacture and distribution of the two CDs. (The lawyers already have succeeded in stopping sales and further shipments of *The Decca Sessions*, pending the outcome of that case.) The recordings in question first appeared on various bootleg LPs in the 1970s, and even though the same material has since become widely available on "legitimate" imports from Canada and Japan, the recordings are still bootlegs as they now appear on CD, according to the Beatle lawyers. By the way, a copy of *The Silver Beatles* did make its way to our offices; the sound was respectable, but I honestly can't imagine why anyone (even an acknowledged Beatle freak like yours truly) would want to spend money on a CD of an audition. If you're really desperate, look for one of the LP versions.*

Although in agreement with much of Ken Richardson's review of *Past Masters, Vols. 1 and 2*, I am somewhat perplexed over his statement that halfway through the last verse of "She Loves You," "the entire soundstage does a flip." How is it that a mono recording's soundstage can do a flip? What is heard is a prominent appearance of the ride cymbal that Mr. Richardson mentions. Can it be, after all those mono/stereo and LP/CD comparisons, that Mr. Richardson has flipped?

*John W. Thiele  
Milwaukee, Wis.*

*Mr. Richardson replies: Seems so, doesn't it? (Maniacal laughter.) You are certainly correct that a mono recording can't perform what my regrettably imprecise language claims it can. I do hear more than just the prominent appearance of the cymbal, however: Both the vocals and the jangly guitar drop down in the mix at the same time the cymbal sharpens, resulting in a much duller overall sound—a disturbing change that is not present on LP versions. Listen again and see if you don't agree.*

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

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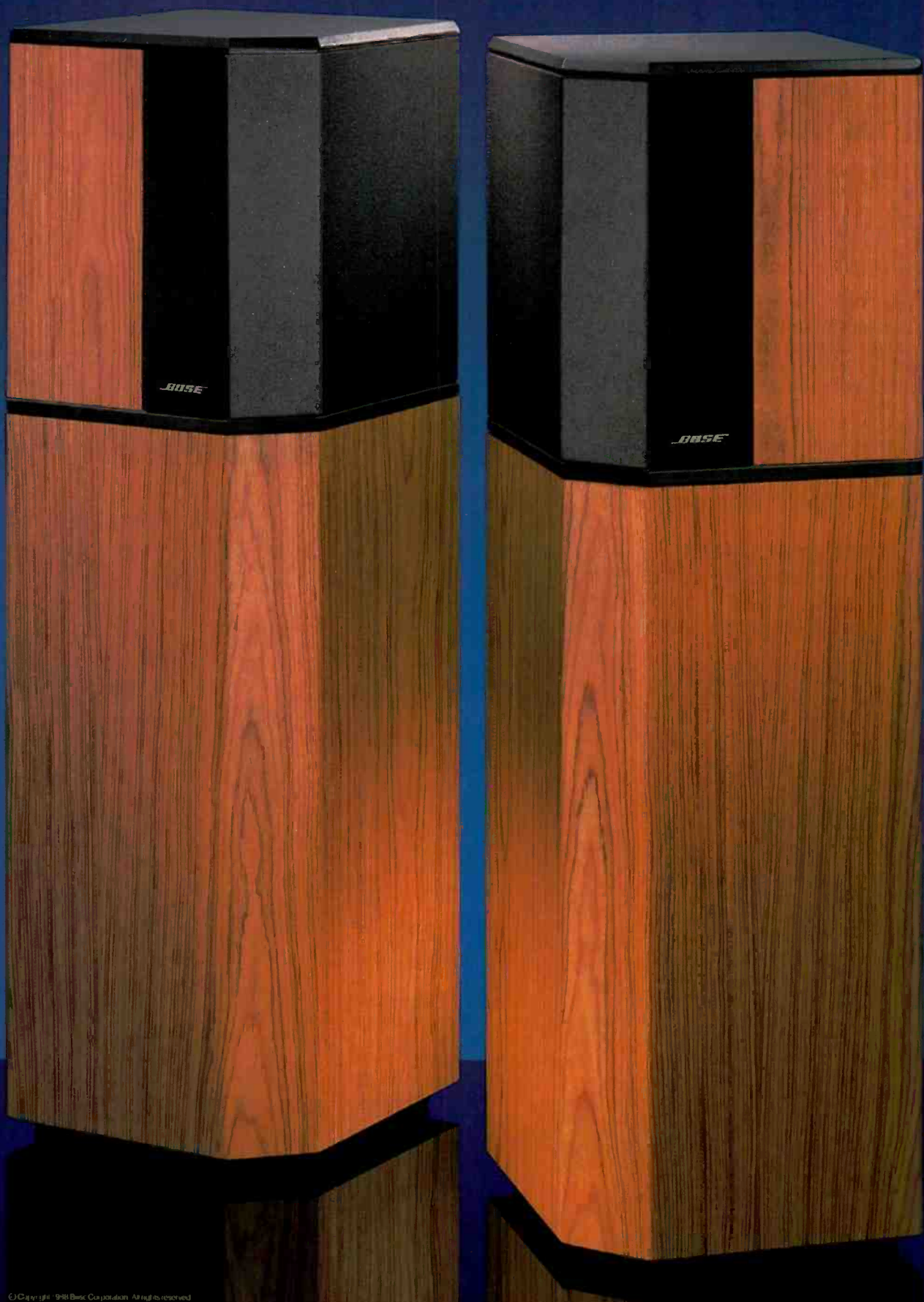
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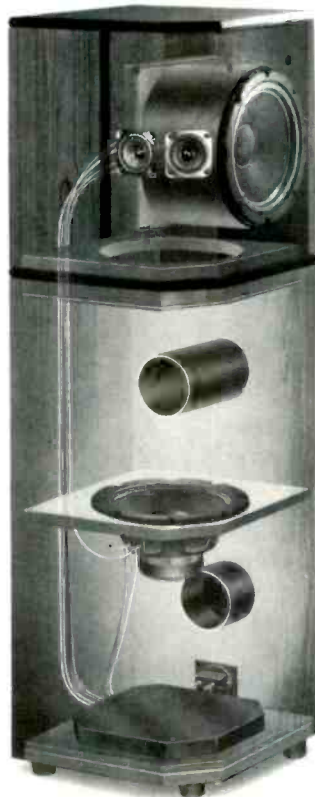
The new Bose 10.2 Series II speaker successfully harnesses a series of audio technologies to take the listener one step closer toward the goal of all speakers: the realism of live music. The 10.2 Series II speaker combines the most powerful version of Acoustimass speaker design available for the home with the proven, critically-acclaimed benefits of a Bose Direct/Reflecting® system. The result: a musical listening system with *no* compromises—one that's at home in any environment.

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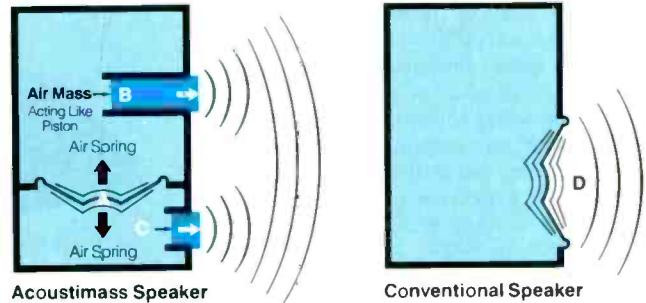
Moreover, the 10.2 Series II system brings lifelike sound into the living environment without overwhelming it. Each speaker's genuine wood veneer, hand-crafted Acoustimass enclosure produces the bass necessary to make even the most demanding music come to life, yet requires just *one square foot* of floor space. The system's Stereo Targeting® arrays precisely shape and control sound, providing listeners—regardless of where they stand or sit—with full, balanced stereo sound from both speakers. Where the speakers look best is also where they *sound* best.

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## How an Acoustimass® speaker works.



Improving speaker performance means first reducing distortion. The design of an Acoustimass® speaker *substantially* reduces distortion (see diagrams and graph). The benefits of this patented speaker technology are *pure* sound and an increase in the *dynamic range* of bass performance.

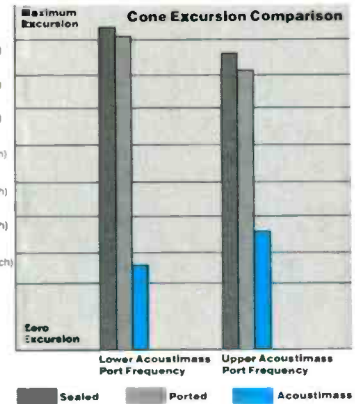
**Left:** An Acoustimass speaker *launches* sound into the room using two masses of air working like pistons (B&C, darker blue), rather than by a surface vibrating directly into the room. *The sound launched into the room by the Acoustimass speaker's air pistons is the purest sound that can be produced by present technology.*

**Right:** A vibrating cone radiating directly into the room (D) produces unfiltered sound.

## Cone Excursion Comparison.

(lower excursion means lower distortion)

**Graph:** The distortion produced by any speaker rises dramatically with its cone motion, or *excursion*. At port-tuned frequencies, a typical Acoustimass speaker's cone has less than *1/16* the maximum excursion\* of sealed and ported cones. Inside an Acoustimass speaker, the interaction of the air springs with the air masses in the ports produces a very high pressure at the surface of the cone. This greatly reduces the cone's excursion, and therefore reduces distortion. The air springs act with their respective masses to form low-pass filters, removing any small distortion components generated by the cone.



\*Based on cone travel measurements at 128 watts input.

## Judge for yourself.

Ask your authorized Bose dealer to demonstrate the new Bose 10.2 system with Acoustimass speaker technology against any other speaker—and hear the difference for yourself. For more information, call Bose Corporation toll-free at 1-800-444-2673 between 9 a.m. and 5 p.m. EST.

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### Danish Platter

Bang & Olufsen's Beogram 9000 tangential-tracking turntable (\$450, without cartridge) can be used separately or, preferably, with the lovely Beocenter 9000 remote-control music system ("Currents," December 1987). The fully automatic model, which can be started without lowering the tonearm (for cleaning a record), has a sensor that detects the size of the record and sets the correct speed. B&O's proprietary tonearm suspension is said to prevent internal and external vibrations from being transmitted to the stylus. A choice of five B&O cartridges is offered, starting at \$70. *Bang & Olufsen of America, 1150 Feehanville Dr., Mount Prospect, Ill. 60056.*



B&O turntable matches Beocenter 9000 system.

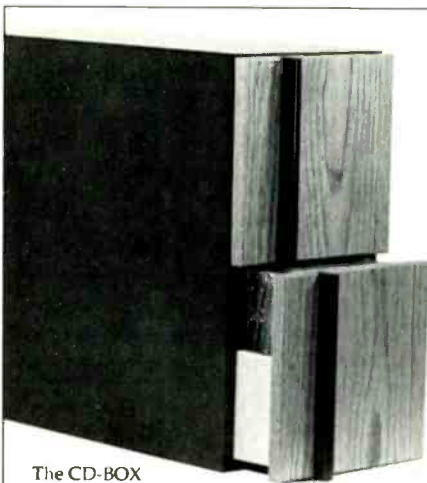
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the Identadisc system proliferates, be considered of little value to a thief planning to resell it. Warning labels for the CD cases are provided.

Identadiscs should be hitting the market now for around \$50. If there is no dealer near your home, the company—Hi-Pro-Tech—says it will sell direct. Based on the sample CD sent to us, the Identadisc imprint looks as if it were done at the pressing plant. A more sophisticated version is currently being used by the Library of Congress for its collection of CD-ROMs. *Hi-Pro-Tech, P.O. Box 1357, Lansdale, Pa. 19446.*



The CD-BOX shown in light oak.

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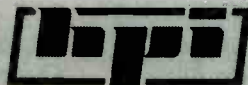
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### Polk Picks

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*(Continued on page 96)*



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## Two Wrongs Don't (Always) . . .

By Robert Long

**S**ome twenty years ago, a team working with Dr. Edwin Land at Polaroid discovered that Newton was wrong: that "yellow" light doesn't necessarily make us see yellow, or "green" light green. We name the light after the color we normally see as a result of its wavelength. But given an abnormal condition like, say, a darkened room into which only a limited portion of the normally visible spectrum is allowed to intrude, our perceptive faculties can be cajoled into thinking we see the full visible range, more or less.

Specifically, the Polaroid team was photographing multicolored objects through two color filters to get a pair of black-and-white transparencies. When images projected through similar filters were carefully superimposed, one on the other, the viewers thought they could see the full spectrum. But the real shocker was that the projection filters could be quite different from those used in making the transparencies. The only rule, it seemed, was that the shorter-wavelength image had to be projected through the shorter-wavelength filter (for example, photographing through orange and green filters and projecting, respectively, through yellow and blue filters). Even for quite extreme combinations, the color range in the image appeared quite natural—as long as no white light was also present for spectral-range comparison.

What all this has to do with audio taping, I'll get to in a moment. First, I must tell you that Polaroid's search of the patent literature revealed that the phenomenon had been discovered and patented earlier in the century. When the process came on the market, however, it didn't work. The cause, Land figured, was that the developers of the process had switched to the brand-new orthochromatic film introduced by Kodak. Its color balance was much more even, and it no longer acted as an inherently "filtered" medium to make the effect work.

Now, about tape. I keep hearing about techniques that achieve wonders by deliberately ignoring standards and doing something "wrong." Do your cassettes sound dull when you play them on your car system? Try recording with Dolby B but leaving the noise reduction off for automotive playback. Or switch to a really "hot" tape on your five-year-old deck and let the resulting high-frequency peak (because the deck is underbiased for the tape) act as an equalizer. Better yet, record on ferric tape with the chrome/metal EQ, if your home deck allows this mismatch, and play back as normal ferric in the car. This will boost the highs right out the window.

Now, I'm all for creative ingenuity, and experimenting with your tape system can be a very useful learning exercise. But before you go committing yourself to a non-standard recording approach, consider carefully what its consequences may be. You won't have your current equipment forever, and a technique that works now may make your tapes unplayable later. Even a change in tape

brand or a cleaning of your deck can turn your clever fix into a fiasco. Let's say, for example, that the initial problem is simply that the azimuth of the head in your car player is seriously misaligned—as many are, even when the unit is brand new. Rather than making boosted-highs copies on your home deck, you'd be better off getting the car player aligned. Then it will play any standard tape right—assuming you make use of appropriate noise-reduction options.

Fooling around with Dolby noise reduction is particularly problematic. Unfortunately, Dolby Laboratories itself has long promoted the notion that Dolby B and treble controls are to some extent interchangeable. Its attitude may have calmed misgivings about the now almost forgotten Dolby FM broadcast system, but it also created a class of recordists who have no qualms about leaving the Dolby switch in the wrong position. Don't rely on your ears for this one, especially with Dolby C; since the circuitry works dynamically, a deliberate mismatch can sound fine on one input signal and unacceptable on another that has different dynamic properties.

For the same reason, precisely where equalization takes place with respect to the Dolby "loop" can be important (defining "inside the loop" as being between Dolby encoding and decoding, and "outside the loop" as being before encoding or after decoding). In effect, azimuth misalignment introduces an unwanted high-frequency rolloff inside the loop. Ideally, any high-frequency boost intended to right that wrong should also occur inside the loop. Only if the Dolby circuitry can decode the corrected signal, rather than the uncorrected one, can you hope to prevent false decoding and the dynamic response variations it creates. This in-loop adjustment technique was first used in NAD decks with their treble-adjusting Play Trim controls.

From this point of view, it would seem better to try correcting for an azimuth-error rolloff by using a deliberate underbiasing of the tape (which occurs inside the Dolby loop, of course) than with an equalizer at the output of the deck. But without instruments to measure response and distortion, both of which are greatly affected by a change in bias, you have no control over the degree of correction. In extreme cases, the change in bias can even alter output level enough to throw off the Dolby decoding.

No, there's a lot to be said in favor of doing things the right way to begin with and not trying to Rube-Goldberg your way out of a problem. If you go with a clever expedient, you're likely to discover sooner or later, as did the inventors of the original black-and-white color process, that it no longer works. I've had dozens of letters from readers who can no longer successfully play their tape collections because of just such an expedient. Don't let it happen to you. □





## Test Drive: Blaupunkt System

By Christopher J. Esse

**M**aybe it's my upbringing, but something prevents me from reviewing superexpensive systems installed in exotic cars. I figure a really pricey system *ought* to perform well, and then half the review would be needed to explain why you might want to spend that much. Besides, I probably wouldn't bother listening to a system if someone put it in a Ferrari or a Lamborghini. I'd accept the car, of course—so keep those offers coming. I told Blaupunkt that I wanted to try its new CD/tuner (the Chicago) in a system powered and equalized by its new and bigger Parametric Sound Amplifier (the PSA-168) and to hear some of its new speakers. And put all of this in a regular car—you know, the kind regular people drive.

Sure enough, that's what was delivered, in the form of a 1988 Mercury Sable. A beautiful black one, too, with power everything and very bushy red-velvet seats that seemed somewhat anachronistic in a car with the Sable's modern character.

Before we get to the equipment, a little history. Blaupunkt traces its name back to 1923 Berlin when, as Ideal Radio-Telefon-und-Apparate Fabrik, its best-performing radios were marked with a blue dot by quality inspectors. Smart shoppers soon began to ask for those radios, the ones with the *blaue Punkt*, or "blue dot." In 1933, Ideal was purchased by Robert Bosch Corporation, an automotive parts supplier now widely known for its fuel-injection and antilock braking systems. Five years later the company's name was officially changed to Blaupunkt-Werke, and in 1954 Blaupunkt car radios entered the U.S. market. The link with Bosch has played a key role in the development of the custom-equalization modules used in the two PSA models.

As I've mentioned before in this column (November 1987), custom equalization involves correcting the frequency-response anomalies resulting from the difficult acoustics of a car's interior and its less-than-ideal speaker locations. Because an equalized system is specific to a particular car model, car manufacturers are in a unique position to offer such systems as a factory-installed option. And so they do, in conjunction with some well-known American speaker companies. We now count, in order of appearance, six such joint ventures: Delco/Bose (GM), Ford/JBL, Chrysler/Infinity, Acura/Bose, Nissan/Bose (in Nissan's 1989 Maxima), and Audi/Bose (in Audi's new 100 and 200 sedans). Blaupunkt looked at custom equalization, saw that it was good, and recognized an opportunity: Most of the world's automobiles pass through the Robert Bosch facilities. Blaupunkt could develop a program to measure the acoustics of these cars and create equalization modules that could simply be plugged into a Blaupunkt amplifier. Hence was born the PSA-108, a moderately priced add-on power amp that can bring custom equalization to any system in

a wide range of new and existing cars.

Last February, I reviewed a system (in a Buick LeSabre) built around the PSA-108. A switch was installed that enabled me to go back and forth between equalized and "straight" sound. The improvement with the EQ was striking and served as a reminder of how a car's acoustical space contorts sound. The PSA-168 is simply a higher-power model, rated maximally at 40 watts by four channels, or twice the power of the 108. The EQ modules are the same, although more have been



*Blaupunkt's Chicago CD-player/tuner handles CDs in cartridges.*

added since, most of them for Japanese cars. When you purchase a PSA, you'll find not only a list of the EQ modules available but also the replacement Blaupunkt speakers recommended. The original frequency-response measurements in the various cars have been in most cases made using Blaupunkt speakers all around. So a scientific basis exists for using the recommended Blaupunkt speakers in a PSA system. However, it seems logical that much of the benefit of the equalization would accrue even without replacing your existing speakers, as long as they are the original factory models or name-brand models of similar style (e.g., single-driver, two-way, three-way).

For the Mercury Sable (and the similar Ford Taurus), Blaupunkt specifies its own XL-1612 two-way speakers (\$240 per pair) for the front but let's you retain the factory-installed 6-by-8-inch drivers in the back. The XL-1612s are one of three XL Series speakers featuring dome tweeters that can be removed and installed in a separate location. In the Sable, the tweeters were mounted in the dashtop cutout and their companion 6½-inch woofers were fit into the front door enclosures. Going somewhat against its own recommendations (for this car), Blaupunkt decided to replace the Sable's back speakers with two of its own. These were the three-way QL-6915Ts (\$250 per pair), members of the company's new QL Series of speakers featuring dome tweeters and translucent woofer cones made of a quartz and polypropylene composite.

As installations go, this one was pretty simple: Out with the old speakers, in with the new; out with the old head unit, in with the Chicago CD/tuner. The PSA-168 was mounted behind the backseat and accessible through the trunk. All of Blaupunkt's new head units, including the Chicago, use the company's "UniFit" installation sys-

tem, which consists of interchangeable mounting rims and snap-in side fittings for neat installations in both DIN- and ISO-style radio openings (the latter found mostly in Japanese cars). UniFit models can be installed through the front of a DIN opening or from behind an ISO opening (the nosepiece is then attached from the front). Most UniFit head units (including the Chicago) can be converted to pullout status by the addition of a "Quick-Out" bracket and a handle.

The Chicago CD/tuner (\$800) is wonderfully simple to operate. One knob at the upper left is used to switch power, control volume, adjust balance (pull out), and switch between tuner and CD (push in). A protruding tab operates the fader; below are sliders for bass and treble. To the right is the Transreflective LCD display, very easy to read (even in daylight) and showing all essential operating information. To its right are the tuner and CD controls, which dominate the front panel. Buttons numbered 1 through 10 for the AM and FM presets also serve as direct-access keys for CD tracks (another button marked "+10" must be pressed first to cue track numbers between 11 and 99). The tuning and track-skip buttons are likewise shared. You can enter the manual tuning



The Blaupunkt PSA-168 power amplifier takes custom equalization modules for specific car models.

mode by pressing a button marked "m." The AM/FM band selector doubles as the CD eject switch. The only remaining button, labeled "scan," enables you to sample every receivable radio station for about eight seconds or each track on a CD for ten seconds.

That's it. I can think of one additional feature I might have wanted—manual scanning for CDs—but on the whole I admire the Chicago's uncluttered faceplate with large buttons and utterly familiar controls. Incidentally, stereo FM blending of weak signals proceeds gradually and automatically all the way to mono, if necessary. Not incidentally, the tuner circuitry is relegated to a separate, hideaway chassis, which is a bit out of step with the latest, single-chassis CD tuners.

Perhaps the most distinctive mark of the Chicago, other than its superior control layout, is that it uses the cartridge loading method for CDs. Before inserting a CD into the mouth of the unit, you insert it into a special cartridge that is something like a thinner version of a CD jewel box. You buy a bunch of these protective cartridges, load them with CDs, and then you don't have to wrestle with the jewel box when it comes time to change a disc. I find the cartridges themselves a bit of a pain to pry open, but the concept is not without merit.

Now, I've been keeping you in suspense about the system's performance for a reason. First, the very good news. The Chicago's CD section performed flawlessly: Its cueing action was quick, and it never once skipped on a disc. I can also give the tuner high marks overall, although I would like to have been able to lower the sensitivity level to skip unlistenable stations during seek tuning. That leaves the PSA-168 and the speakers, and brings us to the not-so-good news.

The back speakers produced all of the bass—not just the deepest notes—but were weak at middle and high frequencies. They sounded muffled, as if they hadn't been EQ'd at all. Conversely, the front speakers produced nothing resembling bass, even though they are capable of delivering some upper bass when you raise the bass control. This made the system very difficult to balance: No matter where you set the fader, your ears would perceive either too much treble in front or not enough treble in the back. I don't disagree so much with the behavior of the front speakers—it is really the back speakers that are causing the difficulty.

I've heard the PSA system do wonders in a Buick LeSabre. So what happened in the Sable? First, results might have been better using the Sable's original back speakers, on which the EQ supposedly is based. Second, the Sable's back shelf is a dreadful place for any speaker. The steeply sloped rear window and the backseat headrests create an acoustic nightmare. One can imagine high frequencies being reflected off the window and right onto a headrest, never to reach a listener. In fact, you can hear the missing highs by sticking your head right over the speakers. In the Sable, Blaupunkt's EQ was doing a great job, just not enough of it. On the other hand, perhaps the overall dose of EQ was correct but was not administered to the front and back in the right proportions: Blaupunkt's measuring microphones may very well have "heard" a smooth frequency response, not being capable of the directional sensitivity of the human ear.

Although I have reservations about the effectiveness of the Sable EQ, I remain very impressed by the Chicago CD/tuner and am still very much in favor of the PSA system in general—based on its performance in other cars. □

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Report preparation supervised by Michael Riggs, David Ranada, Christopher J. Esse, Robert Long, and Edward J. Foster. Laboratory data (unless otherwise indicated) is supplied by Diversified Science Laboratories.

## Test Reports

**E**ssentially, NHT's Model II is a four-piece stereo speaker system that comes in two enclosures. The upper sections of each unit are built like NHT Model I satellite speakers, down to the symmetrically angled baffles that direct the sound inward even when the speaker backs are parallel to the wall behind them. NHT calls this design element Focused Image Geometry. The bottom sections of the Model II each contain roughly the equivalent of the NHT Octave bass modules (designed primarily for use with a pair of Model Is), but in a more vertical format to fit the overall enclosure design. All the drivers are thus a fixed distance from the floor, allowing more precise system engineering for the expected room placement than is possible with separate woofers and satellites. The close family resemblance among all NHT models—even to the black (or white) laminate finish— isn't surprising. The company, whose full name is Now Hear This, is barely a year old, and the Model I and II are its first two products (or three, counting the Octave module for the Model I).

The woofer in each Model II enclosure consists of a pair of 6½-inch polypropylene-cone drivers, one above the other at the bottom of the column, to benefit from the reinforcement of floor coupling. The crossover to the midrange driver, which is the same size as the woofer cones, is at a surprisingly low 80 Hz. At 3.3 kHz, the midrange crosses over to a 1-inch tweeter. These crossover points have been chosen in order to avoid the range between 250 Hz and 1,000 Hz, where the ear is said to be most sensitive to the interference anomalies resulting from feeding a given frequency to two acoustically dissimilar drivers.

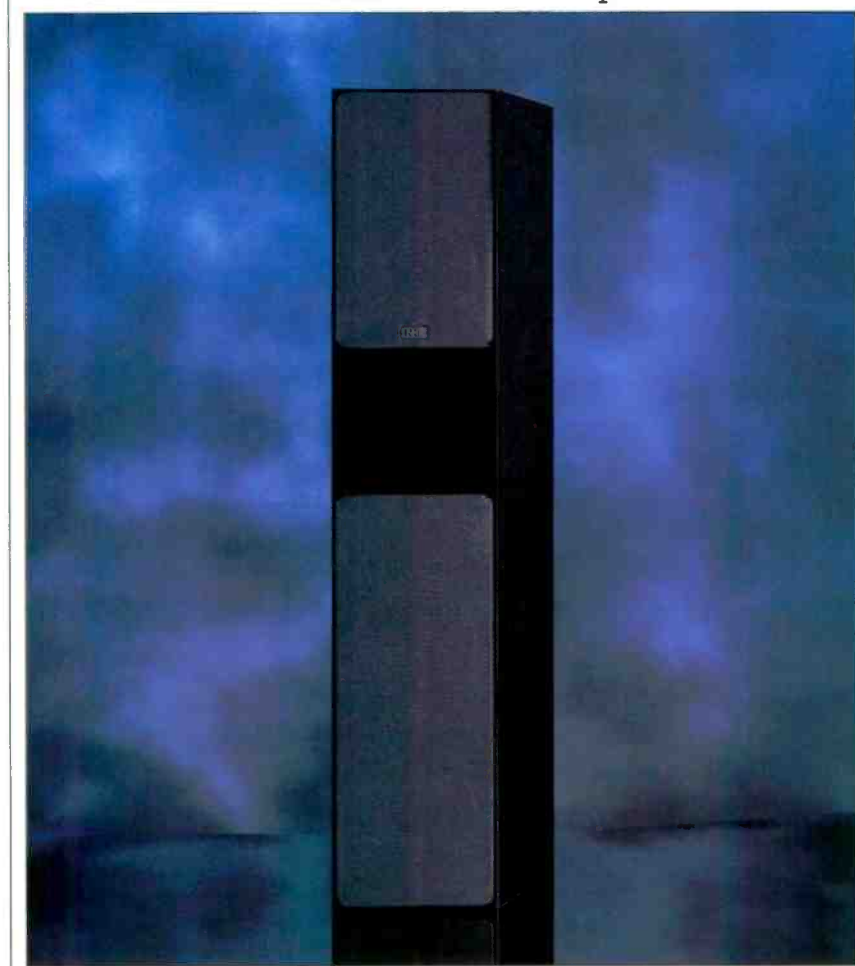
The two sets of drivers—the dual-cone woofer and the midrange/treble group—have separate removable grilles made of stretch fabric mounted on a thin pressboard frame to minimize diffraction. Electrical connections are made at heavy-duty gold-plated multiway binding posts recessed near the bottom of the back panel, which is otherwise finished the same as the other surfaces.

For the measurements, DSL placed the Model II 39 inches out from the wall: a position that, as the brief owner's manual suggests, may produce superior stereo imaging but not the pronounced bass more typical of a speaker near a corner

or, at least, against a wall. The back of the speaker was parallel to the wall, so the baffle, and therefore the drivers, were aimed more in the direction of DSL's off-axis mike than its on-axis one.

To some extent, then, the on- and off-axis curves are interchanged compared to those for a more conventional speaker, but the high-frequency response is so similar in the two that this point has little relevance. The difference is greatest in

### NHT Model II Loudspeaker



TONY PETTINATO

the range of the usual floor-reflection dip, which is sharply focused in the 315-Hz band of the off-axis measurements. Outside of this band, response is exceptionally smooth, with a relatively gradual rolloff to about 50 Hz; both curves stay within about  $\pm 3\frac{1}{2}$  dB, relative to the "music band" average, from the 100-Hz band up. Again, more energy would

*(Continued on page 23)*

**Dimensions:** 7 by 37 inches (front), 11¾ inches deep.

**Price:** \$800 per pair.

**Warranty:** "Limited," five years parts and labor.

**Manufacturer:** Now Hear This, Inc., P.O. Box 1228, Fullerton, Calif. 92632.

# ACCULINEAR 18-BIT TEC

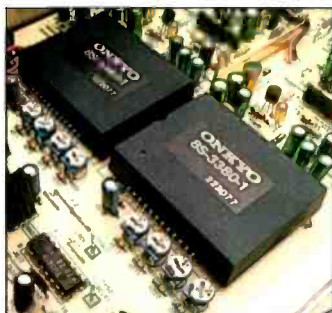


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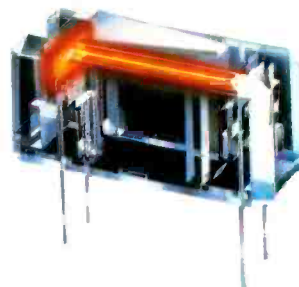
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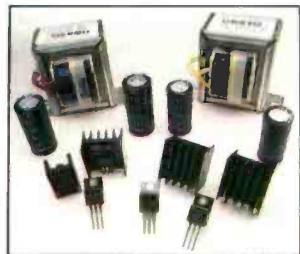
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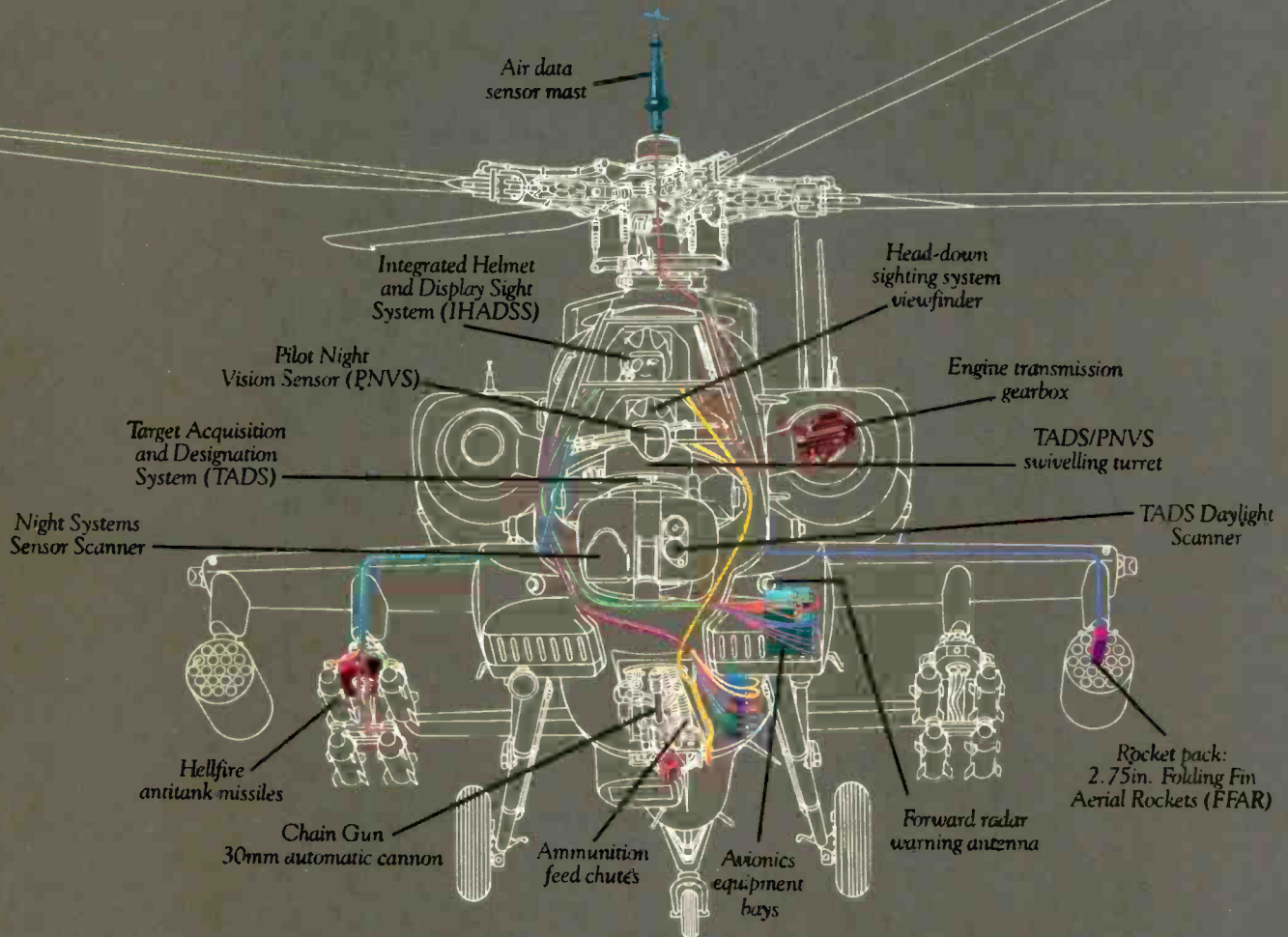
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(Continued from page 19)

have resulted below 100 Hz had the speaker been against the wall.

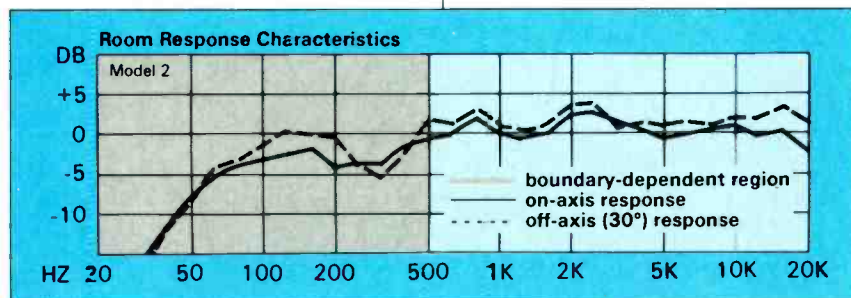
Impedance fluctuates between 3.4 ohms (at the woofer-range minimum, near 65 Hz) and 15.8 ohms (at 3 kHz, in the midrange/tweeter crossover). It is less than 8 ohms at all frequencies below 700 Hz and more than 8 ohms at all higher frequencies but relatively smooth throughout. This suggests that it should be a relatively unquirky load for typical amplifiers to drive, though the fairly low lie of the curve below 700 Hz may cause the speaker to draw somewhat more current than some other 8-ohm models.

Measured at a sound-pressure level (SPL) of 85 dB, distortion averages well under 1/2 percent except in the deep bass. This climbs to about 1 percent at 95-dB SPL and more than 3 percent at 100-dB SPL. Neither this test nor the 300-Hz pulse test (in which it handled the equivalent of 27.6 dBW, or 570 watts, peak into 8 ohms) suggests that the Model II is about to run out of steam at any reasonable drive level, however.

Narrow speaker enclosures can facilitate excellent stereo imaging, as they do in the Model II. Not only is the speaker's imaging crisp and unequivocal, but the stereo stage holds up well as you move around the room—which is part of the intent in angling the baffle as NHT has done. As with a number of other recent speakers, when you move in the direction of one enclosure you will tend to move out of its treble "beam" and into that of the opposite enclosure, so that the

resulting level difference counteracts the "precedence effect" that would otherwise pull the image toward the nearer speaker.

For the listening tests, I tended to prefer the Model IIs away from the wall to maximize this particularly enjoyable aspect. This position left them a little bass-shy for some music and emphasized



what strikes me as a slightly hard treble sound—a subjective judgment that many listeners will not share, I think, perceiving it instead as enhanced clarity or detail. Whatever you call it, it isn't a significant coloration, and the midrange and treble are very smooth overall.

The Model IIs represent, as NHT intended, good sonic value for their price range. In addition, their compactness and dramatic styling should make them welcome in many contexts. In the end, however, their most endearing quality is perhaps that unusual angled baffle, which makes so much technical sense and pays real sonic dividends. Few speaker companies have made so striking a debut.

Robert Long

Sensitivity (at 1 meter; 2.8-volt pink noise)

89 dB SPL

Average Impedance (250 Hz to 6 kHz)

11.3 ohms

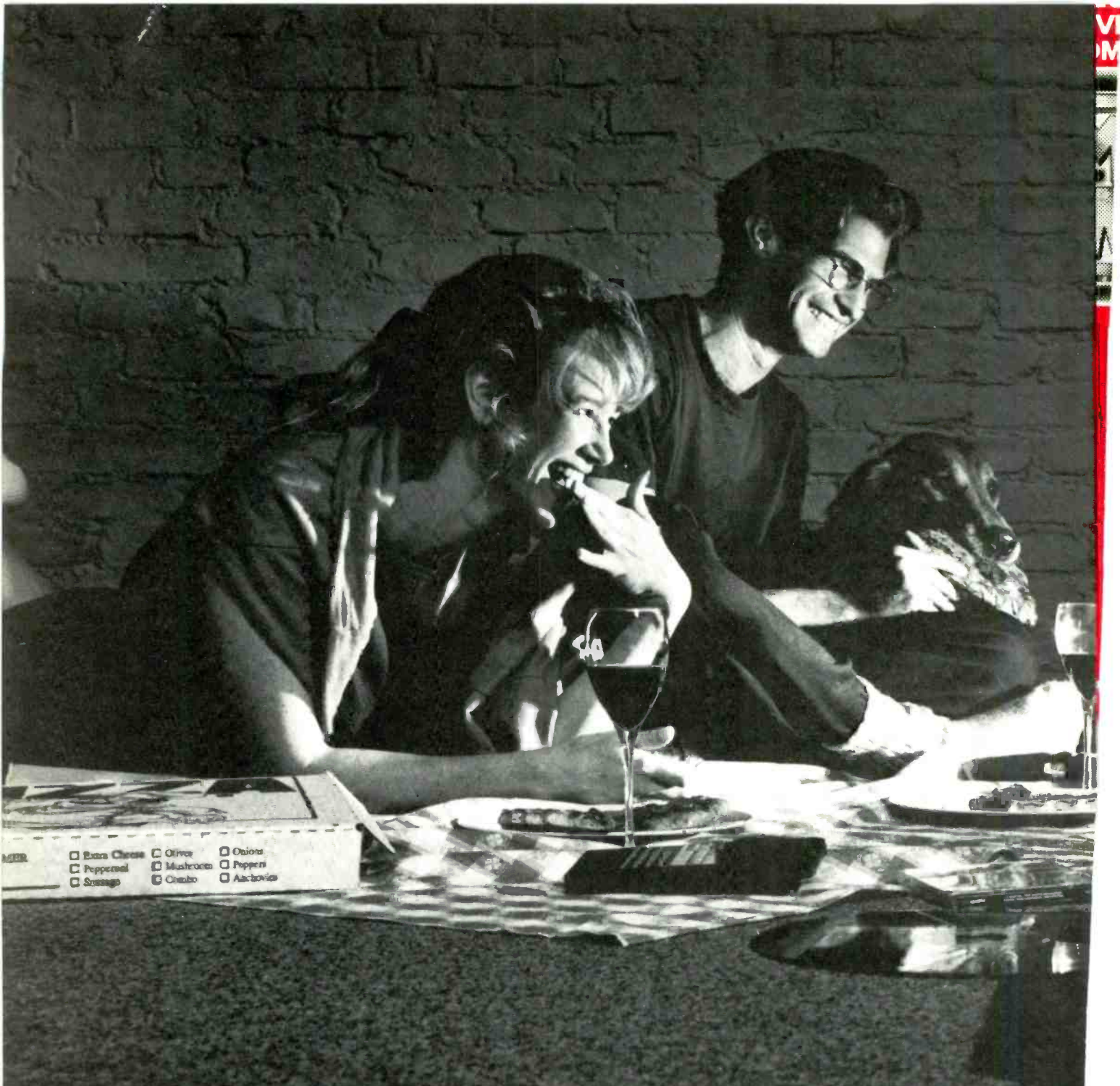
**M**ost new high fidelity loudspeakers are introduced accompanied with some sort of brash technological fanfare. Laser interferometry, FFT testing, unique construction, rare and costly driver materials, exotic driver placement, weird cabinet shapes, and unusual operating principles have all made their heralded debuts—to widely varying critical acclaim. Now comes the Snell Type C/II, with seemingly little to offer besides the three points listed under "Technical Philosophy and Goals" in Snell's descriptive brochure: truly accurate frequency response, advanced design techniques, and listening tests. There's no mention of the driver or diaphragm materials used, or of the components used in the crossover. How refreshing!

For the record, the C/II is a rather tall, floor-standing vented system employing a 10-inch polypropylene-cone woofer, a 5-inch plastic-treated-paper

midrange, and a 1-inch treated-cloth soft-dome tweeter. On the back panel are the vent and, at center top, a rear-firing 1/2-inch dome tweeter that can be deactivated by a toggle switch next to the speaker terminals (which are located above the vent). The connectors are heavy-duty, gold-plated multiway binding posts that accept dual banana plugs. Instructions and the necessary connectors are given for a conventional hookup and for biampification. Crossover frequencies are at 275 Hz and 2.7 kHz for the front-panel drivers; the rear tweeter operates primarily above 12.5 kHz (according to Diversified Science Laboratories' measurements). So far, there is nothing out of the ordinary, except for possibly the rear-facing tweeter, which has appeared on earlier Snell models (including the Type Ci reviewed in the June 1986 issue, and to which the C/II bears practically no other resemblance).

(Continued on page 27)

## Snell Type C/II Loudspeaker



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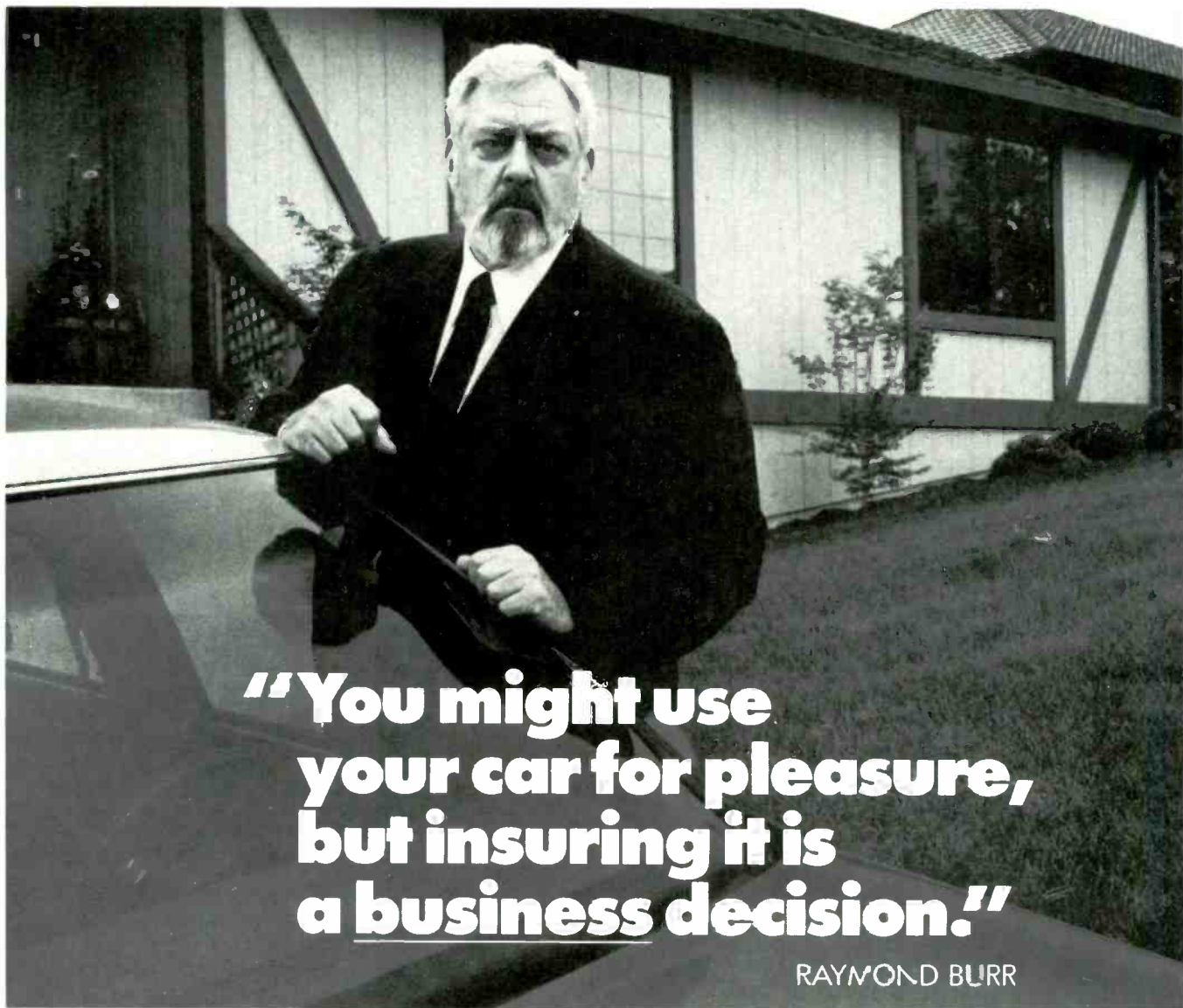


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(Continued from page 23)

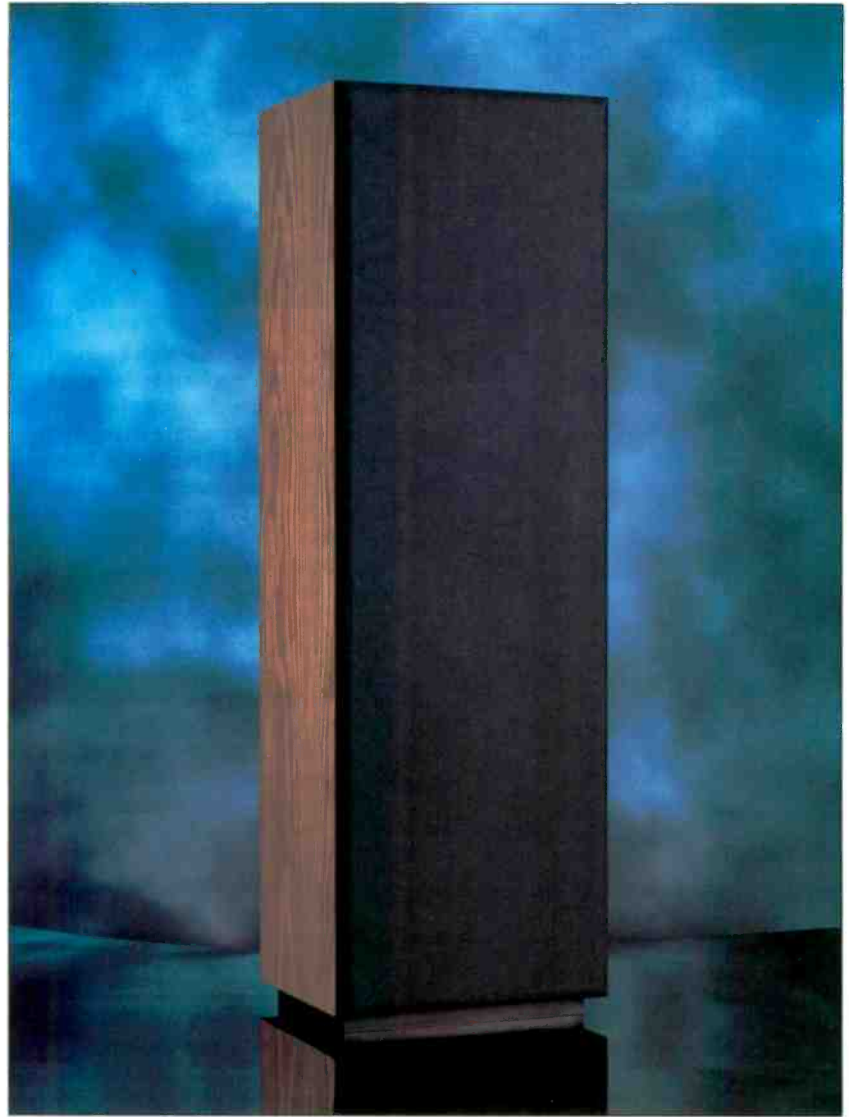
Cabinet finishes available are genuine oak or walnut veneer, or a black veneer, all with black grille cloths. The speaker is finished on the top and sides only, the front and back panels being painted black. The grille—with diffraction-reducing rounded edges—fits around, instead of in front of, the front panel and so is an integral part of the speaker design.

Although the C/II is sold in cosmetically matched pairs, no special care has been taken to match the two speakers acoustically. Instead, each is said to be matched in response to “within a fraction of a dB of [Snell’s] original prototype speaker.” To achieve this, Snell adjusts the crossover components to match the characteristics of each unit’s specific drivers.

Where the C/IIs differ from most speakers is in the design of the prototype that each C/II must match, for Snell intends the “truly accurate frequency response” mentioned above to hold not only directly in front of the speaker, but off-axis as well. The Snell literature explicitly cites the usually underplayed importance of controlled off-axis response in reducing the sonically detrimental effects of early wall, ceiling, and floor reflections. To that end, off-axis response is said to be optimized at 30 to 45 degrees and at 60 to 75 degrees. This has been accomplished by the use of computerized measurement and simulation facilities to help select the drivers and design the complex, 24-dB-per-octave crossover network. The latter is said to contribute to better off-axis response at the crossover frequencies. Full double-blind listening tests are used to confirm the prototype’s meeting of the design goals and its ability to hold its own against competing models.

That these measures have been very successful is confirmed by only a cursory glance at DSL’s response plots, made with the back of the speaker 37 inches away from the wall behind it and with the rear tweeter turned on. The company claims for the C/II an on-axis, anechoic response of  $\pm 1$  dB from 65 Hz to 20 kHz, and, for once, I’m prepared to believe a manufacturer’s speaker-response spec. Ignoring the 5-dB dip at around 300 Hz (which appears in most of our speaker-response measurements and is the combined result of a floor reflection and the measurement setup—as confirmed by some ad hoc measurements in the HIGH FIDELITY listening room), the response DSL found can be characterized as an unusually flat  $\pm 1.5$  dB from about 100 Hz on up to 20 kHz. More extraordinary is the flatness of the off-axis

response, which can be *identically* described. This degree of similarity between on- and off-axis measurements is unprecedented in my years of writing and editing speaker reviews. Even including the 300-Hz dip, the on- and off-axis responses are still closely matched and both fall within  $\pm 2.5$  dB of flat from 60 Hz on up.



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Naturally, the speaker’s impedance curve is not nearly so flat, but it nonetheless presents no unusual problems. The minimum impedance of 3.9 ohms is reached at 100 Hz. At the high end, switching on the rear tweeter lowers the impedance at 20 kHz from 8.4 ohms to 4.1 ohms. Based on pink-noise measurements, DSL found the average impedance of the C/II to be 8.8 ohms, which is in close agreement with Snell’s 8-ohm specification. ►

**Dimensions:** 14½ by 46 inches (front), 11¾ inches deep.

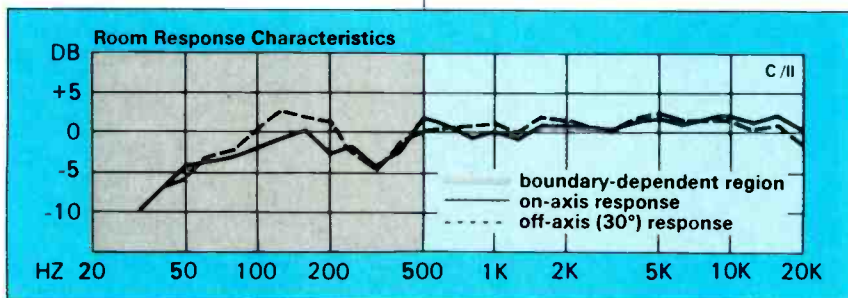
**Price:** \$1,890 per pair.

**Warranty:** “Limited,” five years parts and labor.

**Manufacturer:** Snell Acoustics, Inc., 143 Essex St., Haverhill, Mass. 01830.

# Test Reports

The C/II's sensitivity is significantly higher than that of the earlier Type Ci. And in DSL's 300-Hz pulse test, the C/II accepted the full output of the test amp (equivalent to 578 watts, or 27.6 dBW, into 8 ohms) and delivered a calculated peak sound-pressure level (SPL) of 119 dB at one meter. Snell says that the C/II is "suitable for use with amplifiers rated from 20 to 250 watts"—a rec-



Sensitivity (at 1 meter; 2.8-volt pink noise)

90 1/4 dB SPL

Average Impedance (250 Hz to 6 kHz) 8.6 ohms

ommendation with which I concur.

Distortion performance, particularly at low frequencies, was also good, with THD (total harmonic distortion) remaining at about 1 percent or lower over the entire audio band at the 85-dB SPL test level and 1/2 percent or lower at 90 dB. At 95 dB, the woofer started to show signs of strain (2 1/2 percent at 160 Hz), as did the midrange (2/4 percent at 1 kHz). At a very loud 100 dB SPL, the worst distortion figures were 5 1/2 percent at 160 Hz and 4 1/2 percent at 1.6 kHz.

Regardless of these findings, the C/II played plenty loud enough for me, and with no obvious sense of strain. In fact, the clarity of the speakers in musically complex, high-level passages struck me as unusually good, depending, of course, on the program material. With this speaker, as with all speakers of basically neutral character, the sound quality you perceive will be simply that of the recording. If the recording is misequalized, overmiked, or poorly reverbed, the C/II will expose these faults. While the speaker will not cover up the sonic problems of a recording, neither will it impose its own distinctive sound on the music. If the recording provides pinpoint images with a great sense of depth, the C/II will generate a stereo stage with analytical precision and the appropriate sense of spaciousness and depth.

Especially impressive is the C/II's reproduction of well-recorded voices—which are rather rare in these days of electronic voice processing. Massed strings also sounded very good: a bit forward perhaps, but definitely without the steely sizzle of a speaker in which the high frequencies are poorly balanced. Disco has appropriate "sock" but no

headache-inducing boom. And although the very lowest frequencies are slightly rolled off, strong organ pedal notes of 30 to 40 Hz come through clearly; but this characteristic obviously depends more on the listening room and speaker placement than does reproduction of voice or string recordings.

Snell gives only very general recommendations for placing the C/II's. "If they are used on the shorter wall of the room, they should be at least three feet from the side walls," or else you should place absorptive materials on the adjacent walls to reduce the level of early reflections. As with most front-firing speakers, moving the C/II's closer to the wall behind them increases the bass level, while pulling them farther out into the room increases their ability to generate a sense of depth. For those who like punctured carpets, the C/II's come with optional spiked feet that insert into holes in the bases of the enclosures.

Aside from this one bow to audiophilic fashion, the Snell Type C/II has few of the high-tech trappings of present-day loudspeaker construction. But it makes up for a rather conservative technical background by its sound quality, which, in its cleanliness and neutrality is as thoroughly up-to-date as any new diaphragm material. The outlandishness of Snell's claim in the product brochure that "the Type C/II's compare favorably with speakers more than twice their price" stems not from exaggeration but from understatement. *David Ranada*

### ABOUT THE dBW

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

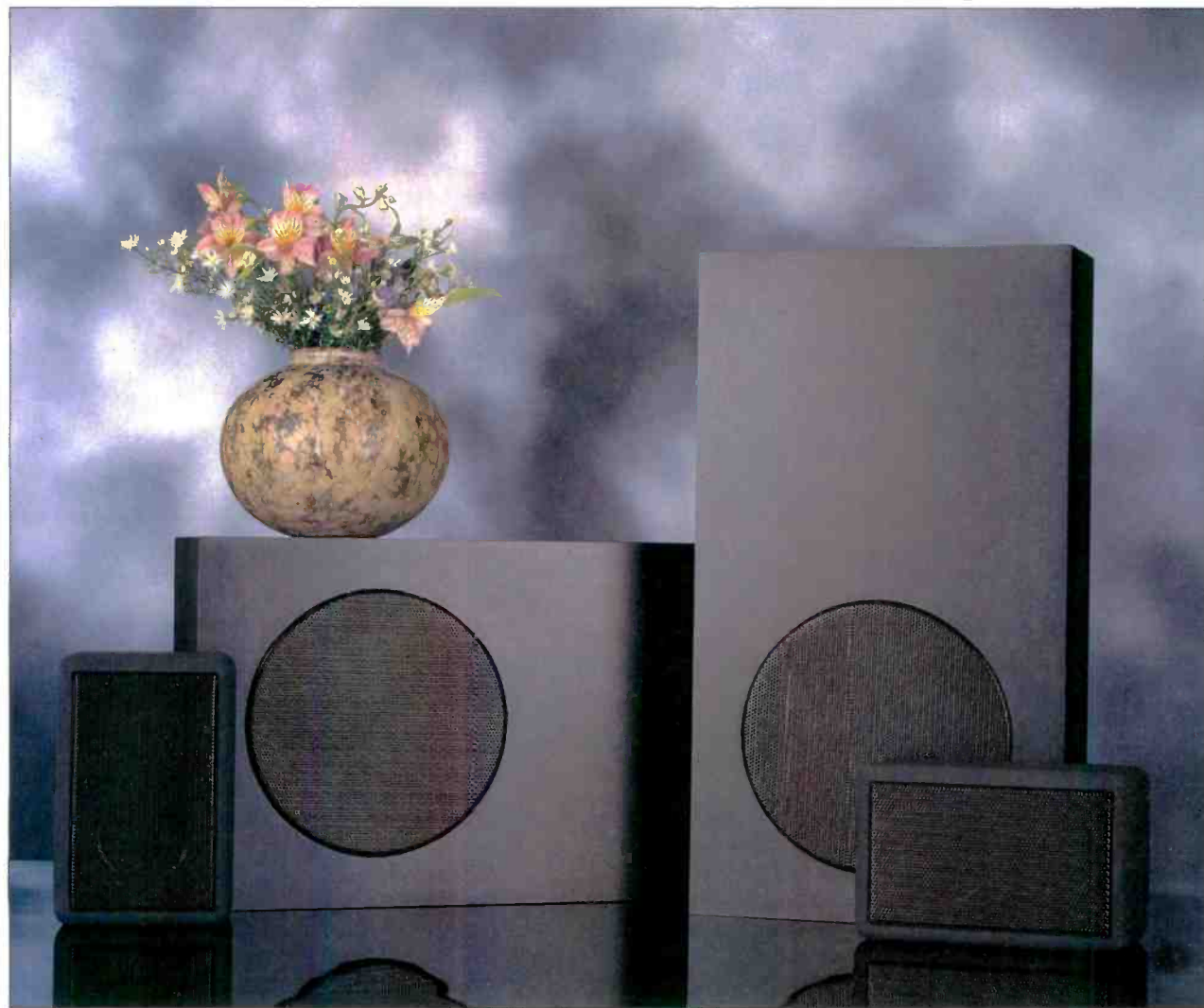
WATTS	dBW	WATTS	dBW
1.0	0	32	15
1.25	1	40	16
1.6	2	50	17
2.0	3	63	18
2.5	4	80	19
3.2	5	100	20
4.0	6	125	21
5.0	7	160	22
6.3	8	200	23
8.0	9	250	24
10.0	10	320	25
12.5	11	400	26
16.0	12	500	27
20.0	13	630	28
25.0	14	800	29



Cambridge  
SoundWorks  
Ensemble  
Loudspeaker

**T**alk about *déjà vu*! Henry Kloss—having left Acoustic Research, which, by the standards of those days, made speakers of remarkable fidelity for their small size—became a co-founder of KLH and made speakers of, among other things, remarkable fidelity for their tiny size. Then he founded Advent, which financed his experiments in projection TV with the sale of speakers of remarkable fidelity for their modest

of satellite speakers containing the tweeters and midrange drivers (though Kloss prefers the term “woofer” because, technically, they are the descendants of the woofers in his KLH microspeakers), plus a pair of woofers (well, according to Kloss, “bass units”). All are finished in black with metal grilles over the drivers. Connections are made to heavy-duty gold-plated binding posts. Pairs of hookup wires in two lengths (20



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size and even more modest price. Next, he founded Kloss Video, which improved on the Advent projectors but offered no separate speakers (although the Kloss video projectors did offer remarkable video fidelity). And now, guess what he has designed for his latest company, Cambridge SoundWorks: a loudspeaker that offers remarkable fidelity for its small size and moderate price tag.

The Ensemble, as it is appropriately named, consists of four enclosures: a pair

and 30 feet) are supplied. Any configuration that parallels each satellite with its associated woofer will work. The options are clearly diagrammed in the owner's manual.

The satellite enclosure has rounded front edges, doubtless intended to prevent diffraction, and is exceptionally solid and acoustically inert. To facilitate mounting in some situations, the back panel has both a screw-head “keyhole” (for which screws are supplied) and a

**Dimensions:** Satellites, 5¼ by 8¼ inches (front), 4 inches deep; woofers, 4½ by 11¼ by 21 inches.

**Price:** \$499 plus shipping.

**Warranty:** “Limited,” five years parts and labor.

**Manufacturer:** Cambridge SoundWorks, 154 California St., Newton, Mass. 02158.



# INTRODUCING SOUND AS IT WAS MEANT TO BE HEARD IN PLACES IT WASN'T.

For years, Baby Advent® bookshelf speakers proved that you don't need a lot of space to enjoy accurate sound. With our new Mini-Advents and Mini-Advent/Subwoofer System, you can get that sound in places you never dreamed of.

Mini-Advents are designed for people with little room for loudspeakers. Less than a foot tall, they fit on bookshelves. Tables. Even walls and ceilings, when using optional mounting brackets. Perfect for completing a surround sound system.

**THEY'RE SMALL, BUT DEFINITELY NOT SHORT ON SOUND.** Our 5¼" high excursion woofers and ½" polycarbonate dome tweeters supply Mini-Advents with 120 watts peak power—quite powerful for speakers this size. Tuned bass ports, too. So that Mini-Advents get every ounce of bass from such a small speaker cabinet.

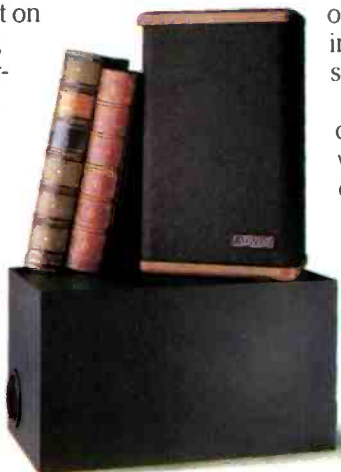
**FOR EVEN GREATER SOUND FROM SMALL SPEAKERS, THERE'S OUR SUBWOOFER SYSTEM.** When connected to the Mini-Advents, our

subwoofer creates a 165 watt three-way speaker system by directing the high and midrange frequencies to the Mini-Advents while handling the bass frequencies itself.

The amazing thing is that our subwoofer can give your system extra bass and added power while remaining out of sight. Only seven inches tall and twelve inches wide, it fits neatly in any corner and sounds great behind couches or plants.

Like all our speakers, Mini-Advents are designed to look as good as they sound. Made with real pecan wood, they'll look terrific wherever you put them.

Now that you know all about these great-sounding loudspeakers that take up little space, take a little time and listen to a pair at your nearest Advent dealer.



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*Sound as it was meant to be heard.*



female camera-tripod thread. At the bottom of the panel is a recess for the binding posts. The tweeter, which is a one-piece cone/dome similar to the treble drivers in previous Kloss-designed speakers, is crossed over at 1.9 kHz to the 3½-inch midrange driver—which, in turn, rolls off steeply below 125 Hz in Diversified Science Laboratories' near-field measurements. Nominal crossover to the bass unit is at 140 Hz.

The bass enclosure is a sealed slab with the 8-inch woofer mounted in one of the broad faces. The binding posts are recessed into a long side, close to the woofer. The manual says that almost any position in which you want to place the woofer is acceptable (assuming that it sounds good there), but that the driver must be at least one inch from any surface it faces. Special stand-off feet are supplied for this purpose, so that you can, for example, place one woofer face-down on the floor and the other directly above it.

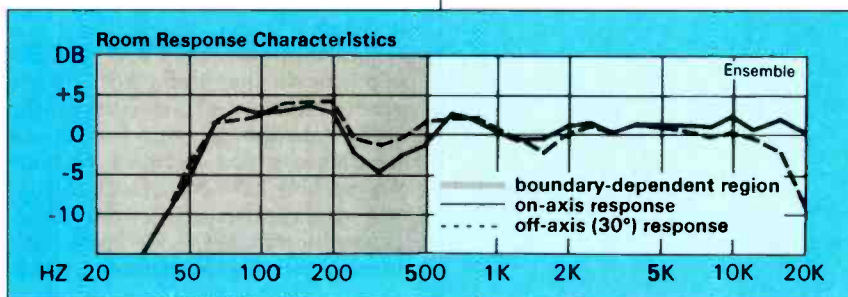
The watchword of the manual, in fact, is "experiment." Because of the extreme placement flexibility offered by the design, this emphasis is well founded. The manual is first-rate in both writing and illustrations, and it clearly spells out the considerations that you should be aware of in placing the four elements of the Ensemble. In addition, the company has taken a cue from the computer industry and set up a toll-free phone number via which technical support is available to its customers.

DSL tested the speaker with the satellite on a stand 38 inches high and against the wall. The bass enclosure was placed upright on the floor directly below, with the woofer firing straight out from the bottom end of the baffle. The response graph shows the usual dip associated with the floor reflection (here centered on the 315-Hz band in both traces) but is otherwise very flat. On axis, the remaining data are within +3¼, -3 dB (with respect to the "music band" average) from the 63-Hz measurement up. The off-axis spread is similar, with just a hint of beaming at the extreme top.

The system's combined impedance curve averages a little above 8 ohms but shows two minima below 4 ohms. One lies in the region of the crossover between bass and midrange and dips lowest (to 3.2 ohms) just below 150 Hz; the other falls to 3.8 ohms at about 450 Hz. If you plan to drive another speaker pair from the same amp, it would be wise to make certain that either the minimum impedance of the other speakers is relatively high or that the amplifier can comfortably drive low-impedance

loads (many can do this).

Measured distortion is not particularly low, and a 1-kHz distortion "hot spot" showed up consistently. At the lowest sound-pressure level (85 dB) used in these tests, harmonic distortion above the deep bass averaged less than 1 percent, with the benign second harmonic more prominent than the third. At the highest test level, no data were below 1 percent, and the average was upward of



2 percent, depending on the specific data averaged. In the listening tests, some hardening of the sound, particularly in string tone, could be discerned when the speakers were driven to what most listeners might consider excessive levels. Moreover, the lab found that vibration of the satellite grille in the test sample compromised our usual 300-Hz pulse test. In all other respects, however, power handling seemed more than adequate, and sensitivity is surprisingly high, considering how compact the system is.

Also surprising, perhaps, in view of the measured distortion levels, is the very clean, smooth, and uncolored sound in the listening tests. After trying a number of configurations—none of which yielded anything that could be called poor sound (a benefit of placement flexibility)—I settled on using stands a little taller than the lab's, but out away from the wall, with the bass drivers in-board of the satellites and facing slightly outward to add marginal reinforcement via nearby furniture. Performance here is approximately what you might expect with the system against the wall, which I suspect is how most will be used. Otherwise, the bass enclosures were in the same plane as the satellites and were standing on the driver end as in the lab's setup.

The manual recommends that the satellites be at ear level or higher. When I placed them below ear level, the sound seemed to thicken and the stereo imaging to blur a bit. I don't know why this should be—possibly I was prejudiced by the manual's words. Also probably illusional was the apparent deterioration of imaging when the bass drivers were visi-

Sensitivity (at 1 meter; 2.8-volt pink noise)	86 dB SPL
Average Impedance (250 Hz to 6 kHz)	11.4 ohms

## Pinnacle PN-6+ Loudspeaker

bly beyond the plane of the satellites. But effects that are purely psychological are no less real than those occasioned by well-established psychoacoustic principles, and unless you hide the woofers altogether, it might be a good idea to keep them near the satellites. (The manual recommends that you avoid putting the woofers behind the listeners, which I think is generally good advice even for the many three-piece systems with a "subwoofer" that supposedly can go anywhere.)

Although there may be a relationship between the ringing grille in the pulse test and the 1-kHz maximum in the steady-state distortion test, outside of a few transients that suggested the grille may possibly have contributed to less-than-ideal clarity, no untoward behavior was discernible at normal levels in the listening tests. On the contrary, I would

characterize the sound as outstanding, particularly in the unambiguous clarity of its stereo imaging.

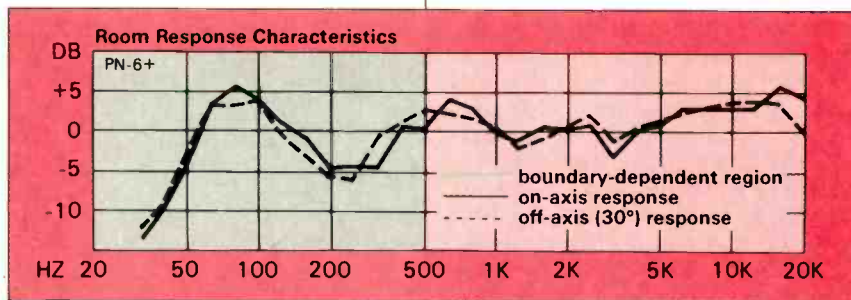
Also exceptional is the overall sturdiness of construction, which is important in speakers that may be half hidden on the floor. (Vacuum cleaners and housecats can both be outrageously destructive, given the opportunity.) The only hurdle for most buyers will probably be the unavailability of the speakers for audition in advance of purchase, since they are sold only on a direct, mail-order basis rather than through dealers. However, Cambridge SoundWorks will refund your money if you decide within 30 days of receiving the system that you don't want it after all. For the sake of this fine speaker system and the excellent value it represents, I hope that many people will take this opportunity to give the Ensemble a try. *Robert Long*

**P**innacle Loudspeakers (known as Inter-Ego Systems until recently) has focused on compact home speakers of moderate cost, and the PN-6+ is among its smallest and most modestly priced. It is a two-way system with a 1/2-inch polycarbonate-dome, ferrofluid-damped tweeter crossed over at 4.5 kHz to a 6 1/2-inch polypropylene-cone woofer. The bass loading is by means of a proprietary Diaduct port that angles

ral-looking walnut-grain vinyl finish. Spring-clip wiring terminals are recessed into the back panel—which, like the baffle, is painted black.

The exceptionally comprehensive owner's manual (of which the company is justly proud, though the layout and printing are distinctly frowsy) shows a variety of possible speaker positions, spelling out the virtues and potential problems of each with unusual clarity. The manual also includes a toll-free telephone number for customer support. Pinnacle recommends using high speaker stands or a shelf to position the PN-6+'s about three feet above the floor and about six inches from the wall (but not in a corner).

Diversified Science Laboratories (DSL) followed this recommendation precisely in measuring the speaker. Most noticeable in the response traces is the dip associated with floor reflection, here centered above 200 Hz and somewhat deeper and broader than is typical. There is a broad prominence in the midrange



Sensitivity (at 1 meter; 2.8-volt pink noise)

89 1/4 dB SPL

Average Impedance (250 Hz to 6 kHz) 11.2 ohms

downward from the inside surface of the front baffle at about 40 degrees, thus giving it room for a longer vent tube than is normally possible in so small a loudspeaker.

The woofer is mounted centrally near the bottom of the front baffle. The vent's mouth is above it and to the right; the tweeter is directly to the left of the vent, just across the central axis. All three are covered by a snap-off grille of stretch fabric over a fairly sturdy pressboard frame. The outer edges of the frame are beveled (doubtless for appearance), but there is no special antidiffraction treatment inside it. The four exposed enclosure surfaces are covered by a natu-

### REPORT POLICY

Equipment reports are based on laboratory measurements and controlled listening tests. Unless otherwise noted, test data are provided by Diversified Science Laboratories. The choice of equipment to be tested rests with the editors of High Fidelity. Samples normally are supplied on loan from the manufacturer. Manufacturers are not permitted to read reports in advance of publication, and no report or portion thereof may be reproduced for any purpose or in any form without written permission of the publisher. All reports should be construed as applying to the specific samples tested. High Fidelity and Diversified Science Laboratories assume no responsibility for product performance or quality.



and a noticeable dip just below the tweeter crossover, but above this response is quite smooth. Ignoring the most extreme dip, on-axis response measures within  $\pm 5\%$ ,  $-3$  dB from below the 63-Hz band up, with respect to the "music range" average. Off-axis response is within a narrower window, because it rises less sharply at the peaks and (again, except for the floor reflection) falls less in the troughs.

The vented enclosure keeps sensitivity higher than it might be with acoustic suspension (as in the earlier PN-6). It also introduces dual impedance peaks in the bass. One is below 20 Hz, where impedance measures 13 ohms; the other is just below 80 Hz and measures 11.8 ohms. A third peak of 18.1 ohms lies just below 3 kHz. More important, however, are the minima: 4.0 ohms in the deep bass and 3.9 ohms above woofer resonance—a broad trough beginning at around 100 Hz. (A treble minimum of 7.1 ohms at about 15 kHz is of no particular significance.) The average impedance comes out to more than 8 ohms, but, because so much of the midbass and midrange up to 1 kHz is less than 8 ohms, it would be better to observe Pinnacle's 4-ohm rating.

The relatively low lie of the midrange impedance curve helps the speaker make the most of typical transistor amplifiers. Pinnacle, in fact, recommends models rated at between 10 and 70 watts (10 to 18.5 dBW) a side, which sounds skimpy by today's standards but is not unreasonable. One reason for a modest power recommendation is perhaps that the PN-6+ does not accept high-level inputs gracefully. The deep bass of the pink-noise test signal used by DSL for the response measurements overloaded it easily, prompting the lab to recommend use of an infrasonic filter in playing LPs through this speaker.

In the 300-Hz pulse tests, the speaker did accept peaks of more than 25 dBW (300-plus watts) for a calculated sound-pressure level (SPL) of 114½ dB. Transient headroom thus is quite respectable, though distortion rises to fairly high levels on steady-state signals. At 85-dB SPL, distortion through the midrange and treble averages only about ½ percent. It is higher, of course, in the deep bass—and highest of all around 100 Hz (though the nonflatness of the frequency response throughout this range renders the distortion data problematic)—and rises with drive level. At 100-dB SPL almost all of the data are above 1 percent and the average over 2 percent. This isn't bad for a compact system of this sort, but it demonstrates why such speakers usu-

ally would not be a good choice for a large room.

For such small speakers at so modest a price, however, they are quite pleasant to listen to. The sound is not completely uncolored, but the somewhat boxy timbre is neither insistent nor intrusive, and the overall balance is very good. I preferred the speakers mounted farther from the wall than Pinnacle recommends. This seemed to make the bass a



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little cleaner, though admittedly at cost to low-bass output. Stereo imaging is good—and it, too, is aided by having the speakers farther from the wall.

If you are looking for a bookshelf model that really will fit on a bookshelf, the PN-6+ qualifies. And if you're looking for an inexpensive speaker, it qualifies as that and a good value to boot. In both categories, the PN-6+ is a must-hear model for your audition list.

*Robert Long*

**Dimensions:** 9¼ by 14½ inches (front), 8½ inches deep.

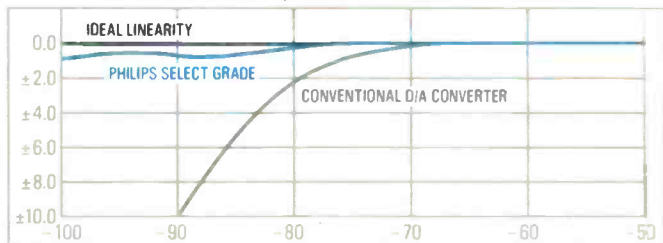
**Price:** \$229 per pair.

**Warranty:** "Limited," seven years parts and labor, transferrable.

**Manufacturer:** Pinnacle Loudspeakers, Inc., 517 Route 111, Hauppauge, N.Y. 11788.



Philips superiority is clear, from this graph showing deviation from ideal linearity (dB) vs. recorded level (dB).





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From the company that created the compact disc, Philips proudly offers the CD960 for those who won't tolerate anything less than perfection. To audition the CD960, call 1-800-223-7772 for your nearest Philips audio specialist.

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**PHILIPS**

# Canadian Loudspeakers

**New research is pushing them into the vanguard of design and performance.**

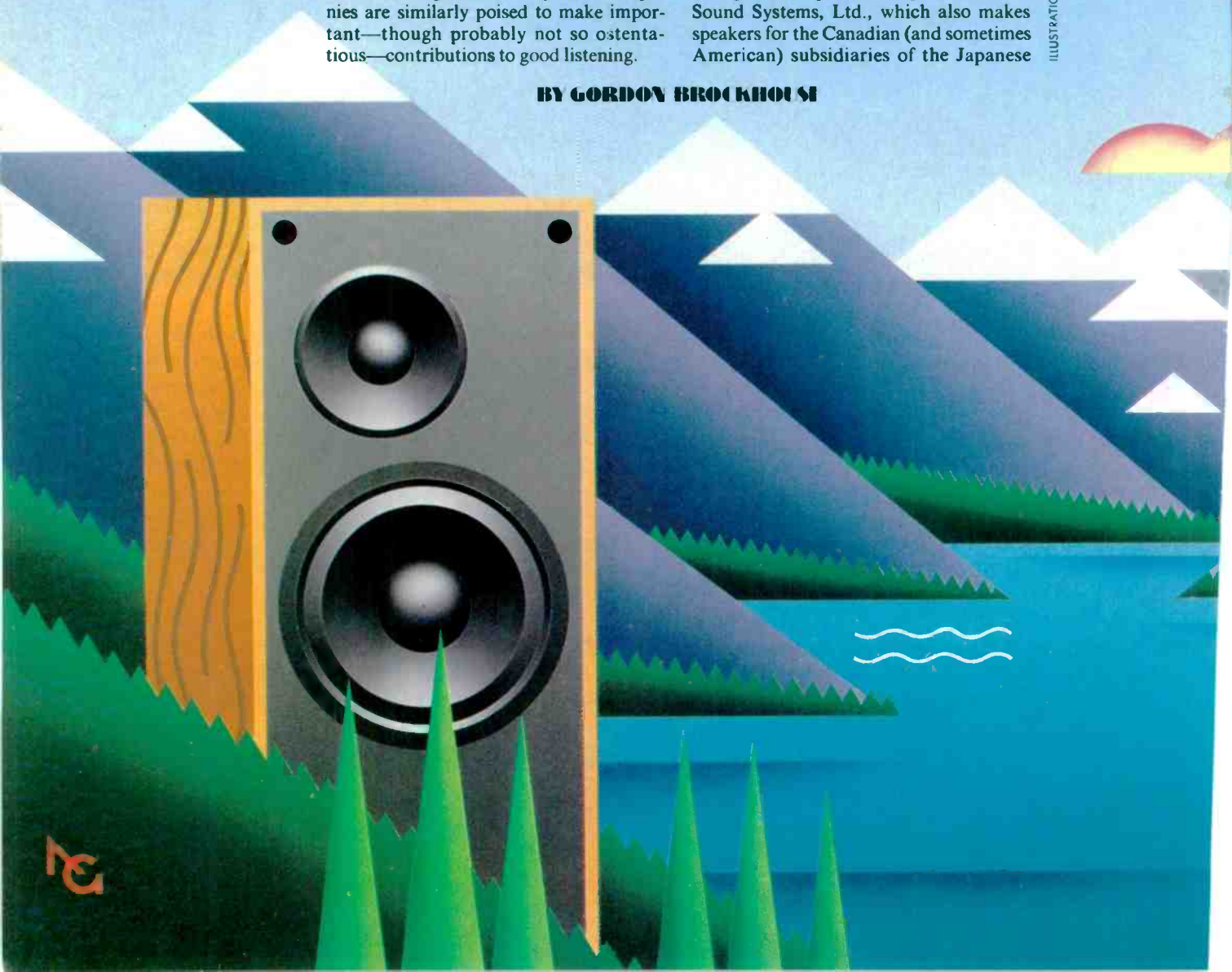
**I**f few English-speaking audiophiles think of Canada as a source of quality loudspeakers, that's not too surprising. While speaker manufacturing in the United States and Britain goes back to the dawn of high fidelity, the Canadian speaker industry, as we know it today, is scarcely a decade old. But Canadian manufacturers now command more than half of their domestic market and are setting their sights on export markets, particularly the U.S. At least one Canadian model has already made quite a telling mark in America: The speaker used by the U.S. National Bureau of Standards in its listening evaluations of the CBS Copy Code antitaping system was the Energy 22, manufactured by Audio Products International Corporation (API) of Markham, Ontario. And, thanks to the influence of one audio researcher, the remaining Canadian speaker companies are similarly poised to make important—though probably not so ostentatious—contributions to good listening.

The Canadian loudspeaker industry is small enough that it is possible to talk about nearly all of its constituents in a short article. Trying to do that with American speaker companies would probably require the equivalent of a couple of encyclopedia volumes. As you look through the following brief company histories, you'll note that there are many historical links among Canadian speaker manufacturers, much as there are among the various loudspeaker producers in New England.

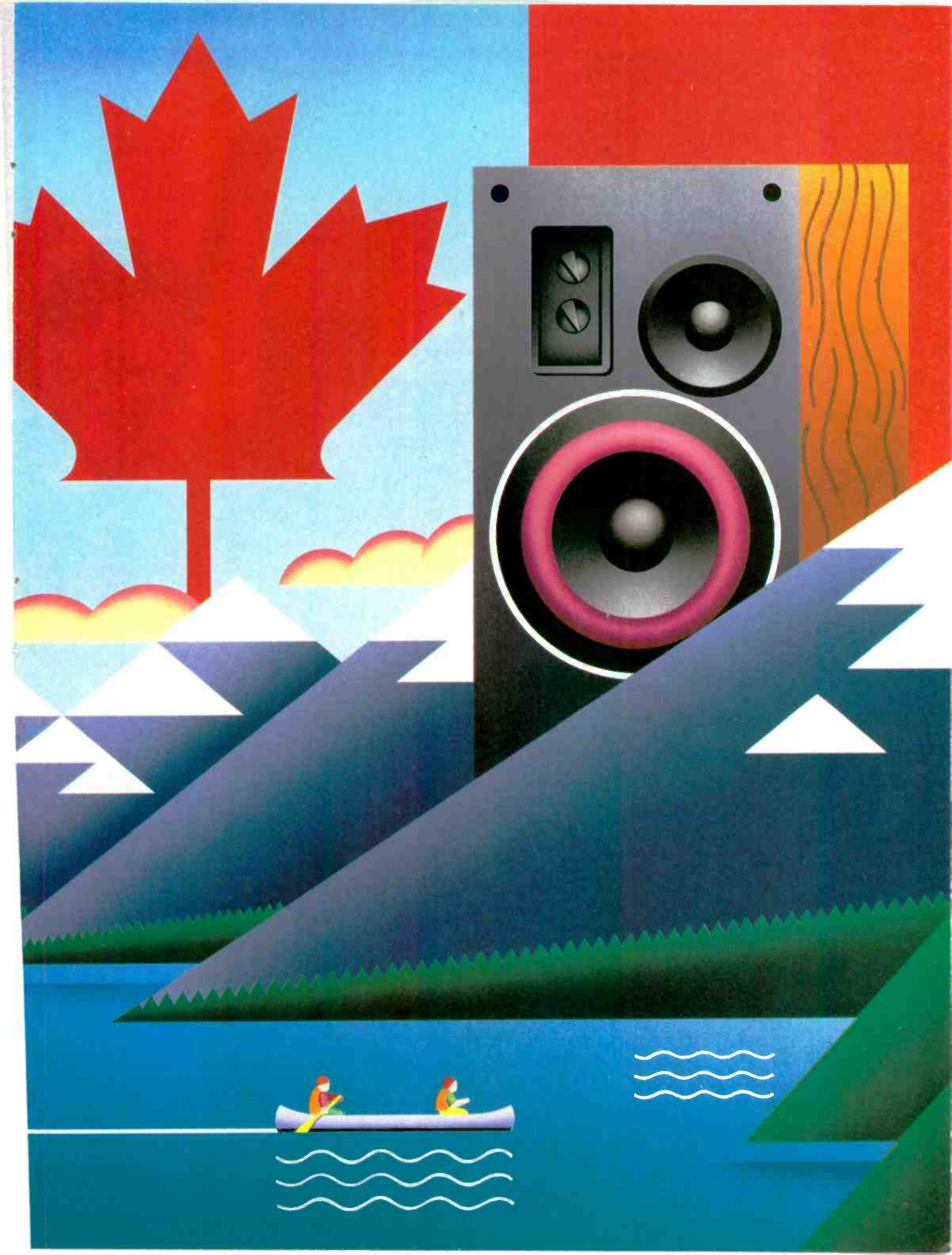
API. Audio Products International is the largest Canadian speaker manufacturer and one of the most prolific in North America, selling under eight different brand names. In addition to the Energy line, these include: ESM, Image (pronounced French-style: ee-MAHZH), and Mirage. API's parent company is Global Sound Systems, Ltd., which also makes speakers for the Canadian (and sometimes American) subsidiaries of the Japanese

BY GORDON BROCKHOUSE

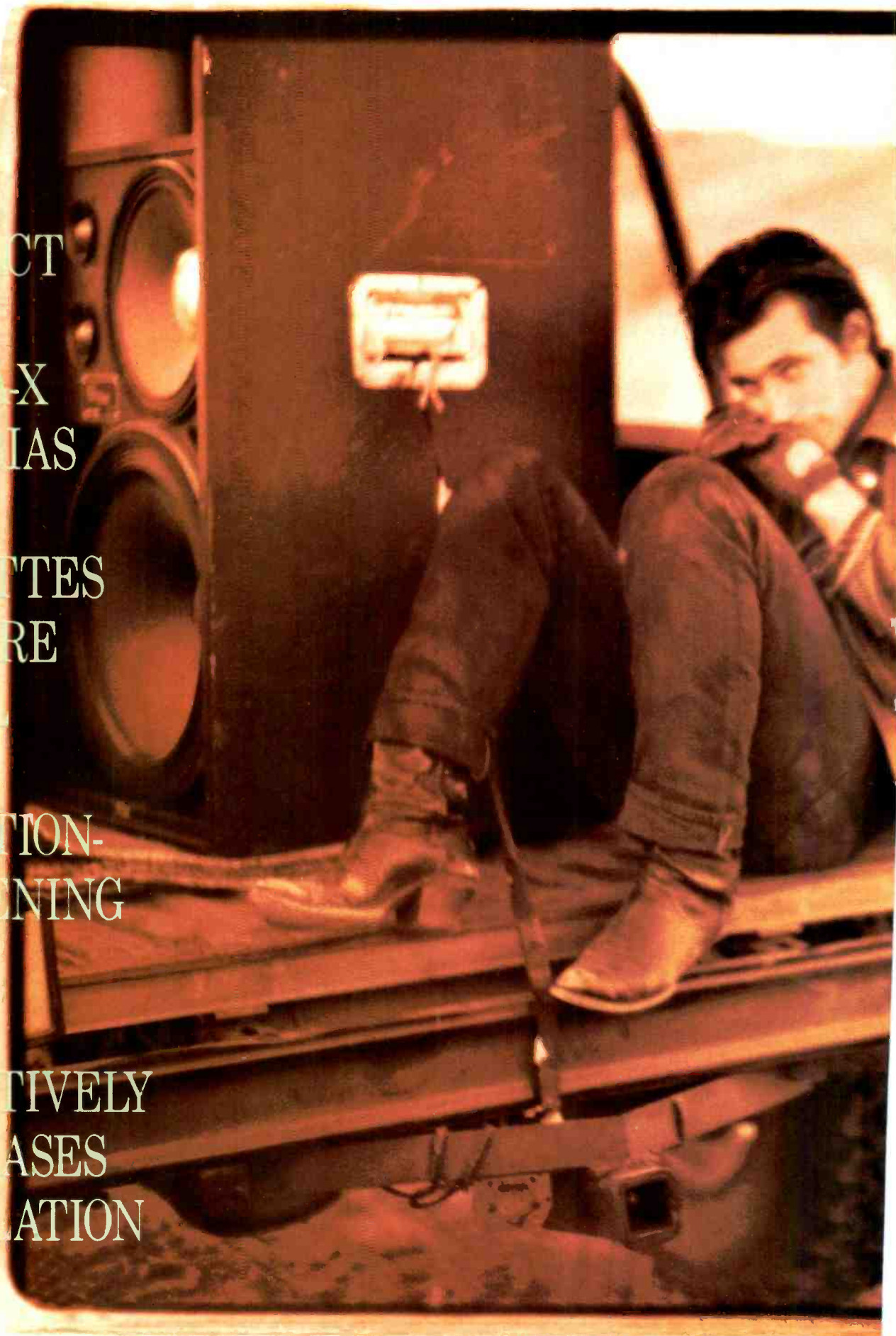
ILLUSTRATION BY NICHOLAS GAETANO







SOME  
LOVE  
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TDK S-X  
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A DUAL  
LAYER  
VIBRATION-  
DAMPENING  
SHELL  
THAT  
EFFECTIVELY  
DECREASES  
MODULATION  
NOISE





TDK SO REAL™



SOME  
JUST  
LOVE  
th  
Music.



TDK SO REAL™

## Canadian Loudspeakers

major and other customers.

API started as an independent company in 1975 and merged with Global in 1984. At the time of the merger, API built speakers under the Sound Dynamics and Energy labels. Among the designers for the Energy 22 was Winslow Burhoe, formerly of EPI. Global operated Paisley Research, whose speakers were designed by Ian Paisley (also responsible for the design of Global's raw drivers). The line that formerly bore Paisley's name is now marketed as Image.

In 1985, Global acquired Mirage Acoustics and merged it with API. Mirage is perhaps the most interesting of the API lines, combining as it does a British and

**PSB.** The dean of Canadian speaker designers is Paul Barton of PSB Speakers. Barton, a trained violinist, started PSB while attending high school in Waterloo, Ontario, selling prefab kits through a local store. He soon moved on to finished systems. PSB, now owned by Barton and two partners, was formed in 1971 but became a casualty of the 1982 recession. Barton got the company going again by forming a partnership with Lux Audio (Canada), only to see the arrangement dissolve when Alpine Electronics of Canada took over the distribution of Luxman products. A new partnership, with Lenbrook Industries of Pickering, Ontario, once again rescued PSB.

in-house after having acquired some key suppliers.

**Angstrom.** After leaving Paradigm, Martin Stec joined Angstrom Associates, Inc., of Mississauga, Ontario. Angstrom was formed in 1979 and has since gone through some ownership changes. It was reorganized in 1987 as Amtec Marketing, with Stec at the helm. Angstrom remains the name of the speaker line.

**Axiom.** In addition to the above Toronto-area manufacturers, there is Axiom Audio, based in Dwight, a small town in rural Ontario. Ian Colquhoun (pronounced col-HOON), a philosophy graduate like Angstrom's Stec, started Axiom in 1980. For the first five years, Axiom was a classic case of a start-up company—it operated out of Colquhoun's garage. It acquired its own factory and office space in 1985.

Each of the above companies has, or is developing, its own sonic, cosmetic, and marketing thumbprints. But until very recently, the differences among Canadian manufacturers' products were considerably smaller than those distinguishing models from U.S. or U.K. builders. The bread-and-butter models from Canadian makers used to be your basic two-way vinyl box, usually combining a polypropylene-woofer bass unit with a dome tweeter. A casual observer could be easily forgiven for confusing these products, not to mention the often baffling pedigrees of their manufacturers. Indeed, throughout the 1980s, these Canadian loudspeaker brands have become *more* similar sonically, if not cosmetically. Part of this is because the companies have made use of an impressive body of loudspeaker knowledge developed by Dr. Floyd Toole, a physicist at the National Research Council (NRC) in Ottawa. Gordon Simmonds, president of PSB Speakers, calls Toole "the father of the Canadian speaker industry."

### FOUNDING FATHER

Toole got involved with the audio industry in the late Sixties, when the editor of a Canadian audio publication asked him to help establish standards for speaker testing. A few years later, PSB began using the NRC's facilities for the final phase of its design work. Other loudspeaker companies followed suit, including, recently, at least one American manufacturer (Snell).

The outstanding characteristic of Toole's work is his interest in correlating perceived loudspeaker performance with physical measurements. His conclusions are based on listening tests: He had scores of listeners rate various speakers, then tried to determine the physical character-



The Cirrus 260 (left) and Cirrus 180 loudspeakers from PSB use polyurethane baffles to damp cabinet vibrations.

American heritage. The company started in the 1970s as a distributor of Tangent speakers. When relations with that U.K. firm soured in 1979, it began building its own products, first under the Tangent name, later as Mirage. The first speakers had a distinctly British character, but Kevin Voecks—an American who today designs for Snell Acoustics of Haverhill, Massachusetts—worked for Mirage for several years in the early Eighties, and the current line still shows his influence.

**Paradigm.** Toronto-based Paradigm Electronics, Inc., was formed in 1982 by Jerry Vandermaarel, Martin Stec, and Scott Bagby. While studying philosophy at the University of Waterloo, Stec had taken some physics and engineering courses, including the psychoacoustics of musical instruments and the physics of audio. Initially, Stec was responsible for design at Paradigm, but after he left in 1985, Bagby took over. Paradigm has recently brought woofer and crossover fabrication





istics of the most-preferred models.

To institute fair listening tests for deciding just what those preferred models were, he first had to eliminate "nuisance variables" that would otherwise compromise the tests' validity. These included physical variables such as listening-room characteristics, loudspeaker and listener positions, relative and absolute program loudness, program material, imperfections in the source equipment, and problems peculiar to stereo listening. Psychological variables also had to be considered, including familiarity with the products under test, with the program material, with the room, and with the task at hand, as well as judgment ability, hearing acuity, relevant experience, and further problems related to stereo perception (possible conflicts between a speaker's perceived spatial and spectral performance).

### ROOM TO MANEUVER

To minimize physical variables, Toole designed a listening room that he thought would have acoustical properties typical of many domestic environments. Its dimensions (6.7 by 4.1 by 2.8 meters—22 by 13.5 by 9.2 feet) were chosen to give a good frequency distribution of room resonances. The floor was carpeted, the ceiling flat and bare, and the wall areas around the speakers were covered with drapes. The side walls between the speakers and the listeners were flat and reflective at audio frequencies. The Toole-designed room has formed the basis of the listening room recommended by the International Electrotechnical Commission (IEC) for subjective loudspeaker testing.

For monophonic, timbre-oriented listening evaluations, four speakers were tested at a time, mounted with mid- and high-frequency drivers at ear level behind an acoustically transparent screen. For stereophonic tests, four pairs of speakers were mounted on rotatable stands. The screen's purpose was to limit the effects of listener bias induced by the speakers' appearance or by a knowledge of their brand or construction. Gain of the power amplifier was adjusted to compensate for the varying sensitivities of the speakers under test. To prevent tests from being biased by the choice of program material, Toole used several short segments of recorded classical, jazz, and popular music. Switching among the speakers was fairly rapid, taking place every 5 to 15 seconds.

In four different series of tests, Toole asked listeners to rate several aspects of loudspeaker performance on a scale of zero to ten. The evaluations covered such characteristics as clarity and definition,

softness, fullness, brightness, spaciousness, presence, noise and distortion, and loudness. Listeners also had to rate the speakers for "fidelity" and "pleasantness." Through the four series of tests, 23 different front-radiating speakers of conventional design were auditioned by 42 subjects. Some of them were musicians, and all were involved with audio as a profession or hobby. Once responses were normalized for different listeners' scales, it was found that the preferences of one group were quite consistent, while another showed wide variations. As it turned out, the inconsistent group had hearing deficiencies below 1 kHz. Listeners in subsequent tests all had normal hearing and were consistent in their preferences.

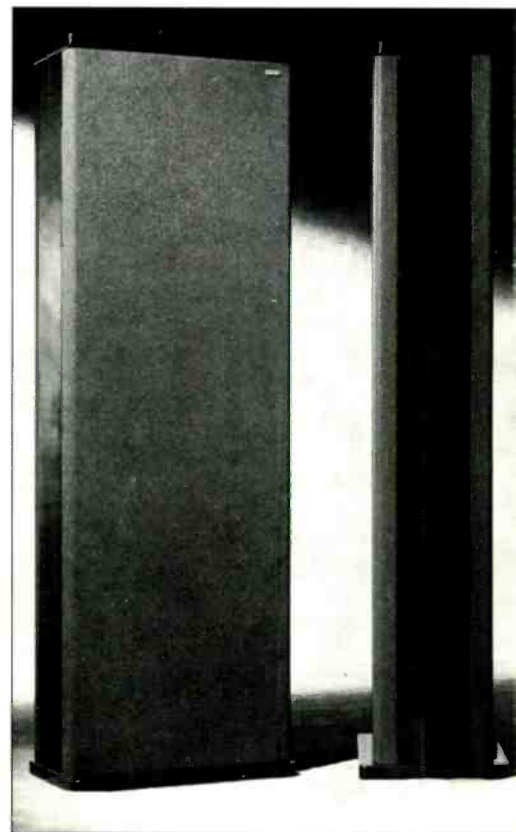
That a number of experienced subjects with normal hearing would prefer the same speakers is quite a significant result, since the popular notion had been that loudspeaker quality is a matter of individual taste. This belief wasn't just based on some listeners liking high-quality speakers and others preferring boom boxes: It had been thought that different listeners preferred different trade-offs in high fidelity speakers.

Having established that critical listeners usually preferred the same speakers, Toole set out to determine whether these high-ranking models had common physical characteristics. This was (and still is) a matter of some controversy. Some observers had maintained that a speaker's on-axis, free-field (anechoic) frequency response is the best indicator of its sound quality; others insisted that its power response in a reverberant sound field is more critical. Also in question were the audibility thresholds of nonlinear behavior (such as harmonic distortion) and the importance of time-domain anomalies (like diffraction or baffle-reflection effects).

After exhaustive measurements of the top 20 speakers—those receiving overall fidelity ratings ranging from 6.8 to 7.9—Toole concluded that "experienced listeners with normal hearing prefer loudspeakers with wide bandwidth, flat and smooth amplitude response, and uniformly wide dispersion." Although this is not exactly a surprise, it does go against other research, particularly some Japanese work on listener preferences. Toole calls his findings "a kind of reaffirmation of 'motherhood.'" Work at the NRC is proceeding on another project of equal importance and possibly greater long-term value (see "New Ideas from the North," p. 42).

Toole's conclusions have huge implications both for audio designers and equipment reviewers. As he comments in *Jour-*

*nal of the Audio Engineering Society*: "Given both the necessary amplitude response information and the additional data on the important linear and nonlinear distortions, a designer or reviewer should be in a position to recognize performance of the highest calibre with very little uncertainty. At more commonplace levels of performance, comprehensive data may help designers to achieve the compromises necessary to maximize listener ratings at a given [product's] price." He concludes that, "judging from many of the products evaluated in these tests, it is evident that some designers have been working with inadequate technical data of the most fundamental kind, and others have concentrat-



*Mirage—API's top brand—features the elegant MI bipolar speaker.*

ed on perfecting the wrong parameters."

The significance of this work has not been lost on Canadian loudspeaker companies like Angstrom, API, Axiom, Paradigm, and PSB. If the sonic characteristics of their products seem to have converged, through the 1980s, it's because all have applied Toole's findings to their designs. Moreover, all these companies now make extensive use of the NRC's facilities to fine-tune their engineering. Paradigm co-owner Jerry Vandermaarel says he



wouldn't have started a speaker company if it hadn't been for the NRC audio program: "Anyone who thinks he can come up with a design that rates with designs from other parts of the world without having access to a well-equipped facility is crazy."

As these Canadian speaker companies set their sights on world markets, they are

trying to construct distinctive, upmarket models with unique qualities while remaining true to their NRC roots. Indeed, distinctiveness is almost a commercial necessity. "Establishing a unique identity is the big job for a speaker company," says Stec of Angstrom. "You can buy an 8-inch two-way system under a dozen different labels, and the differences will be subtle."

## New Ideas From The North

Canada's National Research Council, a government-funded science and technology agency—for which there is no American equivalent—has been instrumental in the success of Canadian speaker companies. Now the NRC and a consortium of Canadian audio manufacturers are funding an effort that, they hope, will lead to a generation of "smart" loudspeakers: devices that will "measure" your listening room and "predistort" the speaker signals to compensate for the room's deleterious effects.

The NRC's Athena Project "will explore all avenues—active and passive—of reducing audible distortions in timbre and imaging caused by uncertain acoustics in the listening environment," explains NRC physicist Floyd Toole, who will head up the research. "There are a number of ways in which rooms affect sound. The solid angle the speaker sees [as determined by the nearby ceiling, floor, and walls] affects the way low bass is propagated. The position of the listener also affects low frequencies. Standing waves add to [that] position dependency. And broadband reflections interfere with [the] direct sound, modifying sound quality and [the] stereo illusion. All these problems," he believes, "can be alleviated by electronic or electro-acoustical means. The object is for more people more of the time to hear more of the sound intended for them." The research is relevant not just for home listeners but for recording control rooms, where a lack of standards for loudspeakers and the listening environment leads to recordings of widely varying quality.

Toole says the research will be "pre-competitive." The participants' aim "is not to develop products but to develop ideas. Our end product will be knowledge, not a product research prototype." Relevant work is already underway, but officially the project will begin

later this year or early in the next.

Ultimately, the research will lead to a "hierarchy of products" that use digital signal processing to solve room/speaker interactions. There will be simple products with manual adjustments to address the easy problems. More complex models will use adaptive digital signal processing to "interrogate" the listening environment, then accordingly modify the signal fed to the loudspeakers in order to reduce detrimental room effects. In essence, the speaker's ultimate output, as modified by the room, will actually come out right.

Altogether, the participants are putting up between \$1.5 and \$2 million (Canadian; approximately \$1.2 and \$1.7 million U.S.) for the project, which is expected to last three years. "We'll terminate the project when success is reached or failure is assured," Toole elaborates. But he's confident enough to predict that "some degree of success is assured." He expects products based on the research to be announced, if not offered for sale, within two years. Initially at least, they will be high-end products, "but," he insists, "rarely do you do something complex better where you can't do something simple better as well."

The Athena project isn't the only one of its kind. In early 1987, KEF, B&O, and the Technical University of Denmark announced the Archimedes Project, which has similar aims. With a \$4-million (U.S.) budget, it is more generously funded than the Canadian Athena project. But Toole hopes the NRC's experience and facilities will give Athena a head start. "From technical papers, it's clear that the Japanese have the technology to investigate this area," Toole continues. "But they're not being public about it. We're trying to be the first, instead of Johnny-come-lately." There are no known American projects in this field. G.B.

To this, Toole adds: "At first, the companies coming to the NRC just wanted to build good products. Now, having reached a point of maturity, they want to be good *and* different."

## NEW TECHNOLOGY

The task is perhaps the most difficult for API, since it has to separate eight of its own brands from each other. Some of these lines are made up of "high-efficiency" units for one-brand systems and the like, but others are directed primarily at audiophiles. API performs the differentiation by technology (Mirage, with its unusual \$4,000 M-1 dynamic bipolar speaker, being the Cadillac of the API lines). This is also occurring among Canadian manufacturers as they seek to create individual brand identities. The use of new or exotic materials is now as much a part of this process with Canadian manufacturers as it is with makers in other countries.

To avoid vibrations that plague conventional wooden baffles, PSB's Cirrus speakers employ a polyurethane front panel made using a process called "Reaction Injection Molding." The baffle is damped and ribbed internally to add strength and absorb vibrations, and the material used combines high strength and rigidity with rapid internal dissipation of vibration. This results in more open and transparent sound, says PSB. The side and back walls of Angstrom's Radix series enclosures are composed of an acrylic material that is formed, by an extrusion process, into a cellular honeycomb structure. The walls contain grooves for internal bracing members—which are arranged in non-harmonic relationships—and the resulting enclosure is said to be very strong and nonresonant. The bracing also forms a series of acoustic baffles to dissipate rear radiation from the drivers, while the honeycomb structure helps prevent internal resonances from being transmitted to the outside of the enclosure.

As you can see, Canada's speaker builders have come a long way from generic genuine-imitation-vinyl boxes. Ten years ago, only speakers for one-brand systems sold north of the border were made locally, and virtually all quality speakers available in Canada were imported. With the help of Floyd Toole's work at the NRC, Canadian speaker manufacturers have been able to forge a secure position in their home market and now are preparing to take on the world. □

*Gordon Brockhouse has been an editor of Canadian audio and computer industry trade publications.*



# What happens when a real hi-fi company and a real VCR company builds an A/V receiver.



AA-V435-B  
Remote Controlled  
A/V Receiver



If you would only buy audio from a *real* hi-fi company and video from a *real* video manufacturer, from whom do you buy audio/video? The company that builds both *high-end* audio and video. Akai.

Akai's AA-V435-B A/V Receiver is proof of what happens when audio and video are fully integrated. Its audiophile features include a "clean" 125 watts per channel; variable

loudness, external processor loop, motor-driven volume control, source direct and much more.

The AA-V435-B's extensive video capabilities include the widest assortment of audio/video inputs and outputs including S-VHS, front panel video, and video RF.

The true beauty of the sleek AA-V435-B is the way it

ties everything together. Featuring the most logical rear panel and internal switching designs, it takes full control of your audio/video system, even remotely with its universal remote (capable of "learning" up to 35 functions from almost any remote audio or video components).

Sight and sound are brought together to create a genuine theatrical experience via the AA-V435-B's Dolby® Surround Decoder, which even includes extra stereo amplifiers for two rear speakers.

The Akai AA-V435-B. Built for people who know that the very best in audio/video only happens when audio and video are treated as one.

\*Continuous average power output, both channels driven into 8 ohms, from 20 Hz to 20 kHz at no more than 0.05% THD. Dolby is a trademark of Dolby Laboratories Licensing Corporation.

## AKAI

Where audio and video are one.

# Clearing the Picture

**J**ust a few years ago, the number of TV sets whose performance rose above mass-market mediocrity could be counted on one hand—with enough fingers left over to operate a remote control with ease. In contrast, manufacturers are today falling over each other to introduce new sets that not only promise high performance but, in most cases, actually deliver it. For videophiles questing after a better picture, this is indeed a welcome, if somewhat dizzying, turn of events.

What caused this sudden concern for picture quality? Partly it had to be your demand for sets that take fuller advantage of the incoming TV or video signal. Without that demand, few manufacturers would risk producing such a product. The emergence of better technology, including digital signal processing, has also been a factor. Last, because TV sets have long been a commodity item sold mainly on the basis of price, manufacturers have found them relatively unprofitable. The new high-performance sets, going for higher prices and bringing in higher profits, would remedy this situation.

These new sets—all of which are monitor/receivers—strive to give you excellent picture quality. Such quality does not derive from any single, magic engineering accomplishment. It is achieved through a number of technical details, each adding a small but definite contribution to picture performance. Since none of these details comes free of charge, you'll have to be willing to pay more to enjoy their benefits. But that doesn't mean you should buy a high-priced monitor/receiver on blind faith, any more than you would buy an audio

component that way. This article will point out those techniques that bring *actual* improvement in picture quality.

First, some words of caution from the computer world: Garbage in—garbage out. Where they can, video engineers design sets to cope with less-than-ideal incoming signals. But there are limits. You'll get the best results with high-quality signal sources such as videodisc (including CD-V), ED Beta, Super VHS, or satellite broadcasts. Regular terrestrial broadcast signals can also be excellent, providing you are receiving a strong signal from an outdoor antenna and don't experience excessive ghosting from multipath. That leaves cable systems, upon which more than half of us now depend for our primary TV viewing. There is no technical reason why cable picture quality should be anything but excellent, and in some cases it is. However, cable pictures that look as if they were filtered through the water of a polluted river are distressingly common. Not even the finest high-performance *studio* monitor can restore clarity to such inadequate signals.

## **IDTV: Closer to Reality**

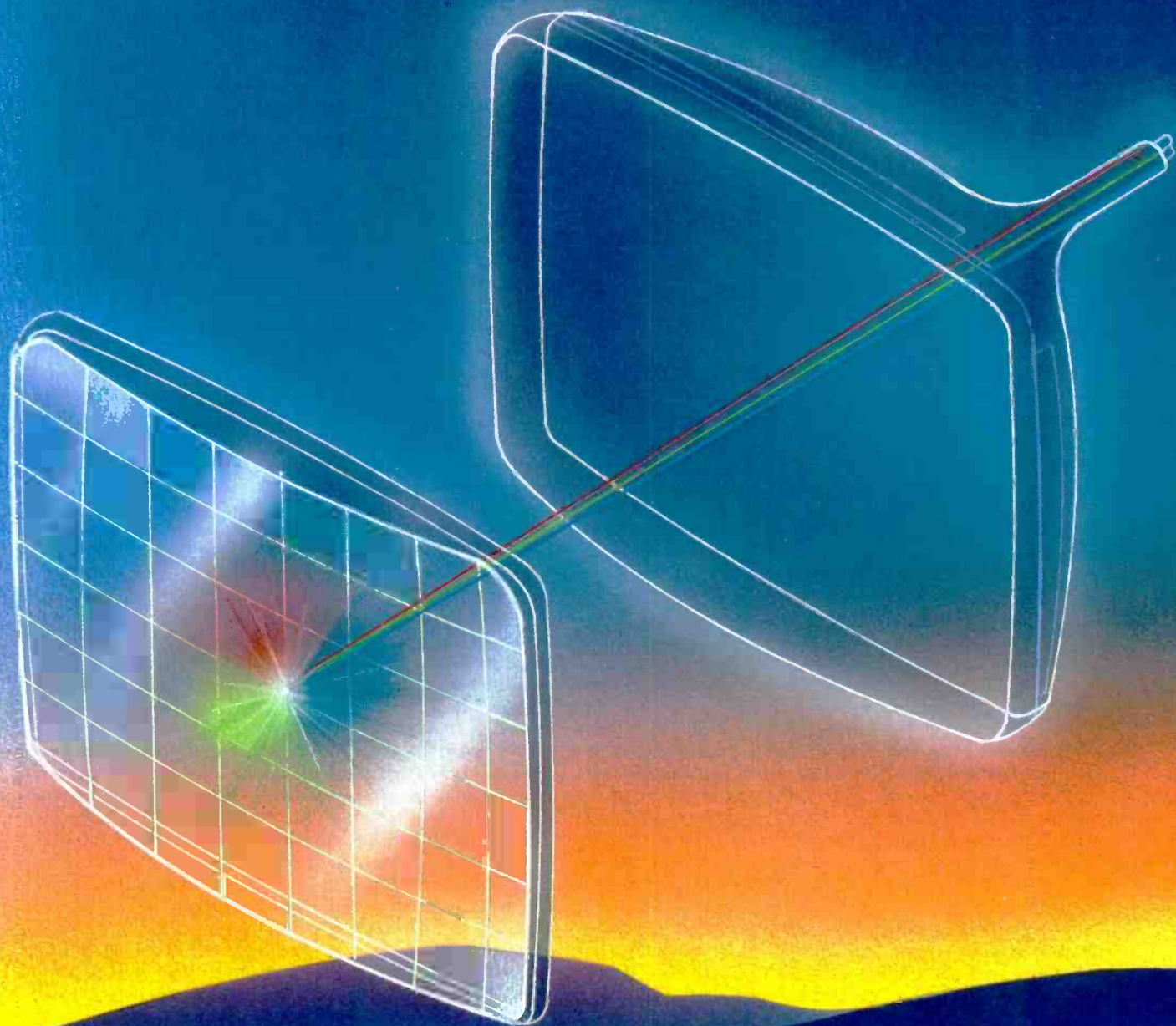
The ideal TV screen should act as a perfectly transparent window, reproducing a movie or other program without introducing distortions of its own. As in a good movie theater, the picture should be so realistic that we can immerse ourselves in the action and forget that we are actually watching a highly artificial representation. One of the problems with watching normal TV, however, is that we are excruciatingly aware that . . . we are watching





**A critical guide to the explosive  
proliferation of high-performance TV sets.**

**BY CARLETON SARVER**





## Clearing the Picture

TV. For one thing, hundreds of horizontal scan lines make up the TV picture, intruding upon the view like so many tiny venetian blinds. Then there are the dots crawling along vertical and diagonal edges of color images, suggesting ants on their way to a picnic. Further, there are the horizontal edges that flash on and off, faster than any neon sign. In short, hardly the stuff of which reality is made.

IDTV—improved-definition television—attacks all these problems. This new, digitally based technology essentially eliminates the visibility of a video image's scan lines by tracing them twice as fast as in a conventional set. Crawling dots are made less objectionable. Flashing lines are subdued. With these distracting "artifacts" removed, or at least reduced, the

IDTV picture moves a step closer to the reality of the original scene. In fact, you may find that the experience of viewing good program material on an IDTV set is surprisingly close to that of seeing a movie in a theater. (For more on IDTV, see "A Progressive Viewpoint," below.)

The marketing of IDTV sets has been led by Philips and Toshiba. Philips offers its version of IDTV in two units, a 27-inch table model and a 31-inch console. According to Philips, *vertical* picture resolution is increased to as much as 450 lines when reproducing resolution test charts, as opposed to a maximum of about 330 lines obtainable with a conventional set. Philips also uses the digital memory, needed to create the extra scan lines, to reduce picture noise. Toshiba's equally im-

pressive IDTV entry is a 28-inch model, the CZ-2898. This advanced set is definitely not to be confused with the company's earlier CZ-2697, a brave effort to introduce progressive scan before the technology was fully perfected. Since additional manufacturers are developing IDTV sets, your choice of brands should be substantially wider within a few months. IDTV will be particularly effective with large screens, both direct-view and projection, on which an ordinary picture's scan lines are now painfully obvious.

### Resolution Revisited

My December 1987 article, "Across the Lines," discussed the new emphasis on greater picture resolution. In it, I noted that one emerging technique—velocity-

## A Progressive Viewpoint

IDTV (improved-definition television) technology employs digital signal processing in a TV set or monitor to produce the best possible picture from a standard NTSC video signal. NTSC stands for National Television System Committee and for the color television system it standardized in 1953, which is now used for all broadcast, videodisc, and videocassette programming in the United States.

IDTV should not be confused with HDTV (high-definition television), a system meant to offer picture quality comparable to that of a 35mm movie. Actual HDTV broadcasts still appear to be, as some industry pundits have put it, "always ten years in the future." Meanwhile, EDTV (enhanced-definition television), which requires some changes to the basic NTSC signal, has been proposed. EDTV may become a first step toward an NTSC-compatible HDTV system. Still confused? Don't worry, so are the TV and video industries: All told, there are perhaps 15 different systems competing for government approval or industry-wide acceptance.

The major advantage of IDTV is that it's actually here, with sets available for purchase now, while EDTV and HDTV are but scan lines in the sky. Though each manufacturer may implement IDTV in a somewhat different way, there are several common principles:

**Progressive scanning.** Instead of conventional interlaced scanning that displays 525 scan lines every  $\frac{1}{60}$  second (one set of 262.5 every  $\frac{1}{60}$  second), IDTV units use progressive scanning in which 525 scan lines are traced every  $\frac{1}{60}$  second. Note that the total number of scan lines making up the picture is *not* increased—they are simply formed on the screen twice as often. Beware of erroneous statements claiming 1,050 scan lines for IDTV.

Progressive scanning virtually eliminates the visibility of the TV picture's scan-line structure. In turn, this eliminates the occasional visual illusion that the lines are crawling. It also reduces the flickering of lines that happen to form horizontal edges of an object.

Since the incoming NTSC signal is still interlaced (the original camera having used interlaced scanning of the scene), you should not ignore the fact that the IDTV scanning tech-

nique, however effective, is actually *pseudoprogressive* scan. *True* progressive scan would begin with a progressively scanned *camera* signal—a technique suggested for future EDTV and HDTV systems.

**Interfield, motion-adaptive line interpolation.** To create the extra, "in-between" lines needed for progressive scan, IDTV sets compare lines from one TV field (which contains 262.5 lines) with adjacent ones from the next field, which follows  $\frac{1}{60}$  second later (two fields make one complete TV frame). Digital circuitry—calling upon a field memory—then interpolates a new scanning line (see figure).

Just one problem with this scheme: Since there's a substantial time difference between the two fields, the image will tend to blur whenever there is motion in the picture. IDTV, however, senses motion and instantly reverts to a simpler scheme for creating the new line when necessary. It merely repeats picture information from the preceding line, which is separated in time by a negligible 63.5 microseconds. This "line doubling" technique produces a cruder, less detailed result. Luckily, our eyes cannot discern as much detail in moving scenes as in fixed ones, so line doubling is not too objectionable visually in such situations.

**Field comb filtering.** The basic comb filter was introduced several years ago to better extract chroma and luminance information from a composite video signal. Compared to the previous, primitive "notch filter," it both improved horizontal resolution and largely removed unwanted, shimmering "cross-color" effects from the picture.

Conventional comb filters can be considered "line comb filters," since they use information on adjacent scan lines to separate chroma and luminance. Unfortunately, they have a down side. They introduce "hanging dots," so named because these dots appear to be hanging from horizontal lines. They also cause "crawling dots," a phenomenon that is often obvious, especially along the edges of colored lettering and other picture graphics.

IDTV takes advantage of the field memory storage needed for interfield progressive scan to implement a "field comb fil-



## Clearing the Picture

scan modulation—is effective in maintaining fine picture detail. It reduces smearing on transitions between white and black, making movie credits and the like easier to read. At the time, the technique was used only by Sony—which pioneered it—and Mitsubishi. Exemplifying the rapid expansion of high-performance TV sets, velocity-scan modulation has now been adopted by quite a few manufacturers, at least in certain models. A partial list, with screen sizes given in inches, includes: Hitachi (31), Mitsubishi (35, 31, and some 26), Panasonic Prism (31, 27), Philips (all projection sets), Proton (27), RCA (31), Sharp (Optonica series), Sony (32, XBR Pro), and Tera (27).

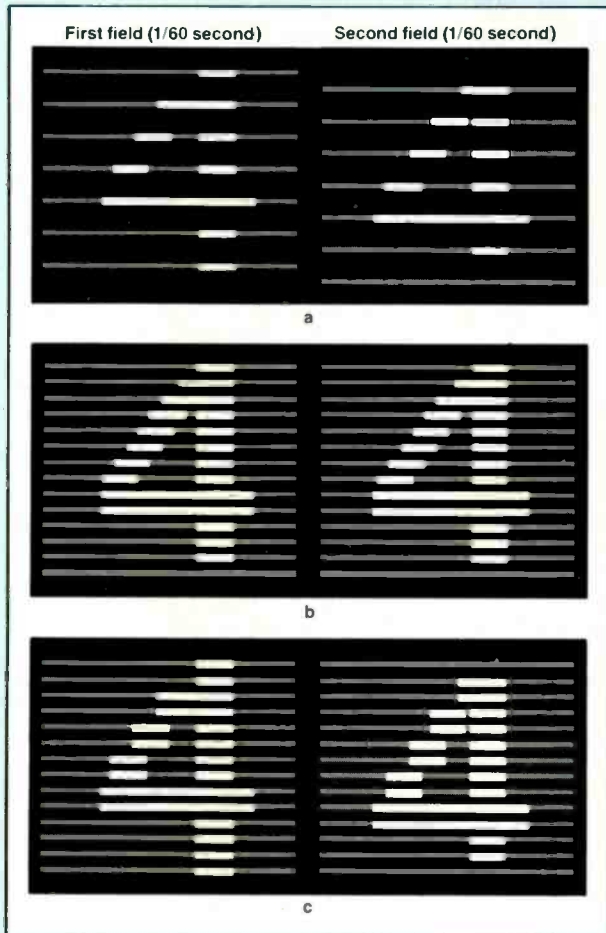
In its projection sets, Mitsubishi does not use velocity-scan modulation. Instead,

it has developed an equivalent CCD (charge-coupled device) circuit that it calls “ID.” The circuit, according to the company, maintains the advantages of velocity-scan modulation for vertical edges, while adding the same enhancement to horizontal ones. This, in turn, raises an incidental but instructive point: A successful *result* in picture quality is more important than the precise technical means by which it is achieved.

Another desirable characteristic of any monitor aspiring to that name is the production of a uniform image that is sharply focused right out to the corners of the screen. In the past, uniform focus did not come easily, primarily because picture tubes were designed mainly for low cost, not high quality. In such tubes, if the elec-

tron beam were properly focused at the center of the screen, it would be out of focus toward the sides and corners. In most sets, the problem was simply ignored. In some, it still is.

To make the picture uniformly sharp, many conscientious manufacturers have adopted “dynamic focusing.” This technique constantly alters the focus of the picture tube’s electron beams, according to where the beams are positioned on the screen at any moment. Requiring extra electronic components, dynamic focusing is now used in the high-performance projection sets of virtually all manufacturers. Because it has become the norm for these sets, I won’t list the many models that offer it. But if the picture on a set is sharp out to the corners, you can be reasonably cer-



In comparison with conventional interlaced pictures (top), IDTV doubles the number of scan lines seen every  $\frac{1}{60}$  second (middle) by means of interfield line interpolation. In scenes with motion, IDTV sets use line doubling (bottom) to reduce blurring.

ter.” Because it has much more picture information to work with, this filter is far more effective than a simple line comb filter in separating chroma and luminance, and it minimizes cross-interference effects to a greater degree. The field comb filter also dramatically reduces the annoyance of both hanging and crawling dots. But a minor trade-off is involved: Resolution along *diagonal* axes of the picture is somewhat reduced.

Apparently because IDTV sets trace out scan lines at twice the normal rate, the increased “information density” lets our eyes resolve an increased amount of vertical detail—for as much as 450 lines of vertical resolution, compared with the 330 previously possible. IDTV’s digital signal processing deliberately limits maximum horizontal resolution, typically to 480 lines (in the Philips system). This creates an elegant, almost symmetrical match with the maximum vertical resolution. But it may also lead to negative comparisons with non-IDTV sets that claim greater horizontal resolution (560 lines being a popular figure). Simply be advised that such ratings are not only dubiously derived, but would be of no added value even if true!

If a manufacturer chooses, the IDTV field memory can also be used to implement a reduction in picture noise. Just a few years ago, similar motion-adaptive noise reduction was available only to television broadcasters because of the extremely high cost of the large amounts of digital memory required. IDTV has been made possible by the lower cost of today’s large-scale memory chips and by the development of chips customized for video functions. Eventually, IDTV sets may also incorporate circuitry to cancel picture ghosts, but, like HDTV, ghost busting has for a long time always seemed just a few years in the future. Don’t hold your breath.

All in all, IDTV is an exciting landmark in the development of television technology. Yet, I must note that all IDTV systems currently known—even those still under development—decode color information in a suboptimal manner. Color detail, at best, is fair, with about only 48 lines of horizontal resolution. On the other hand, proper decoding could yield the entire NTSC color-resolution maximum of 120 lines (finer details are carried by the luminance signal alone). Now, that would be improved definition!

C.S.

## Clearing the Picture

tain that it makes use of dynamic focusing.

Because of its cost, dynamic focusing has rarely been used in direct-view sets, even though the new, larger, direct-view screen sizes especially demand sharp, uniform picture detail. To provide some measure of improved edge and corner sharpness, most tube manufacturers are moving to new, more complex electron guns. Mitsubishi's 35-inch tube is a leading example. When the electron beams of this tube are aimed at the center of the screen, they have a round cross-section and produce a small, round image-forming spot. As they sweep toward the edges of the screen, the beams change increasingly to elliptical cross-sections. But the changing angle between the beam and the screen maintains a small, relatively round spot on the screen—for good corner and edge sharpness. Other tube manufacturers use their own, somewhat similar techniques.

The elliptical-spot method does not, in itself, guarantee sharp focus. The number and quality of beam-focusing lenses is also a factor. Cheap direct-view tubes usually have but one such lens, which, by the way, is a precisely formed metal tube through which the electron beams pass. By adding more lenses, a sharper spot can be obtained, much as a fine 35mm camera lens with multiple glass-lens elements produces a sharper picture than a simple camera with a single-element lens. Toshiba's 30-inch tube, for example, is engineered with six separate lenses (Fig. 1). Since each lens must be driven with a different voltage, it becomes easy to see why such tubes are reserved for high-performance sets. Hitachi also has multiple lenses in its 27- and 31-inch tubes, as does Mitsubishi in its 31- and 35-inch units. Tubes from these three manufacturers are also used in the high-performance sets of several other companies. (I've noted the screen sizes of these high-quality tubes for a good reason. A prevalent practice among some manufacturers is to use tubes of poorer quality in their lower-priced sets, especially 20- and 26-inch models. This is particularly true of sets assembled in the United States, regardless of brand.)

A truly high-performance TV set also should display a picture without introducing noticeable geometric distortion (see Fig. 2). Ideally, each point in the reproduced picture should be in the same position as it was in the original. A circle should look like a circle—the Wheel of Fortune shouldn't become the Oval of Fortune. But partly because the electron beams tend to resist suggestions that they travel across the screen at a perfectly constant speed, excellent geometry remains a difficult engineering challenge. Even in to-

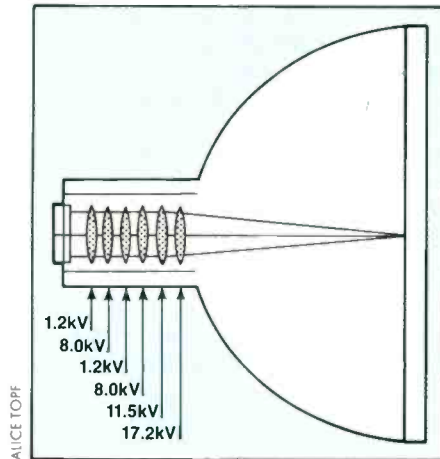


Fig. 1. Toshiba's 30-inch tube uses six lenses—each with a separate operating voltage—to better focus the image-forming electron beams.

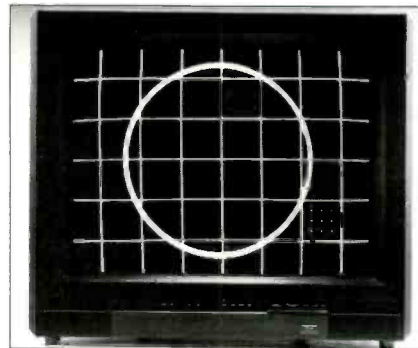


Fig. 2. The picture geometry of a set can be tested with a special crosshatch pattern, shown here on a 27-inch Proton screen.

day's best sets, residual distortion in the vertical direction can usually be discerned when credits roll at the end of a program or movie; the letters squeeze and un-squeeze vertically as they move. The larger the screen, the more you may notice it.

### Getting All the Picture?

Most TVs and monitors on the market crop 15 percent or more of the available image off the top, bottom, and sides. The amount of the picture lost is termed "overscan." A slight amount of overscan—no more than 5 percent—is desirable in order to hide unwanted signal components that are not meant to be seen (such as closed-caption signals or VCR head-switching glitches). But excessive overscan steals a sizable part of the picture and results in a coarser picture overall.

Why is excessive overscan so common? It is used to paper over the effects of poor voltage regulation inside the set itself that cause the picture to shrink when a scene is dark and expand (bloom) when a scene is bright. By deliberately introducing a large amount of overscan, the manufacturer

keeps you from seeing the edges of the picture shrinking and expanding, thus reducing the visibility of the distortion. Extremely poor voltage regulation can also cause vertical lines in the picture to bend. Generous overscan also permits manufacturers to omit internal adjustments for picture width, as well as horizontal and vertical picture centering.

Contrary to widespread misinformation, fluctuations in the incoming line voltage are not a significant factor in causing these changes in picture size. Such fluctuations are easily regulated, except perhaps in some extremely inexpensive sets. Instead, picture shrinking and blooming is caused by unwanted fluctuations in the 30 kilovolts or so of high voltage that propel the electron beams to the screen. In a set with careful engineering, like NAD's new 45-inch rear-projection model, the high voltage is regulated to a tight 0.3 percent. On the other hand, many sets, including some otherwise quite capable performers, do not bother regulating the high voltage at all. Large manufacturers have typically been the worst offenders in this regard, but there are at least a few who do regulate high voltage, thus keeping overscan under 10 percent. Among these are Fisher in its new Professional Digital Reference series, Hitachi in its HPX (projection) models, and Sharp in its new Optonica line.

The sets of two manufacturers—Proton and Tera—are engineered for a remarkably small 5-percent overscan. Proton, moreover, aims for 4 percent and considers 5 percent a worst case. The company achieves this desirable state of affairs by using separate regulated power supplies for each of several different chassis functions, so that a voltage change in one will not affect others. Proton also sets a good example with "old-fashioned" but critical internal controls for factory adjustment of picture width, height, and horizontal and vertical centering.

Both Proton and Tera are relatively small companies attempting to build TV sets that deliver the highest possible picture quality. Because they incorporate circuitry that other manufacturers often simply omit, their sets understandably cost more to produce. They are among the handful of small companies that actually design and manufacture their own sets (it's a common practice for some companies to have their TV sets "sourced" by larger manufacturers). Proton and Tera depend on outside suppliers only for their picture tubes. (As a matter of form, manufacturers don't like to reveal their suppliers, but be assured that both Proton and Tera have chosen their picture tubes with



## Clearing the Picture

commendable wisdom.) Tera, which may be a name that is new to you, was established by a former executive of Proton, and both companies are based in Taiwan. This may help explain the similarities in their product philosophy.

### Fading Colors

Tera may be the only manufacturer to offer a TV set in the United States with a special circuit called CTI (for color-transient improvement). The circuit eliminates the blurring between different colors that has resulted from an industry-wide reduction in chroma bandwidth in today's TV set designs. CTI does a highly effective job in restoring sharp transitions between different colors: The vivid patterns in Bill Cosby's sweaters are reproduced with pinpoint clarity. CTI cannot, however, restore fine color detail lost because of the industry's unwillingness to reproduce the full NTSC-standard chroma bandwidth.

I commented on this distressing loss of color detail in an earlier article ("True Colors," March 1987). At the time, only one manufacturer—RCA—properly decoded the color portion of the TV signal to achieve full color detail. Alas, RCA sets no longer offer full-resolution color decoding. However, Mitsubishi sets, along with some NEC models, at least display color detail that is distinctly better than average.

In the earlier article, I also observed that no set came close to displaying the full gamut of colors potentially contained in a video signal. Some manufacturers—notably Mitsubishi, with its original Diamond Vision units—did better than others, but,

in general, reds were especially deficient, tending to come out a dull reddish-orange. Greens and blue-greens were only fair on most direct-view sets, and downright anemic with American-made picture tubes.

Unfortunately, the current high-performance trend seems to have bypassed color quality. If anything, color performance is now in a more dismal state than it was scarcely a year ago. For example, because not enough consumers appreciated its original Diamond Vision concept to make its continuation practical (it required special picture-tube glass, among other things), Mitsubishi has deleted it from new sets, although you may still be able to find the earlier Diamond Vision sets in some stores. Providing they were assembled in *Japan*—not in this country, with U.S. tubes—these sets deliver the largest color gamut of any recent direct-view sets, and have strikingly impressive reds. (Mitsubishi's newer Diamond Vision II models offer other advantages, such as the dynamic spot-forming technique mentioned earlier—but no longer an expanded color gamut.)

The loss of an enlarged color gamut in direct-view sets is tempered somewhat by the fact that many projection sets continue to provide superior greens and blue-greens. Philips has gone a step further by developing its innovative "IARC" tubes for its new rear-projection sets. The light-emitting phosphors of these tubes are filtered to delete unwanted wavelengths, and the happy result is a color gamut that, in some respects, has been expanded—at least compared to those of some other pro-

jection sets. Blues are significantly improved, reds slightly. Ironically, this same filtering principle was behind Mitsubishi's now-discontinued original Diamond Vision. If Philips decides to apply this principle to better red and green phosphors, a color TV picture with absolutely stunning reds, deep greens, and blue-greens could be available in the future. There hasn't been such a set on the market since the 1950s.

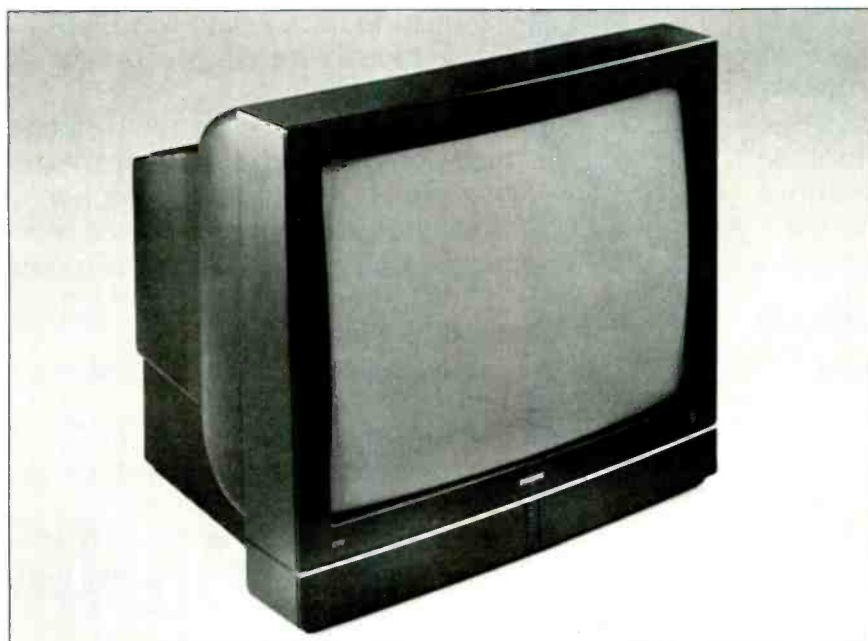
### Not-So-Fine Tuning

The ability to fine-tune a television signal often can help reduce the picture-interference patterns encountered on some cable channels. Manual fine-tuning also enables you to obtain a sharper picture than do the automatic fine-tuning (AFT) systems used in most sets. There's a reason for this: Manufacturers could easily set the AFT in their TV sets to give a perfectly sharp picture, but any high-frequency picture noise in the signal would become visible on the screen and be annoying to some viewers. Instead, manufacturers usually offset the AFT for a slightly blurrier, but "quieter," picture, which uncritical viewers invariably prefer. (Before you berate the manufacturers who make the latter choice, think about which setting you would choose if you were in their place.)

It seems axiomatic that manual fine-tuning belongs on every TV receiver that aspires to high performance. Nevertheless, of all the brands of high-performance monitors I know, only two, Proton and Tera, incorporate manual fine-tuning in addition to AFT. When it comes to advanced fine-tuning methods, we can learn from the Europeans. It's common practice in Europe not only to provide manual fine-tuning, but also to place it conveniently on the remote control. Further, many sets allow the viewer to enter the optimum fine-tune setting into the set's memory—separately for each channel!

Although the TV industry may have a way to go on fine-tuning, it has done a remarkable job of upgrading overall picture quality in a number of useful ways. And all this has been accomplished in a very short time through both innovative technology and painstaking engineering. Let's just hope that this increased concern with high performance will also be applied to a long-overdue improvement in color quality. And this could actually occur, especially if you continue to tell TV manufacturers what you want—and support those who respond accordingly. □

*Carleton Sarver is a video consultant who has been waiting 34 years for color television to be perfected.*



First IDTV model from Philips is the 27-inch 27-J245SB

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# ULTRAVIDEO

## LIVING IN A VIDEO WORLD

It boggles the mind to think of the many ways the VCR has affected our society and, indeed, the world. And yet this ingenious product has often been regarded as merely a prized accessory to the old-fashioned and familiar TV set. That is now changing—and fast. The new word is “video,” and it describes an exciting world of high-tech products that includes not only Hi-Fi VCRs but also camcorders, CD-V players, and even surround-sound processors.

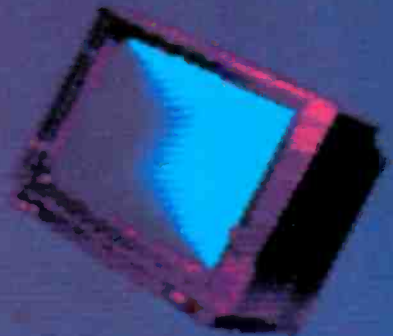
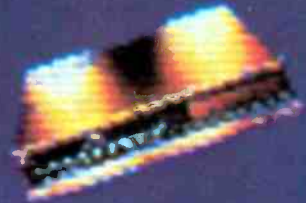
Set free from the strictures of broadcast television, video is reaching for the stars. New higher-resolution VCR formats—Super VHS, ED Beta, and (soon) High-Band 8mm—are just part of video’s newfound vitality. Camcorders sport sophisticated features such as high-speed shutters and character generators. And new home video production devices are bringing unprecedented editing capabilities to the video hobbyist.

Our old friend the TV set has joined in the celebration, too. Large-screen direct-view sets and projection models offer bigger and better pictures—making good on the concept of a “home theater.” And the latest development, IDTV (improved-definition television), is a first step toward a future that promises TV pictures of astounding clarity and movie-screen shape.

We begin our exploration of this new world of UltraVideo with revealing looks at Super VHS, camcorders, video editing devices, and the latest software: CD Video.

*Christopher J. Esse*

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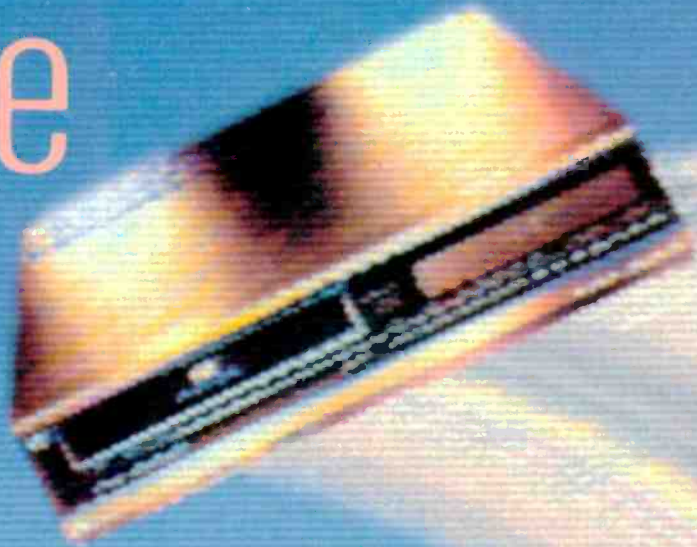


MINOLTA





# Inside Super VHS



***Faster than a speeding Laserdisc... more powerful than 8mm...  
able to leap over Super Beta in a single bound...***

**T**hat was the original idea behind Super VHS—which has been touted as one of the most exciting advancements in home video technology since the VCR itself. Indeed, there has been so much ballyhooing for this new version of the VHS video format that one almost expects to see VCRs festooned with red capes in the video stores. Super VHS (a.k.a. S-VHS) is intended as a revolutionary step to vanquish all competing home video formats and to breathe new life into VHS for the 1990s. But whether it will ultimately prevail is anyone's guess.

When VHS recorders first appeared on the market, more than a decade ago, die-hard video buffs were quick to notice a big difference in the sharpness of off-air pictures compared to the tape playback. Back then, horizontal resolution of a VCR typically was pegged at about 240 lines, based on the frequency at which video response was down 14 dB. A more honest spec would have been about 160 lines of true, flat resolution to an upper limit of about 2 MHz, or about half the capability of the NTSC broadcast television system. Beta and VHS were judged about equal in picture quality, though many videophiles still

give a slight edge to Beta, owing to small differences in signal processing. (Horizontal resolution, expressed in lines, is calculated by multiplying the upper limit of a VCR's frequency response in megahertz by 80. HIGH FIDELITY considers the upper limit as the point at which response is down 6 dB. The -14-dB criterion is an industry guideline dismissed by most reviewers as far too generous.)

It took Sony's Super Beta breakthrough in 1985 to really light a fire under the VHS camp. Super Beta has two components. First, it extends the video frequency response—which improves resolution by about 20 percent. Second, Sony increases the system's video dynamic range, which theoretically improves grayscale rendition (accuracy of b&w shades). The end result is a subtle, but noticeable, improvement in sharpness and image "definition."

JVC, Sony's arch-rival in this war of technology, was quick to fire back its own improvement: VHS HQ, a "High Quality" video processing technique that refines the existing video circuits to help reduce graininess, while increasing the video brightness range to further improve the signal-to-noise (S/N) ratio. The result was a very subtle improvement similar to, but

not as spectacular as, Super Beta.

But JVC knew that the only way to try to vanquish its foe once and for all was to adopt a radically new VHS format that dropped all ties to total compatibility. Enter Super VHS, a very sophisticated system that arguably produces better pictures than even the professional U-Matic 1/4-inch VCR system. The secrets behind S-VHS aren't all that complicated. First, S-VHS handles video frequencies roughly 50 percent higher than before, and this translates into better resolution. S-VHS's video processing is modified, too, to take advantage of the additional bandwidth.

The design of the new heads and circuits for S-VHS machines created one potential drawback: If ordinary, run-of-the-mill videotape were used with S-VHS, the recordings would look very noisy and grungy compared with regular VHS. Even worse, the narrower head gaps of S-VHS demanded smaller tape particles and a smoother tape surface to ward off the specter of dropouts. That led to the creation of a new S-VHS videotape, which boasted practically the highest-output, lowest-noise oxide money could buy.

Despite all these internal changes in heads and circuitry, S-VHS recorders still maintain some "downward" compatibil-





ity with existing VHS and VHS HQ recorders. S-VHS decks can play any VHS recording made on another machine, and they can also *make* normal VHS recordings that will play on the regular decks. Of course, if you try to play an S-VHS tape on an ordinary VHS machine, the picture is an ugly, smeary mess; it's virtually unwatchable. On the plus side, blank S-VHS tapes can be used to make regular VHS recordings as well, and yield superb performance.

JVC, which maintains a tight reign over the standards for VHS and S-VHS, reportedly has advised its licensees not to include the LP recording speed in S-VHS machines. Happily, all S-VHS machines can play back standard LP tapes, though sometimes with only limited special effects.

### Y/C or Not Y/C?

... That is the question. When a video signal is processed inside a VCR, the picture information is split up into separate "Y" and "C" components—Y referring to luminance (or, simply, b&w) and C to chrominance (or color). In S-VHS VCRs, this separation is maintained with precision Faroudja comb filters—which helps reduce moiré patterns and rolling dots on sharp edges, caused by color information contaminating the b&w details, and vice versa. In addition, you can connect an S-

VHS deck directly to a special monitor equipped with a Y/C multipin socket, also known as an "S" jack (S standing for separated), which keeps the color and luminance apart instead of combining them into a single composite video signal. When playing tapes made from "pure" (noncomposite-video) sources such as camcorders, the above artifacts are practically eliminated. However, once the signal has been NTSC-encoded—that is, received from an over-the-air TV transmitter, cable channel, satellite system, or from a prerecorded tape or disc—most of these benefits are lost. Nevertheless, some users report a small but visible improvement when using Y/C connections all the time, and it's worth getting if you can afford it.

But do you *really* need a TV set with an S-connector to see great pictures from Super VHS? Absolutely not. Keep in mind, despite what you may have read elsewhere, that you can get the full dose of extra resolution from S-VHS by simply using the composite video input on a standard TV monitor. In my own informal tests, there was a gigantic difference even using the antenna input on a five-year-old 12-inch color portable TV, when compared to ordinary Beta and VHS recordings of the same program. The differences are even bigger on a larger, state-of-the-art TV screen. Of course, the improvement in quality may or may not be worth the extra

money to you, depending on your priorities. S-VHS machines aren't cheap at this early stage, selling at roughly \$200 to \$500 more than comparably featured VHS decks, and the going price for special S-VHS blanks is roughly 50 percent higher than that of even the best high-grade VHS tapes.

### Hype and Hoopla

Initially, the promoters of Super VHS touted the new format as being "better than broadcast television," and one company even went so far as to compare its performance to that of a professional-broadcast 1-inch videotape recorder costing nearly \$100,000! Technically speaking, this enthusiasm isn't justified. If Super VHS were truly superior to broadcast TV, there would be no difference between S-VHS recordings and the best over-the-air reception. Yet in every such comparison I've made, the differences were not subtle. My assembled viewing panel had no problem picking out the taped ringer—every time.

The reasons are simple. While Super VHS's basic resolution is very good, it's not quite up to the flat response of a very good broadcast signal, nor is it as good as a typical Laserdisc or direct-broadcast satellite signal. The biggest tip-off is in the *color* quality of S-VHS. Since Super VHS uses the same technique to record color as that of regular VHS, the color fidelity is no better than you might see in any conventional VCR. Also, the added resolution of S-VHS tends to make the picture seem noisier and grainier than that of conventional VCRs, particularly in scenes with expanses of rich colors. But the latest generation of S-VHS decks include new circuits designed to minimize this problem.

Another often-touted claim by several manufacturers is that the performance of their S-VHS machines is so good that the picture quality in the EP mode is superior to the performance of regular VHS decks at SP. While the bare video-response spec alone is typically, in fact, superior with S-VHS, in virtually all other respects EP performance is not equal to that of regular VHS at SP (in all the casual tests I've tried). Slow-speed S-VHS pictures are much noisier and have a definite "cartoonish" look. At least one manufacturer has claimed that its machine's S-VHS EP performance is identical to its S-VHS SP, which similarly appears to be a bit of an exaggeration. Nonetheless, S-VHS EP is quite a bit more appealing for time-shifting and delayed viewing than is regular VHS at that speed.

Another potential drawback to the fledgling format is software—or the lack

## Whither Regular VHS?

The clock is ticking for regular VHS, which at the tender age of 12 years has grown a bit long in the tooth. In fact, it's getting increasingly difficult these days just to find a high-end VCR that *isn't* of Super VHS vintage.

Much of the reason boils down to basic economics. An investment of \$200–\$350 will buy you a no-frills VHS recorder with a basic timer to tape shows for delayed viewing. Add about \$50–\$100 each for features like extra video heads to optimize SP and EP performance and provide special-effects playback, Hi-Fi stereo sound, and an MTS tuner for stereo TV shows. And another C-note or two buys a few more bells and whistles, such as digital special effects (picture-in-picture, multi-screen channel scanning, and so on), and integrated audio-video remote controls. Soon you've crossed over into the Super VHS price range, which runs from under a grand for basic, albeit well-equipped, models and moves beyond \$2,000 for the most deluxe ma-

chines, like Sharp's semi-pro XA-2500.

So the question that inevitably arises is: Should I buy a regular VHS deck or go all the way with Super VHS? A lot depends on how much performance you demand from your system. Just as diehard audiophiles won't hesitate to fork over unseemly sums for champion-class turntables and gray-market DAT recorders, so will videophiles happily shell out thousands of clams for high-tech VCRs and related gear. If good video quality is important to you, and you can afford the extra expense of S-VHS blank tapes, Super VHS is the only way to go.

All the same, for casual viewing from high-quality off-air sources, regular VHS (or Beta, for that matter) is just fine for all except the most dedicated video fanatics. Just as there are applications where only your Nakamichi audio deck is good enough, there also are times when a plain-Jane Walkman can provide great entertainment. The same goes for video. *M.F.W.*



of it. There are only a few Super VHS pre-recorded tapes available so far (no feature films), but several dozen titles were recently released by JVC in Japan and it's predicted that the Hollywood studios may jump on the S-VHS bandwagon before the year is out. For now, some videophiles are happily making S-VHS recordings directly from pay-TV satellite transmissions, creating their own software libraries arguably superior in video quality to all but the best laser videodiscs.

Is there a bright future for S-VHS?

Soon after JVC's announcement last year, Sony rushed out its very expensive ED (Extended Definition) Beta format, which uses a metal-particle tape formulation and improved signal processing to out-super Super VHS. My own informal tests show ED-Beta to marginally outperform S-VHS in a few areas, but for all practical purposes they are virtually identical. Beta's declining popularity will probably limit ED Beta's appeal to semi-pro users and diehard Betaphiles with money to burn. The real future of home videophile

recording undoubtedly lies in *digital* recording, and Philips has already demonstrated a system capable of recording two hours of digital pictures and stereo sound on an 8mm-size cassette. However, digital video recording is still some ways off. For now, we'll see if Super VHS can help beat a path to a higher-resolution future. □

*Marc Wielage is a West Coast-based video engineer, audio/videophile, avid computer enthusiast, and electronics junkie who edits Videofax Quarterly.*

## The Disc vs. Tape Dilemma

Imagine a CD nearly two and a half times its present diameter, looking like a silver LP. If you were to use its pits to encode video signals instead of digital sound and then glue two of these discs together to form a single two-sided "video record"—bingo! You've just invented the laser videodisc, which has been such a great success that it's taken nearly a decade to get off the ground.

The lowly laser videodisc—also known as the "Laserdisc" or simply "LV," for short—has had a troublesome and turbulent history, beginning with the original Philips/Magnavox disc player test-marketed in late 1978. Consumers were loud in voicing complaints about horrendous disc defects and malfunctioning players, and things only really started looking up when Magnavox was joined by the Japanese audio manufacturer Pioneer, which essentially shepherded the format through most of the 1980s. Around the same time, RCA introduced an incompatible stylus-read disc format, CED, which faded after a couple of years because of inadequate sales and near-unanimous technical criticism from video- and audiophiles alike.

Over the past five years Pioneer has spent millions of dollars updating and refining Philips's basic LV processes, which mirror the techniques used to make CDs. Slowly but surely, Pioneer has managed to conquer virtually all the technical challenges in the optical-disc format—chief among them a terrible sensitivity to dust and dirt in the manufacturing plant. Indeed, many Laserdisc enthusiasts happily tell me they've seen virtually no defective discs for the past year or two.

Just how good can laser videodiscs look? In a word: incredible. To those unaccustomed to high-quality broadcast signals inside a TV station or pro-

duction facility, it's a revelatory experience. Watching a good Laserdisc on a decent monitor is probably the closest you can get to watching a 35mm movie without actually taking up residence at your local Bijou! Because the LV format records color and luminance (b&w) information *directly* as a composite-video signal, instead of in the "color-under" technique used by all consumer VCR systems, the pictures have very good color performance. And laser videodiscs can actually deliver a true 400 lines of horizontal luminance resolution, measured flat, as opposed to the 300 and 150 true lines of S-VHS and standard VHS, respectively. The laser format also has the capability for 16-bit digital stereo sound, which offers a distinct improvement in distortion and noise over even the best VCR Hi-Fi sound systems.

So if Laserdiscs are so great, why haven't they taken off as a runaway hit? Experts suspect that most people are intimidated and confused by the concept of a video format that doesn't record—a common objection, even though the LP record has survived for 40 years with few complaints about its inability to record. More realistically, LV has suffered from a shortage of dealers and software titles, though both have sharply increased in number over the past few years. The biggest fans of the LV format are a select coterie of videophiles, many of whom are outspoken devotees as much into cinema as they are into video.

Currently, more than 3,000 films, music videos, and specials are available as laser videodiscs, with hundreds more appearing every few months from a variety of labels. An average Laserdisc feature film costs between \$30 and \$40, which is frequently half as much as a similar tape, though detractors are

quick to point out that budget-line cassette titles are often cheaper. Still, most people would argue that the tremendous increase in quality is worth it. Those who don't want to buy Laserdiscs may be able to rent them for a dollar or two a day from a handful of rental outfits in most large cities.

A few companies are marketing special purist Laserdisc versions of super-widescreen film classics like *2001* and *The Graduate*, presenting them in the "letterbox" format, which preserves across a TV screen every inch of the director's original image compositions—an added benefit found on few tape releases. Other LV releases offer such niceties as a simultaneous commentary from experts discussing the film (selectable on an auxiliary audio track), theatrical trailers, and even video still-frame posters, pictures, and other memorabilia. One company, MCA, went so far as to include alternate endings for one of its films, *Sweet Charity*, adding a new dimension available only on the LV version.

Will laser videodiscs ever really catch on? The inside word is that 1989 could turn out to be *the* critical year for LV. The driving force is the so-called "combi" player, which can handle all five optical disc formats: 3-inch and standard audio CDs, CD-Vs, and 8- and 12-inch videodiscs, with 16-bit digital sound available all around. Both consumers and dealers are attracted by the idea of having one player instead of two or three to handle these tasks, and sales are increasing for models from Pioneer, Sony, Yamaha, Magnavox, and other companies. Combi players typically sell for as little as \$800, and the best models offer a variety of special effects. For videophiles and film fans alike, laser videodiscs are unquestionably love at first sight. *M.F.W.*





LIVING IN A  
**VIDEO**  
WORLD



# Getting To Know Camcorders

*A basic guide to the formats and fundamental features.*

# W

hen it comes to home video moviemaking, *everybody* wants to be Steven Spielberg. Put any average Joe or Jane behind the viewfinder and it's "lights, camera, action!" And who can blame them? These days, the technology of camcorders has reached the point where practically anyone can point, aim, and shoot a masterpiece... that is, given the desire and the talent. But with dozens of models and brands, and at least seven different formats, on the consumer market, choosing a camcorder can be quite a production in itself. The seven formats now available are VHS, VHS-C, S-VHS, S-VHS-C, 8mm, Beta, and ED Beta.

## VHS: "C" and Otherwise

Camcorders that use full-size VHS video-cassettes are still the most popular, according to the latest statistics. The tapes they make—up to two hours on a T-120—can be played back directly from the camcorder into any regular TV set or TV monitor, or played through a table-model VCR. Full-size VHS camcorders likewise can be used to play the vast majority of prerecorded movies—an added advantage for some buyers.

The VHS-C format uses a smaller and lighter "Compact" VHS cassette that

holds only one-sixth the length of tape in a standard T-120 cassette. The shrunken cassette makes it possible to design a smaller and lighter camcorder, but the trade-off is in recording time: You can record for only 20 minutes at standard speed. If that isn't enough time, you can switch to the slower EP speed, which triples recording time to one hour but diminishes audio and video quality. With the tape moving at less than 1/2 inch per second, the diagonally traced video tracks are narrower, which lowers the picture's signal-to-noise ratio (S/N); the linear audio track's S/N and frequency response are likewise affected by the slower tape speed. When inserted into a mechanical adapter, VHS-C tapes can be played back on any VHS table-model VCR. The adapter automatically adjusts the tape path to match the larger machines.

The Super VHS format offers significantly better video quality than virtually any other format. An S-VHS camcorder is really two camcorders in one, since it can record a tape in regular VHS as well. Plus, you can play back any standard VHS tape (like those rental movies). But S-VHS recordings can be played back directly only by the camcorder or on other S-VHS VCRs.

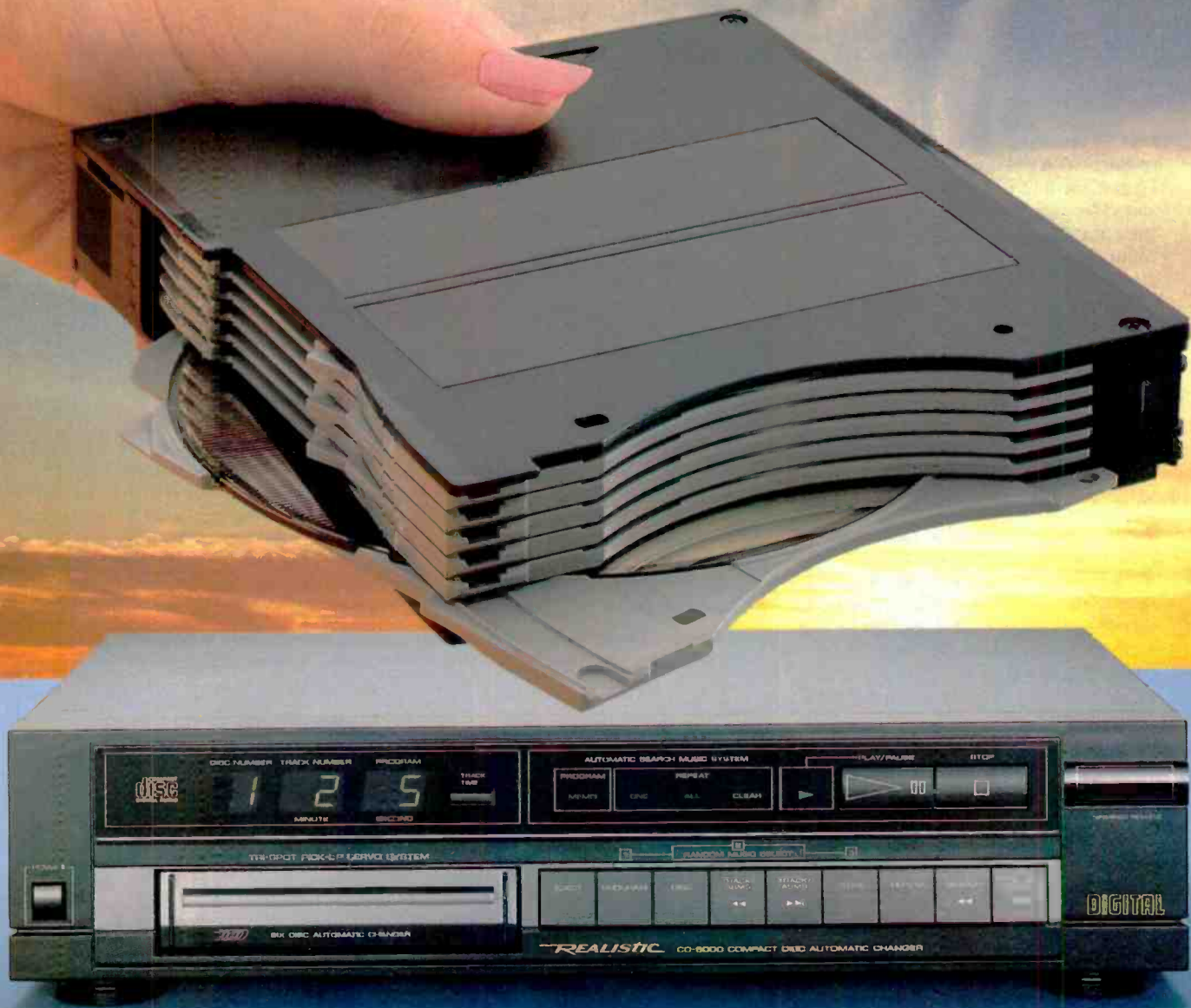
Super VHS camcorders in the "Compact" design (S-VHS-C) are also available, and like their full-size brethren, can record or play back standard VHS-C tapes as well. You're still limited to a mere 20 minutes per tape, and the trade-off between extra time and recording quality at the slower speed remains. However, EP recordings with S-VHS still offer more detail and resolution than regular VHS EP recordings—although you'll suffer through additional video noise.

## 8mm Video

The 8mm format is widely touted as the "compatible camcorder format of the future," since virtually every electronics company in the world is licensed to build it. An 8mm cassette is about the same depth and width as a VHS-C cassette but only half as thick. Despite its small size, the cassette can hold as much as two hours of videotape (P6-120), although shorter lengths are also available. Physically, 8mm cassettes come in only one size that can be used in all 8mm machines. To maximize video recording quality, 8mm tape is a metal-particle formulation with a higher recording density than the oxide-based tapes used by VHS, S-VHS, and Beta.

Audio quality with the 8mm format is





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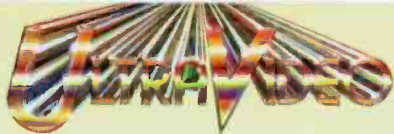


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notably better than that of basic VHS units owing to its AFM (audio frequency modulation) method of combining the audio and video signals and recording both with the rotating video heads. There's also room for two additional digital (PCM) stereo audio channels, though only a handful of current 8mm camcorders and VCRs have the ability to use them. Other advantages of the 8mm format include ATF, for automatic track following, which eliminates the need for tracking adjustments when playing tapes made on different machines.

Coming soon from the 8mm camp are two exciting innovations. The first is High-Band 8mm, rumored to be coming as early as next March and expected to at least equal the performance of S-VHS. The second big 8mm development is actually one borrowed from VHS-C; namely, shrinking the size of the head drum and increasing the amount of tape "wrap" around the drum. This could usher in a whole new crop of extraordinarily small 8mm camcorders.

## Whither Beta?

Ironically, while the Beta format delivered the first true all-in-one camcorder, sales of the product have dropped to a trickle, as more consumers turn to VHS and 8mm machines. But if you are a diehard Beta-phile, Sony still makes and sells a Beta-movie, the BMC-660K. Like earlier models, though, it has only an optical viewfinder and can't play back tapes—you need a separate Beta VCR.

Sony's answer to Super VHS is ED Beta, an "extended definition" video format that achieves very high picture quality with a claimed 500 lines of resolution. The first ED Beta camcorder is Sony's ED-C55 "ED Cam," a modular design featuring detachable recorder and camera sections and many other professional features, such as interchangeable C-mount lenses and stereo Beta Hi-Fi audio. Nevertheless, at a price of more than \$7,000, ED Cam is hardly a product for the average consumer. However, if its price doesn't deter you, the semi-pro ED Cam's high-quality pictures certainly make it worth considering.

Realistically, most consumers will be choosing between VHS, VHS-C, and 8mm camcorders. In general, full-size VHS models are the largest and heaviest, usually weighing from five to eight pounds, including cassette and battery; they're intended to rest on the right shoulder, like pro cameras. Most VHS-C and 8mm models, on the other hand, weigh less than five pounds, and many (not all) are shaped to allow one-handed shooting.

We usually find shoulder-mounted camcorders to be the easiest to hold steady for long periods, although smaller units are better suited for travel and when you need to "shoot and run."

## Fundamental Features

In general, camcorder features are not format-specific, the main exception being audio recording. For instance, only the 8mm format offers AFM monaural audio as a standard feature (digital PCM stereo is a rare option). With few exceptions—that is, those models with Hi-Fi stereo—VHS camcorders employ the inferior linear-track audio recording. Here's a rundown of other important camcorder features:

**Optics.** As with any camera, the quality and versatility of a camcorder's lens is of major importance. Apart from a few lightweight point-and-shoot camcorders that

two settings is commonly six or eight times, but recent models now offer ten- and even twelve-fold zooms.

Some power zoom lenses move at more than one speed: a slow, lazy zoom for mood shots and a faster zoom for more dramatic effects (though not quite as dramatic as the fast-paced opening to *Hawaii Five-O*). But, variable zoom speed or not, remember that the zoom lens on a camcorder is basically intended to provide a selection of focal lengths. Use the zoom effect itself sparingly.

Some lens companies are looking to pick up business from camcorder manufacturers. In fact, one of Aiwa's 8mm models uses a lens made by Tamron. And sometime next year Sony intends to introduce the first 8mm camcorder with interchangeable C-mount lenses, a feature we expect eventually will be offered by



**JVC's compact GR-S55U gives higher-resolution Super VHS recording.**

come with nonadjustable lenses (Sony's Handycam, JVC's GR-C9, and a few others in the VHS-C format), every other camcorder comes with an adjustable zoom lens. Most of these are motor driven, and a quick press of a button marked "W" or "T" is all it takes to move the lens back and forth between a wide-angle and a higher-magnification telephoto setting. The magnification range between these

other companies as well.

Of recent note is Panasonic's PV-460 camcorder, featuring the company's Electronic Image Stabilization system for eliminating jitter. The camcorder's movement is detected by vertical and horizontal motion sensors, which relay commands to the actuator motors that stabilize the lens. **Focus.** Getting a properly exposed picture is meaningless unless it's sharply fo-



cused. Automatic focus (AF) is another camcorder feature that's virtually standard, as is a manual override for those occasions when the AF circuit becomes confused. This is an important feature to check out in the store before you buy. While most in-store camcorder displays offer plenty of bright lights and colors, see if it's possible to test the AF under dimmer lighting conditions, since that's when most of them have difficulty determining a subject's range. While auto-focus accuracy is important, so is reaction time. Check how fast the servo motors move the lens elements to deliver a sharply focused picture and whether the focus is steady (no "hunting"), once achieved.

**Image pickup.** A few years ago, most camcorders featured tube-type pickups, the same Newvicon and Saticon tubes that were found in the color cameras used with separate portable VCRs. All of today's camcorders use CCD (charge-coupled device) or MOS (metal-oxide semiconductor) solid-state pickups. Solid-state pickups have many advantages over tubes: They're smaller, lighter, use much less power, warm up instantly for fast-breaking action shots, last almost indefinitely, offer better picture linearity, and won't burn out or leave trailers if you point at a bright spot.

CCD pickups are by far the most common. MOS pickups are favored by Hitachi; in fact, if the camcorder has an MOS chip in it, it has been built by Hitachi, regardless of the brand name on it. (Technically, both kinds of chips are made using MOS technology, and differ mainly in their internal construction.) Both CCD and MOS pickups can deliver excellent pictures under good lighting conditions. But it's always important to evaluate picture quality when shooting under low light, since few amateur videographers have the time to haul out a half-dozen lights for indoor shooting. The comparative value here is "lux," referring to average light level. The camcorder's ability to "see in the dark" increases with lower lux ratings. But because there is no standard for specifying camera sensitivity, it is wise to compare models before you buy.

**Viewfinder.** Although a few camcorders have been introduced with optical viewfinders—glass windows that you frame and sight through—most come with electronic viewfinders. These are miniature b&w (some are now color) TV screens about the size of a postage stamp that show your aim and focus and enable you to review your tapes right on the spot. Look for viewfinder versatility when you shop. Does the viewfinder swivel up and down so that you can hold the camcorder

at waist level or over your head? Can it be mounted on either side of the camcorder's body, for use with either eye? Does the magnifier lens (they've all got one) flip up so you can see the TV screen from a distance? Can you adjust it for the prescription of your eyeglasses? Can you adjust the brightness and contrast of the TV screen?

**Video heads . . . and more.** Like any VCR, camcorders use rotating video heads to record and play back the signals that go onto the videotape. VCR design has spawned a confusing array of video-head configurations—each with specific benefits and features. It's even more confusing for camcorders, because of the special techniques employed to keep the camcorders small. For example, a four-head table-model VCR is usually considered a step-up model, considering that a two-head VCR is adequate for the basic tasks

*stereo*, offered by Sony's CCD-V220 PRO 8mm camcorder; *two-speed recording*, which enables you to conserve tape by recording at slow (EP) speed, though with a subsequent loss of picture and sound quality; *audio-video inputs and outputs*, to facilitate using the camcorder to dub from an external source; *audio dubbing*, for replacing the video's original soundtrack with music or narration; *indexing*, which invisibly marks the start of recorded sections to facilitate cueing; and even *digital special effects* (discussed in "Making It Look Good," p. 60). One of the latest under the last category is a digital superimposition function that enables you to record your own titles over the main picture. You could, for example, write credits on a board, store that image in the camcorder's digital memory, and call it up at any time for superimposition.



**Sony's CCD-V220 PRO 8mm camcorder features digital stereo audio recording.**

of recording and playback. But with most full-size VHS and all VHS-C camcorders, four video heads are de rigueur. Four video heads take the place of two, making up for the smaller video drum and tighter tape wrap inside the machine.

Some camcorders offer features that would rival those of even the best home VCRs: *stereo Hi-Fi sound*, found in only one or two full-size VHS models; *digital*

These days, when it comes to camcorder features, the sky's the limit. But for best results, camcorders will always require the most imagination *behind* the viewfinder. And that's the one feature we don't expect—or hope—to see automated in the near future! □

*Rod Woodcock writes frequently about video and publishes Videofax Quarterly.*



LIVING IN A  
**VIDEO**  
WORLD

# Making It Look Good

*It's easy to add professional touches to your camcorder productions.*

O

kay. At last, you've shot your video masterpiece on that brand-new camcorder. The whole family eagerly gathers in your living room, anxious to see their own smiling faces on the same electronic window that brings them *Dallas* and *The Cosby Show* every week. But wait: Something is, well, *different* about your homemade show. It looks, yes, amateurish—it doesn't have any pizzazz! The shots are boring, all the "stars" hate the way they "flub" lines and act like idiots. And even the picture quality is so-so, at best.

But help is on the way. Welcome to the world of postproduction, where yesterday's mistakes become tomorrow's Emmy Award winners. Postproduction is, basically, the fancy technical word for editing, where the pros separate the wheat from the chaff and add wipes, dissolves, and titles to liven up a completed show. Now you can "post" your own shows at home, too, with a variety of "black boxes" and accessories now on the market.

In the world of motion pictures and audio recording, it's a simple matter to

edit from one thing to another. You just pull out your scissors, make a few snips, and then tape or glue the desired pieces together. Not so in video. Splicing videotape is *verboten*, and can gum up or even permanently damage the video heads, should their delicate surfaces come in contact with the tape's adhesive. Besides, the video tracks are traced diagonally, making a clean cut unlikely.

All videotape editing is done by copying from one machine to another. Virtually all VCRs on the market have a pause control, giving you the ability to electronically stop and start a recording in order to edit out unwanted material. By playing back a tape on another machine (or on a camcorder with a direct video output) you can easily edit together an entire home movie, shot-by-shot, with very effective results.

Unfortunately, the quality of "pause edits" on most home machines is marginal, at best. The dubbed scenes will tend to have some color moiré and video noise at the edit point, the result of unerased bits of

the old signal—sort of like a bad paint job on a car, the old paint showing through here and there. The only way to achieve really perfect edits is by means of "flying erase heads": extra heads mounted on the spinning video drum that precisely wipe away the old, unwanted pictures with new ones on a field-by-field basis. Many camcorders and some VCRs use one, or a pair, of flying erase heads (with equivalent results). JVC's HR-S8000 (S-VHS), Panasonic's AG-1950 (VHS), and Sony's ED-V9500 (ED Beta) are among the table models with this feature, fast becoming a must-have for amateur videographers. You can expect deluxe VCRs with flying-erase heads to cost a minimum of \$1,200.

Two companies have introduced devices designed to automatically edit together bits and pieces of video material with the aid of an internal computer. This mirrors the professional edit controllers that are used by networks and production companies to create sitcoms and other TV shows, though at a fraction of the cost. One such controller is Videonics's Direct-



DENON PRECISION AUDIO COMPONENTS INTEGRATED STEREO AMPLIFIER PMA-1820



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DRA-1025



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# DENON

DESIGN INTEGRITY







ED, which relies on a complex remote designed to control any recorder with an infrared remote sensor. Another is Future Video's EC-1000, which uses a wired connection designed to fit a variety of different VCRs equipped with special jacks. Both units sell for about \$500 and are very effective and easy to use, but I'd give an edge to the DirectED, since it also includes built-in titling and special-effects features.

Nevertheless, just having the technical ability to edit videotapes doesn't automatically make you an editor. Your first step as a would-be editor is to *watch all your material*, over and over again, until you know it inside and out. Make detailed notes about the shots you like, the shots you hate, and where they occur on the tape. Pay particular attention to the order of the scenes. It helps to have an idea in your head of the overall impression you want to make on your audience. Try to tell a complete story, with a beginning, middle, and end. And don't forget reaction shots—to show how your "characters" feel.

Above all, keep it *short*. Most of the home movies I've seen are about three times as long as they really need to be. That might be great just for family viewing, but if you intend to entertain outside guests with your production, it's best to keep the show tight, concise, and to the point. This does not mean you have to turn every home movie into a fast-paced MTV music video, but it doesn't have to be an epic-length snoozer, either!

## Video Star Wars?

You don't have to be George Lucas to appreciate the value of special effects in any video production, large or small. A diverse range of companies—including Showline (formerly Showtime), Kramer, Vidicraft, and Multivision, as well as better-known names, such as Akai, JVC, Recoton, Sansui, and Sony—are dedicated to providing an impressive array of effects for budget videophiles.

The most widely available black box is the simple video enhancer, which is essentially a video equalizer (or fancy sharpness control) that boosts frequencies between about 1 MHz to 3 MHz. Unfortunately, virtually all consumer enhancers (including the detail circuits found in many VCRs) operate only on the horizontal portion of the signal. As a rule, most enhancers tend to add all kinds of artifacts to the picture: noise, streaking in bright areas, and unwanted black edges on sharply detailed objects. Better enhancers, such as Vidicraft's DET-400, can also enhance *vertical* details, a more effective though more costly technique. If you decide an en-

hancer is for you, take my advice and treat it just like an audio equalizer: A little goes a long way, and be very careful not to over-enhance your recordings.

Another popular device is the "proc-amp," which is video-ese for processing amplifier. Professional proc-amps actually rebuild the invisible synchronizing pulses used to stabilize the picture, and also allow a precise adjustment of the brightness, contrast, and color levels of the signal. For reasons of cost, consumer proc-amps leave the sync pulses alone, but still provide the other adjustments. You can slowly fade the picture to black—or bring it up quickly for a "shock" effect. You can subtract the color information to create an old-time b&w look or crank it up higher for an intense "Technicolor" effect. It's just the thing for purists who want to restore Ted Turner's colorized *Casablanca* to its original monochromatic blacks and grays (although a monitor's color control can do the same).

A few proc-amps, such as Sansui's AV-99 and Sony's XV-C700, give you the ability to radically change the overall hue of the picture with a joystick, mirroring professional color-correction controls. Others, like Vidicraft's basic proc-amp, offer basic TV-type hue adjustments. Either type of unit can be very helpful in fixing bad-color problems, such as when you've used the wrong type of lens filter indoors or forgotten to re-white-balance the camcorder outdoors. With a little tweaking, you can coerce the color back to normal, or at least get closer to it.

Mad because your two-year-old VCR lacks digital special effects? Not to worry. Multivision, Rabbit Systems, Sony, and Teac all have black boxes for adding picture-in-picture, strobe, and other visual gimmicks to any video signals. Sony's XV-D300 Digital Video Adapter is probably the most advanced, offering full 8-bit (digital) luminance processing for such effects as "mosaic" (an artsy, Cubist effect), "picture art" (a kind of solarized look), "flash motion" (simulated slow motion), zoom (enlarging part of the picture), and "multipic" (multiple images of the same shot). Purists complain that digital processing tends to add a kind of "haze" to good video, so I would advise inserting these processors only when you need one of their fancy tricks.

## Very Special Effects

Probably the biggest dream of any amateur video producer is to have the ability to cut or dissolve between one VCR's picture and another's. While in the world of audio this is a relatively simple task that you can do with a \$50 mixer, things are a lot differ-

ent in video. The villains here are the same synchronizing pulses mentioned earlier. If the sync pulses from one VCR don't mesh *perfectly* with those from another machine when the two pictures are combined, the result is an image full of "breakup," glitches, noise, and static—in other words, a video nightmare. And even if you are able to get the sync aligned just right, the color signals also have to be timed perfectly, or else the hues will change radically during the process.

One possible solution to the problem of syncing up two VCRs is a time-base corrector, or TBC—a costly device in the \$5,000-and-up range designed to stabilize pictures according to a reference signal. The first relatively affordable product I know of on the market that does essentially the same thing is Panasonic's WJ-MX10 Digital Video Mixer. While not a true TBC, the WJ-MX10 does allow wipes, fades, and cuts (but not dissolves) between two VCRs, two cameras, or one of each. At \$3,000, this device isn't cheap, but low-budget producers need look no further for the answer to their video prayers. Similar units are due out later in this year from Showline and Phoenix Gold, with similar prices.

In addition to cuts and dissolves, you can add titles to your production with character generators—electronic "video typewriters"—available from RCA, JVC, Sansui, Videonics, and others. A growing number of deluxe camcorders come with simple character generators built-in, enabling you to pop in titles as you shoot. Internal time/date generators in these camcorders can be used to mark each scene as it is shot.

If you have a pile of dusty Super 8 home movies sitting on your shelf, you might be surprised to learn that with little effort you can transfer those celluloid memories over to video. A few manufacturers—Panasonic and Quasar, to name two—offer a special translucent screen on which you project the movies from behind and use an ordinary camcorder to shoot the image from the front. An internal mirror flops the image, left to right, so that it's displayed correctly for the transfer.

Using any of the above ideas and accessories won't necessarily turn your homebrewed effort into *Gone With the Wind*, but then, it might prevent it from being the *Heaven's Gate* of your neighborhood. More important, editing and special effects are fun, and you can get a lot more enjoyment out of your own tapes by taking this kind of nuts-and-bolts, hands-on approach with your videos. You'll have fun . . . and your family and friends will thank you. □





Let it be said at the outset: The visual clarity and sonic brilliance of Polygram's new line of classical CD Videos—12-inch laser videodiscs with digital sound—rivals anything you have seen on your TV screen to date. And because several of the first 14 issues in the Classics Library—from the London, Philips, and Deutsche Grammophon labels—resonate with historical significance, and are not available in other commercial video formats, there is every expectation that this could become a most desirable catalog. I think of the London disc of Artur Schnabel performing the Grieg Piano Concerto

and the Second concertos of Chopin and Saint-Saëns, with André Previn conducting the London Symphony Orchestra, in 1975 (071 200-1); then there is Franco Zeffirelli's landmark 1967 La Scala production of Puccini's *La Bohème* with Mirella Freni, under the direction of Herbert von Karajan, on Deutsche Grammophon (072 205-1). Of more recent vintage are the thrilling accounts of Beethoven's Fourth and Seventh symphonies with the Amsterdam Concertgebouw Orchestra led by the elusive Carlos Kleiber, from Philips (070 200-1).

Zeffirelli's gripping film of Leoncaval-

lo's *Pagliacci*, also on Philips, features Plácido Domingo and Teresa Stratas (070 204-1). This undertaking—more than anything else the director has done—is an object lesson on how to film opera. On DC, the musically fertile but short-lived partnership of the youthful pianist Maurizio Pollini and then-octogenarian maestro Karl Böhm comes alive with elegant performances of Mozart's Concertos Nos. 19 (K. 459) and 23 (K. 488), though at 57 minutes, it is the least generous of the programs released so far (072 202-1). Balletomanes will relish having access to Rudolf Nureyev and Margot Fonteyn dancing a

CLASSICAL CD VIDEO:

# Polygram Takes the Plunge

By Thor Eckert, Jr.



DAVID WAGNER



1966 *Swan Lake*, on Philips (070 201-1).

Given the quality of what has been released, and in view of the even more appealing material expected in the coming months, it is regrettable that there have been so many delays in getting CD Video off the planning boards and into the stores. As I've already noted, the technology is superb: At its best, it is the wedding of CD-quality digital sound to a clarity of video image simply out of the realm of what pre-recorded videocassettes can offer. But if you don't feel like watching the video portion of a CD Video, you should, in theory, be able to treat it as a normal audio-only CD. The Rubinstein package *can* be enjoyed as sound-only, though watching that remarkable face and those hands on the keyboard is part of the total experience. Verdi's *Rigoletto*, however, on London, is more of a mixed bag (071 501-1). If Luciano Pavarotti is clearly the star, Edita Gruberova is his artistic and vocal equal; in the way of visual material, though, one has to endure the heavy-handed, conceptually clumsy production by the late Jean-Pierre Ponnelle. If you opt to turn off the TV and just listen, the sound, unfortunately, is downright flawed—in no way is it up

to the standards of London's ADRM CDs (analog recordings digitally remastered, denoted AAD and ADD).

Curiously, all 13 of the CD Videos made available to me sported ADD soundtracks, which means we may not yet have a full idea of the medium's sonic potential. But just how different can it be from the best of what Pioneer Artists has offered for several years now on its "digital sound" Laservision discs, many of which have also been culled from analog sources? The glorious pinnacle of that catalog is the 1984 Metropolitan Opera production of Zandonai's *Francesca da Rimini*—an audiovisual dazzler (PA-87-180). Its nadir is a recently issued Verdi Requiem from the Edinburgh Festival, led by Claudio Abbado, with sound so muddled and congested, it's almost unlistenable (PA-88-213).

Pioneer's source material is, in opera at least, limited to live performances, whereas much of the Polygram product—current and projected—is recorded under studio conditions. The Polygram labels offer most of the important artists in the classical business today, and since their recordings often are tied in with Unitel videos (many of which have been seen on PBS in

the past decade or so), it would seem logical for the company to try to crack the laser videodisc market with a line of its own.

Polygram's idea of calling its product CD Video may have looked good from a marketing standpoint because it implies an entirely new software medium. However, this approach has caused the company all sorts of problems and delays, presumably because the software release date depended on the development and marketing of a disc player by Magnavox, a Philips affiliate. The new Magnavox machines boldly display the double-disc CD Video logo (which resembles the rings of Saturn), as if to suggest that nothing else will play the Polygram product. But on the back of the disc packages themselves, the Laservision logo *also* appears, with the statement (true) that the discs can be played on any laser videodisc player. Of course, if you own an older player that reproduces only the analog soundtrack, you'll never realize the full benefits. But on my non-Magnavox machine, image and sound are spectacular on the best discs.

Unfortunately, the first batch of Polygram CD Videos presents some problems with banding, which one would think the labels had gotten a handle on with all their CD experience. On the Kleiber disc, for instance, Philips has quite inexplicably placed the Seventh Symphony first, even though it is a program-closer par excellence, and even though it is clear from the on-screen bows that it *was* the last piece performed. The second movement of the Seventh is listed as banded, but that band is placed in the middle of the first movement. The other concert releases, with the exception of DG's Mahler *Resurrection* Symphony, are banded by movement. The Mahler—with Leonard Bernstein conducting the London Symphony Orchestra in Ely Cathedral—is, rightfully, meticulously banded on the basis of the Universal Edition score (072 200-1). The operas are, for the most part, adequately banded.

Polygram's packaging is rather chintzy considering the price of \$39.95 per single disc and \$59.95 for each two-disc set, but this is a general failing of all laser videodiscs. Most distressing is the quality of the notes—which fail to mention the historical importance of many of these releases—and the fact that the operas lack librettos.

Twenty-nine more releases are planned for the fall and winter, including the entire Patrice Chéreau staging of Wagner's *Ring*, from Bayreuth. If the quality of the product selected for release remains high, and if the glitches are completely worked out, Polygram's Classics Library stands to become an important addition to the home-entertainment scene. □

## VIDEOFAX

is the quarterly journal for serious video enthusiasts.

Published by Rod Woodcock (widely-read columnist for *Video Magazine*) and edited by Marc Wielage (West Coast editor for *Video Review*), **Videofax** presents lively, no-holds-barred technical discussions of high-end video, including Super VHS, ED Beta, Laserdiscs, monitors, projection TV, surround-sound and more. We're passionately committed to video—technically and artistically. Our approach is witty and highly opinionated; our reviews combine subjective evaluations with state-of-the-art test gear, and we also compare the performance of each product with our own reference systems.

Our current 96-page issue (#9) is packed full of features we think no videophile can resist:

- **Inside CBS/Fox Video**, giving the behind-the-scenes scoop on some of their best (and worst) releases and a special look on restoring motion pictures for home video
- part two of our exclusive interview with Hollywood's "Wizard of Film Sound," who reveals some of his secrets of **stereo synthesizing**
- exhaustive reviews on **Sony's EDV-9500 ED Beta VCR**, **Pioneer's LD-W1 Laserdisc changer**, and a surprising comparison between ED Beta, S-VHS and Laserdisc
- a dozen in-depth Laserdisc reviews in our **Videoflix** section, critiquing the picture and sound quality of each release, with a special look at the films of **Alfred Hitchcock**, the master of suspense. Plus an update on **The Worst Laserdiscs of All Time**.
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Edited by Ted Libbey  
and Ken Richardson

## Virgin's Birth

**T**he year is drawing to a close, the nights are getting longer, the concert season is under way, and record sales are at their peak. Traditionally, classical labels aim to have their best stuff on the shelves by the beginning of the Christmas buying season—which means that most of the new releases we reviewed in September are, or will soon be, available. One of the most appealing releases I have seen in years, the “maiden” issue of the new Virgin Classics label, should be out by the time you read this. The company's entire October release—headed by the world-premiere recording of Benjamin Britten's *Paul Bunyan*—will shortly be reviewed in HIGH FIDELITY. Suffice it to say that it is an awfully impressive debut.

I'm able to say that because, for once, a record label has arranged to get advance copies of its new product into the hands of record critics *before* it has sent that product to distributors and retailers. This is a common practice in Europe, where reviews of new releases tend to coincide with the appearance of those releases in the stores, but in America it is almost unheard of. I have repeatedly begged the major labels to provide HIGH FIDELITY with advance copies of new releases because I believe that you, our readers, can benefit from timely reviews of important recordings. Rarely have I succeeded in getting product even at the same time it appears on the market—let alone in advance. Virgin Classics, which comes into the classical field with a great deal of experience on the popular side, seems to think differently. I'm hoping its example may influence other labels to review their policy, and have a feeling it would be good for business. It would certainly be good for the collector.

In other news, I recently learned that Paris will play host to a major new piano competition in July 1989—a significant date because it marks the 200th anniversary of the storming of the Bastille. The competition, organized by the Salle Gaveau, will offer a first prize equivalent to \$30,000 and will boast a distinguished jury including Rudolf Firkusny, Michel Dalberto, Harold Schonberg, and, as chairman, Nikita Magaloff. What will set this competition apart from others is one of its entry requirements: that a contestant must have been a finalist in another competition in order to compete in this one.

That will certainly produce a high-powered field . . . but in the back of my mind I can't help wondering if it won't also block what such competitions always hope—or say they hope—to encourage: namely, the emergence of a truly thoughtful, interesting, distinctive, compelling musician as the winner. One can always hope, but if I had to bet on it, I'd wait until someone establishes a competition for pianists who had *never* made it to the finals before.

Ted Libbey

## Rock 'n' Soul, Part 1

**S**ometimes when I'm out there, sweating and singing my heart out, I see all these couples hugging and making out, and I think, well, this has gotta be *it*.”  
—Daryl Hall at Mud Island, Memphis, August 1988.

*Hot fun in the summertime!* Traveling with Daryl Hall and John Oates, I witnessed the evolution of perhaps the best rock 'n' soul hoedown America has to offer. The former Philadelphians, now consummate professionals in their late thirties, have been hustling a fantastic two-hour-plus show, backlit by state-of-the-art visuals and laced with Cadillac-smooth harmonies. Surrendering to the times, however, the show features some of the most sophisticated electronic effects in the business—yet maintains an intimate acoustic feel, with saxman Mark Rivera jumping off risers and charging through the mezzanine. Whether in Houston, Memphis, Saratoga, or L.A., each night—inflamed by Hall's high-risk tenor and grounded by Oates's get-down guitar—was upbeat and sexy.

So why weren't the venues full? Chalk it up to the summer glut of touring bands. In Memphis—specifically Mud Island, the outdoor 5,000-seater where Hall and Oates played to a two-thirds-full house—financially strapped fans had to choose from more than 32 spectaculars, including Bob Dylan, Richard Marx, Smokey Robinson, Bruce Hornsby and the Range, Robert Palmer, Kenny Loggins, the Beach Boys, and the *Dirty Dancing* tour. Then there's the fact that this is Hall and Oates's first tour in three years: In an industry that boasts a hit every ten seconds, that's a few incarnations. It's even possible that Hall's 1987 hard-rock solo LP, *Three Hearts in a Happy Ending Machine*, confused fans who had become addicted to the sweet 'n' funky sounds of “Sara Smile,” “One on One,” “Adult Education,” and 37 more hits.

But if the venues weren't full in body, they sure were in spirit. By the second half of the Memphis show, the fans were standing on their seats, singing, screaming, and bobbing to the beat of the duo's latest album, *Ooh Yeah!* By the encores, Memphis had transformed into the town that Oates had earlier praised as “one of the few American cities left with its soul intact.” And that's from a man for whom real soul can pop up anywhere, anytime. On the tour bus home, bassist Tom “T-Bone” Wolk teased Oates about inappropriately cracking up on stage. Oates could only laughingly explain, “I'd just discovered this great guitar riff, and I was trying to see if I could play it and sing at the same time. But the riff was so wild, all I wanted to do was get off stage, get to the bathroom, and work it out.” From the sound of the night's applause, though, everyone was glad he didn't. *Pamela Bloom*

Next month: backstage with the crew.

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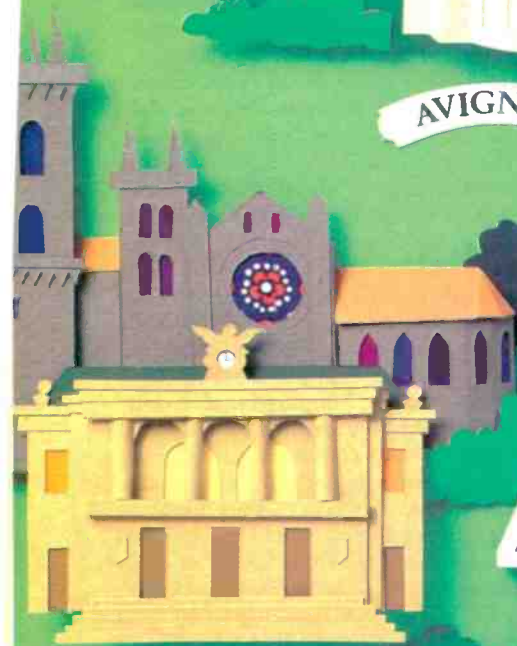


# Laurels at La Grande Motte

The 21<sup>st</sup> Annual International  
Record Critics Awards  
By Theodore W. Libbey, Jr.



AVIGNON



MONTPELLIER



LA GRANDE MOTTE



The last thing I did before leaving New York for the South of France was pack an umbrella. I didn't see it again until I got back by which time my forearms were peeling from exposure to too much sun. At least the Midi had lived up to its reputation for brilliant weather—something we had not seen enough of in January, when HIGH FIDELITY and MUSICAL AMERICA sent a delegation to Cannes for the 1988 Marché International du Disque et de l'Édition Musicale (MIDEM).

But this was July, when millions flock to Mediterranean beaches precisely because it is sunny all the time and because, to borrow Ira Gershwin's memorable phrase, "the livin' is easy." It was time for the 21st annual High Fidelity/International Record Critics Awards (IRCA), and we were back in France at the invitation of Jacques Blanc, president of the Région Languedoc-Roussillon, René Couveinhes, mayor of the futuristic seaside playground-resort town of La Grande Motte, and the Festival International de Radio France et de Montpellier Languedoc-Roussillon. Jacques Menet, who had been our host at MIDEM, helped us organize the meeting under another of his hats, that of cultural counselor to Monsieur Blanc.

It didn't take us long to realize that we were the only people in La Grande Motte who had *not* come for the sun and the fun—everyone else was wearing as little as possible (which in practical terms meant

shoes and shorts, fig leaves being hard to come by) and behaving as you would expect people to do when they're on vacation. We, on the other hand, were spending most of our time indoors at the Palais des Congrès, listening attentively in a darkened auditorium to the year's best classical recordings and disputing patient-

ly (most of the time) their relative merits. Well, as I have said every year since I joined the jury, it is hard work, but somebody's got to do it.

Oenophiles talk of vintages, and it is much the same thing for those who award prizes: There are good years as well as bad years for just about anything that can be

classified, including records. We agreed that 1987-88 had been a good year for records. Of just how good it was I had already formed a notion, based on the quality of several releases that had received substantial support from the nominating committee but that I had been unable to include on the final list for reasons of space. What was left was all of "first growth" quality, and to select from it the very best for labeling as IRCA '88 was bound to be a difficult task, albeit a satisfying one.

I "press" the wine metaphor in part because the first day's festivities included the induction of five members of the jury into the *cellier* Charles Cros as "*vignerons d'honneur*." The investiture was preceded by long speeches and followed by ceremonial kisses on both cheeks—*de rigueur*—as well as the presentation of medals and beribboned pewter *taste-vin* cups. This took place in Fabrezan, Cros's birthplace, in the heart of the Corbières wine lands between Carcassonne and Narbonne. In addition to being an important poet, Cros (1842-1888) was an inventor of genius who had a hand in the development of the phonograph. Fabrezan was marking the centennial of his death with a special exhibition in the *hôtel de ville*, and the *cellier* was doing its part with a special bottling of its 1986 *vin rouge*. The red wine of the hilly Corbières, which region has recently been granted an "appellation," is delightfully dry, with an aroma of truffles and a distinctive mineral accent. To our immense delight, this particular bottling, served later that evening at a sumptuous dinner for around 200 guests, carried a label celebrating the IRCA prize and making much of our decision to award it in this part of France.

The remaining members of the jury (we were nine this year) showed up in La Grande Motte the next day. As soon as they were checked into the Altea—our digs for most of the next ten days, and the largest of the neo-Ninevite, bleached-concrete ziggurats that constitute the skyline of this remarkable resort town—we got to work. Following a procedure we had used with some success in past meetings, we combed the entire list one disc at a time, going around the table for comments, in order to get an idea of what records had the strongest and broadest backing. Those that stood out among the single discs were Georges Pludermacher's Beethoven recital, Roger Norrington's Beethoven Ninth, the Berg/Schoenberg/Webern album by James Levine and the Berlin Philharmonic, Trevor Pinnock's staunch account of Haydn's *Nelson Mass*, the Buxtehude cantata cycle *Membra Jesu Nostri* performed

## The Winners

### IRCA

**BACH, C.P.E.: Die letzten Leiden des Erlösers.** Schlick, De Reyghere, Patriasz, Pregardien, Van Egmond; Collegium Vocale of Ghent, La Petite Bande, Kuijken. Deutsche Harmonia Mundi/EMI CDS 47753 (2).

**BERG; SCHOENBERG; WEBERN: Orchestral Works.** Berlin Philharmonic, Levine. Deutsche Grammophon 419 781-2.

**MAGNARD: Guercoeur.** Van Dam, Behrens, Denize; Orfeón Donostiarra,

Orchestre du Capitole de Toulouse, Plasson. Angel EMI CDCC 49193 (3).

**CANCIONES ESPAÑOLAS: Songs by Granados, Guridi, Toldrá, and Turina.** Berganza, Álvarez-Parejo. Claves CD 50-8704.

### KIRA

**LINDBERG: Kraft (with Action-Situation-Signification).** Toimii Ensemble, Swedish Radio Symphony Orchestra, Salonen. Finlandia FACD 372.

## IRCA Nominations

### SINGLE DISCS

**BEETHOVEN: Piano Concerto No. 3, in C minor.** Michelangeli; Vienna Symphony, Giulini. Deutsche Grammophon 423 230-2.

**BEETHOVEN: Piano Sonata in C minor, Op. 111; Diabelli Variations.** Pludermacher. Lyrinx CD 056.

**BEETHOVEN: Symphony No. 9, in D minor ("Choral").** Kenny, Walker, Power, Salomaa; Schütz Choir, London Classical Players, Norrington. Angel EMI CDC 49221.

**BUXTEHUDE: Membra Jesu Nostri.** Hannover Boy Choir, Amsterdam Baroque Orchestra, Koopman. Erato ECD 75378.

**HAYDN: Nelson Mass; Te Deum.** English Concert, Pinnock. Archiv 423 097-2.

**HINDEMITH: Requiem ("When Lilacs Last in the Dooryard Bloom'd").** Atlanta Symphony Orchestra and Chorus, Shaw. Telarc CD 80132.

**HUMMEL: Piano Concertos.** Hough; English Chamber Orchestra, Thomson. Chandos CHAN 8507.

**MOERAN: Symphony in G minor; Overture to a Masque.** Ulster Orchestra, Handley. Chandos CHAN 8577.

**TALLIS: Lamentations of Jeremiah; Mass for Four Voices.** Hilliard Ensemble. ECM 1341 833308-2.

**ZEMLINSKY: Die Seejungfrau; Psalm 13.** Berlin Radio Symphony Orchestra, Chailly. London 417 450-2.

### MULTIDISC SETS

**BARTÓK: Works for Piano and Orchestra.** Kocsis; Budapest Festival Orchestra, I. Fischer. Philips 416 831-2.

**BUSONI: Piano Works.** Madge. Philips 420 740-2.

**LULLY: Atys.** Mey, Laurens, Mellon, Gardeil; Les Arts Florissants, Christie. Harmonia Mundi 901257/59.

**MAHLER: Symphony No. 2, in C minor ("Resurrection").** Augér, Baker; City of Birmingham Symphony Orchestra, Rattle. Angel EMI CDCB 47962.

**MESSIAEN: Vingt Regards sur l'Enfant Jésus.** Dominique. LCM C-204.

**MONTEVERDI: Orfeo.** Rolfe Johnson, Baird, Dawson, Von Otter, Argenta, Tomlinson; Monteverdi Choir, English Baroque Soloists, Gardiner. Archiv 415 250-2.

**TIPPETT: The Mask of Time.** Robinson, Walker, Tear, Cheek; BBC Symphony and Chorus, A. Davis. Angel EMI CDCB 47705.

**WAGNER: Lohengrin.** Domingo, Norman, Randová, Nimsgern, Fischer-Dieskau; Vienna Philharmonic, Solti. London 421 053-2.



by Ton Koopman and the Amsterdam Baroque Orchestra, the E. J. Moeran disc from Vernon Handley and the Ulster Orchestra, and Teresa Berganza's charming collection of Spanish songs.

The top multidisc sets to emerge from our review were all choral or operatic offerings: C.P.E. Bach's *Die letzten Leiden des Erlösers* with Sigiswald Kuijken and La Petite Bande; Lully's *Atys* from Les Arts Florissants and William Christie; Al-béric Magnard's *Guercoeur*, performed by L'Orchestre du Capitole de Toulouse under the baton of Michel Plasson, the regional favorites; and the final installment in Georg Solti's 30-years-in-the-making Wagner cycle, *Lohengrin*, featuring super-tenor Plácido Domingo and supersoprano Jessye Norman.

In the end, it came down to a vote for principle balanced by a vote for pleasure. The pleasure part of the vote was clearly reflected in the first-ballot selection of the Berganza disc, *Canciones españolas*, which had been a personal nomination from our Spanish juror José Luis Pérez de Artega. Ted Greenfield of Great Britain had voiced fairly strong objections to Berganza's intonation, which occasionally put her on the southern side of the pitch, and to her somewhat mannered expression, but he was outgunned by five members of the jury who felt a strong sentimental attachment to the singer and who, rightly, I think, found these songs—particularly those of Guridi and Granados—to have enormous appeal. There was, in addition, much to admire in the piano accompaniment of Juan Antonio Álvarez-Parejo, and the engineering and overall production were first-rate in every respect: a solid tribute to the painstaking efforts of the small Swiss label Claves, this year celebrating its 20th anniversary.

Also awarded a prize on the first ballot, with votes from six members of the jury, was Kuijken's moving account of *Die letzten Leiden des Erlösers*, a setting by Carl Philipp Emanuel Bach that combines the architectural grace and spiritual grandeur of the elder Bach's Passions with the heightened expressiveness of the *empfindsamer Stil* (sentimental style), of which the younger Bach was the greatest exponent. Both the performance and Deutsche Harmonia Mundi's recording struck me as exceptionally fine, save for the rather nebulous liner notes. And I found the work, which was previously unfamiliar to me, to be one of the most touching and beautiful scores I have ever encountered. Yet I had a difficult time persuading myself to vote for the disc, simply because I saw no point in supporting a record that Angel EMI had

chosen not to release in the United States. I hope that its designation as a winner of the International Record Critics Award will persuade Angel to distribute it here.

Our vote for C.P.E. Bach had been a vote of principle—for a composer who, if not forgotten, had at least been overlooked in the ongoing revival of 18th-century repertory, for a work of truly extraordinary quality, and for a wonderfully sympathetic interpretation that filled an important discographic niche. In Granada four years ago, we'd returned a similar verdict in favor of a Pathé Marconi recording of Magnard's Symphony No. 4 performed by Plasson and L'Orchestre du Capitole de Toulouse, at the time voicing our hope that more of Magnard's music might emerge on disc. How happy we were to see that hope met by the release, this year, of a superbly engineered and lovingly pro-

duced studio recording of Magnard's opera *Guercoeur*, featuring José van Dam in the title role. Once again the issuing label was Pathé Marconi, and once again Plasson and the Toulouse orchestra were involved in the project. Swiss juror Pierre Michot had nominated the two-CD set as his personal choice, and in arguing for it had noted that *Guercoeur* was virtually "made for the phonograph."

Indeed, one could hardly imagine how this remarkable work might be presented any other way; I doubt, for instance, that it could be staged, since it's almost totally lacking in theatricality. *Guercoeur* is really something apart: a symphonic poem with voices, conceived on an almost metaphysical plane and suffused with a sincerity of sentiment that more than compensates for the absence of drama. We all had a laugh when Greenfield quipped, "I see *Vérité*, in

## KIRA Nominations

**ANDRIESEN: De Stijl.** Attacca-Babel 8738-1.

**BARTHOLOMÉE: Fancy as a Ground.** Igloo IGL 046.

**CLEMENTI: Concerto for Violin and 40 Strings.** Edinger; RAI Milan, Machiado. Ricordi CIRM 1004.

**DAVIES: Violin Concerto.** Stern; Royal Philharmonic, Previn. CBS Masterworks MK 42449.

**DRAGA: Sarmizegetusa.** Iași Philharmonic, Baciú. Electrecord ST-ECE 03246.

**DUTILLEUX: L'Arbre des songes (violin concerto).** Stern; Orchestre National de France, Maazel. CBS Masterworks MK 42449.

**KELTERBORN: Symphony No. 4.** Bamberg Symphony, Stein. Ex Libris 17010.

**KOLB: Soundings.** Ensemble Intercontemporain, Tamayo. CRI 537.

**KULENTY: Ad unum.** Ariston ALP 010.

**MARBE: Saxophone Concerto.** Kientzy; Ploesti Philharmonic, Andreescu. Electrecord ST-CS 0198.

**MESSIAEN: Saint François d'Assise.** Van Dam, Éda-Pierre; Paris Opéra, Ozawa. Cybelia CY 833-836.

**SCHNITTKE: Concerto for Oboe and Harp.** H. Holliger, U. Holliger; Stockholm Chamber Orchestra, Markiz. BIS CD 377.

**SINCPOLI: Lou Salomé: Suites Nos. 1 and 2.** Popp, Carreras; Stuttgart Radio Symphony Orchestra, Sinopoli. Deutsche Grammophon 415 984-2.

**TIPPETT: The Mask of Time.** Robinson, Walker, Tear, Cheek; BBC Symphony and Chorus, A. Davis. Angel EMI CDCB 47705.

**VIERU: Narration II.** Kientzy; Banatul Philharmonic, Georgescu. Electrecord ST-CS 0199.

**ZIMMERMANN: Die weisse Rose.** Fontana, Harder; Instrumental ensemble, Zimmermann. Orfeo S 162871.

## Musicians Club of New York


*The Musicians Club of New York, which administers the Koussevitzky Award of the American International Music Fund and provides the cash prize of \$3,000 jointly with HIGH FIDELITY, was founded in 1911 "to bring about a better understanding and closer fellowship among musicians and lovers of fine music." Comprising professional musicians and amateurs, its goals remain: to cultivate a more lively interest in music, to aid young musicians through sponsorship of concerts and competitions, and to focus attention on the American composer and performer. Its president is Bruce L. Kubert; past presidents have included Walter Damrosch, Norman Dello Joio, and—from 1961 to 1975—Olga Koussevitzky.*



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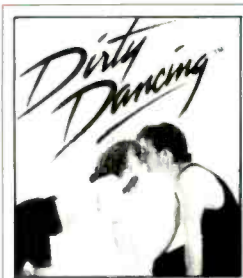
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Serge Martin, *Diapason-Harmonie*,  
*Avant Scène*, Belgian Radio  
Albert de Sutter, *Gazet van Antwerpen*

### BULGARIA

Dimitar Zenginov, *Bulgarska muzika*

### CANADA

Raymond Chatelin, *Vancouver Province*, *Playback*, CBC  
Thomas Hathaway, *High Fidelity*  
Rick MacMillan, *Music Magazine*, *The Music Scene*

### FINLAND

Jukka Isopuro, *Helsingin Sanomat*,  
*HiFi*

### FRANCE

Alain Fantapié,\* *Opéra International*,  
*Répertoire des Disques Compacts*  
Serge Martin, *Diapason*  
François Pigeaud, *Le Monde de la*  
*Musique*  
Patrick Szersnovicz, *Le Monde de la*  
*Musique*  
Marc Vignal, *Le Monde de la Musique*,  
Radio France

### GREAT BRITAIN

Edward Greenfield,\* *The Guardian*,  
*Gramophone*  
Robert Layton, *Gramophone*  
J. B. Steane, *Gramophone*

### ITALY

Luigi Bellingardi, *Stereoplay*, *Suono*, *Il*  
*Mondo della Musica*, *Pianotime*,  
*Nuova Rivista Musicale Italiana*  
Mario de Luigi, *Musica e Dischi*  
Danilo Prefumo, *Musica e Dischi*  
Enzo Restagno,\* *Stampa Sera*

### JAPAN

Toshio Oka, *Stereo Sound*  
Kenji Tsumori, *Asahi Shimbun*

### THE NETHERLANDS

Jan de Kruijff, *HiFi Video Test*, *Compact Disc*

### ROMANIA

Alfred Hoffman,\* *Muzica, România*  
*Literara*

### SPAIN

José Luis Pérez de Arteaga,\* *Reseña*,  
*Scherzo*, *El País*, National Spanish  
Radio

### SWEDEN

Stig Jacobsson, *HiFi & Musik*  
Bengt Pleijel,\* *Musikrevy*  
Gunnar Sjöqvist, *Kvällsposten*, *Musik-*  
*revy*

### SWITZERLAND

Fernando de Carli, *Corriere del Ticino*,  
*Azione*  
Mario Gerteis, *Tages-Anzeiger Zü-*  
*rich*, *Luzerner Neuste Nachrichten*, *Sound*  
André Hunziker, *Le Courrier*, *Video &*  
*Revue Son*, *Coopération*  
Pierre Michot,\* *Journal de Genève*,  
*Gazette de Lausanne*  
Éric Pousaz, *24-Heures*, *Lausanne*

### UNITED STATES

Thor Eckert, Jr., *Christian Science*  
*Monitor*, *High Fidelity*  
Paul Hertelendy, *San Jose Mercury*  
*News*  
Theodore W. Libbey, Jr.,\* *High Fidel-*  
*ity*, National Public Radio  
Paul Moor, *High Fidelity*, *Musical*  
*America*  
Tim Smith, *Fort Lauderdale News*,  
*Sun-Sentinel*  
David Patrick Stearns, *USA Today*,  
*Ovation*  
James Wierzbicki, *St. Louis Post-*  
*Dispatch*, *High Fidelity*, National  
Public Radio  
Bill Zakariasen, *New York Daily News*,  
*High Fidelity*

### WEST GERMANY

Ekkehart Kroher, *Der Musikmarkt*,  
*Frankfurter Allgemeine Zeitung*  
Hartmut Lück, *Fono Forum*, *Preis der*  
*Deutschen Schallplattenkritik*, *Radio*  
*Bremen*  
Stefan Mikorey, *Fono Forum*  
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Gerhard Wienke, *Fono Forum*, *Preis*  
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*South German Radio*

\*Jury member

the form of Hildegard Behrens, as a sort of celestial Margaret Thatcher"—but the fact that Behrens was involved at all showed the lengths to which Pathé had gone to record the opera with an absolutely top cast. As for Van Dam, this is surely one of the greatest performances he has ever given; had he been the recording's only asset, we still would have been inclined to award it the prize.

I was especially happy that this year's laureates included American conductor James Levine, whose Deutsche Grammophon recording of orchestral works by Arnold Schoenberg, Alban Berg, and Anton Webern with the Berlin Philharmonic was the fourth of the releases crowned by our jury. This record had come under fire on technical grounds—several sharp-eared critics have pointed out that there are numerous edits in the final mix, and that the miking of the orchestra had produced an unnatural highlighting of certain instruments at the expense of others—and I felt obliged to stress these points in the discussion. But I was compelled to agree with Enzo Restagno and Alain Fantapié—our Italian and French jurors, respectively—that these *were* powerful performances, ones that broke completely with the dry, Darmstadt-inspired tradition of most interpretations to reestablish the connection this music had with Romanticism. Michot spoke of finding "a restoration of expression" in Levine's readings, and whatever one thought of the execution of the Berlin Philharmonic and the technical merits of the recording, that was a powerful argument in favor of naming the disc one of the year's outstanding releases.

Between listening sessions, we had been able to do a good bit of exploring in the South of France. The musical highlights included performances of Rossini's *Armida* and Mozart's *La clemenza di Tito* at the Festival d'Aix-en-Provence and a Boulez evening at the Festival d'Avignon. There was also a rather sorry concert by Semyon Bychkov and L'Orchestre de Paris at the Château d'O outside Montpellier. Our sightseeing took us to Carcassonne on July 14 for a *son et lumière* spectacular celebrating the 199th anniversary of the Fall of the Bastille with a magnificent fireworks display proclaiming the theme of *Liberté*. We also visited the largest private record collection in the world, belonging to the indefatigable septuagenarian Armand Panigel and housed in his remarkable mansion in Saint-Rémy-de-Provence. Panigel, a noted journalist and radio personality who has amassed several fortunes, was the warmest of hosts.

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to Saint-Rémy had been the selection of a Koussevitzky Award winner—which proved rather difficult, although in the end the consensus was fairly clear. The Koussevitzky International Record Award—named in honor of Serge and Olga Koussevitzky—is a cash prize of \$3,000 given to a living composer for an orchestral work (requiring a minimum of 16 players) recorded for the first time during the year under review. The fact that the award goes to a composer, rather than a recording, has several times resulted in a dilemma during the years I've served on the jury. It is never easy to deny the prize to a major, established composer and pre-

nations. These, too, were important works by established masters.

We were only too happy to take note of them, and rejoiced in the fact that the year had been marked by such releases. But in the end, we agreed to look elsewhere for our KIRA laureate. Even then, the competition was intense. There was the potent, single-movement Symphony No. 4 of Swiss composer Rudolf Kelterborn, the delightfully insouciant, energetic whirl of Louis Andriessen's *De Stijl*, the poignant sonic stasis of Aldo Clementi's *Concerto for Violin and 40 Strings*. Each of these works had its backers.

It had also been a banner year for wom-

composer of finesse, ideas, and depth.

So, we readily admitted, is Magnus Lindberg, the young Finn who ultimately prevailed in the judging. The winning work, named *Kraft*, had been vividly captured on a Finlandia recording in a top-notch performance from the Swedish Radio Symphony Orchestra and the Toimii Ensemble (of which Lindberg is a member), under the direction of Lindberg's compatriot Esa-Pekka Salonen. To our ears, *Kraft* clearly lived up to its name: It is a composition of remarkable power, a work that hurls strongly chiseled masses of sound at the listener with explosive force, wrenching music out of that sound with brutal purposefulness. Even small sounds acquire enormous significance in the context of *Kraft's* carefully developed progression, where the boundaries between conventional symphonic argument, hard rock, and noise are broken down and pushed aside.

It took the Finnish foreign ministry a day to track down the 30-year-old composer, who had gone on holiday to an island in the Baltic. Two members of Finland's national police force were dispatched by light plane to bring him in; a few hours later, Lindberg was on his way to Montpellier, courtesy of the Finnish Ministry of Education. He was able to join us at the final awards ceremony on Sunday, July 17, looking scarcely the worse for wear, and gave a gracious acceptance speech in French—later, after the presentation, regaling guests and members of the jury in three other languages as well.

Also present at the awards ceremony were Klaus L. Neumann, the producer of the Kuijken recording, and Marguerite Dütschler-Huber, founder and chief executive of the Claves label. Maestro Plasson had an engagement in the Loire valley and was unable to attend the ceremony, but the resourceful Jacques Blanc accepted the award on his behalf, promising to present it to Plasson the following week when he came to Montpellier with his orchestra.

We and our guests were treated to a display of folk dancing following the presentation of the awards, and the festivities concluded with a delightful seaside dinner. We posed for pictures, and I silently bade farewell to the Mediterranean—but only for a while. Enzo Restagno had already offered to serve as our negotiant for next year's meeting, which he proposed we hold in Rome at the festival of the Villa Medici. His suggestion was enthusiastically approved, at least one member of the jury fondly remembering the coin he had tossed into the Fontana di Trevi three summers before. . . .



At the awards dinner, from left: Alain Fantapié (France); KIRA laureate Magnus Lindberg; Harry Halbreich (Belgium); José Luis Pérez de Arteaga (Spain); Associate Editor Patricia Reilly; Alfred Hoffman (Romania); Enzo Restagno (Italy); Bengt Pleijel (Sweden); Theodore W. Libbey, Jr. (United States); Pierre Michot (Switzerland). Absent from photo: Edward Greenfield (Great Britain).

sent it to a younger, less well known figure—especially if the major composer has been represented by a major work. But the purpose of the Koussevitzky award, as I see it, is to anoint the as-yet-unanointed, to provide recognition at a point in a composer's career when it can make a difference.

This year's Koussevitzky field included Olivier Messiaen, whose career-capping opera *Saint François d'Assise* had been recorded during performances at the Paris Opéra, and Sir Michael Tippett, who had received an IRCA award some years back but never the KIRA, and whose *The Mask of Time* is a major work by anybody's standard. There were also the violin concertos of Henri Dutilleux (entitled *L'Arbre des songes*) and Peter Maxwell Davies, which had appeared on the same CBS disc and had received multiple nomi-

en composers, three of whom were represented in the final list. The young Polish composer Hanna Kulenty had come to our attention thanks to an Ariston recording of her conservatory graduation piece, *Ad unum*, which struck us as considerably more than a typical academic outing. Romania's Myriam Marbe was represented by what was surely one of her most important works to date: a lengthy and highly demanding saxophone concerto written for the remarkable soloist Daniel Kientzy. But it was an American, Barbara Kolb, who stood out not just among the women but in the field as a whole, and whose *Soundings*, recorded by the Ensemble Intercontemporain, might easily have won the award. The piece impressed all of us with the clarity and continuity of its line of action, and left no doubt that Kolb is a



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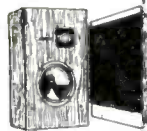
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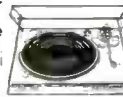
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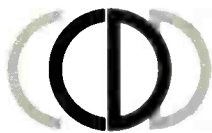
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### DEBUSSY PRÉLUDES: JACOBS

More Paul Jacobs on CD, this time a two-disc set of his immensely distinguished recordings of Debussy's *Préludes* for piano. Though there are more individual interpretations on record, these 1978 performances have worn wonderfully well, as have the pianist's intelligent, informative liner notes. Playing time: 83:35. (None-such 73031.) *T.T.*

### SIBELIUS STRING QUARTETS: SIBELIUS ACADEMY QUARTET

Chamber musicians today speak of "the Sibelius quartet," as if the composer wrote only one—the 1909 Opus 56, in D minor, subtitled "*Voces intimae*." In fact, he wrote two before that, and this recording proves them works well worth knowing. Sibelius, a 22-year-old student at the Helsinki Music Institute, wrote the first, in A minor, in 1889. Ferruccio Busoni, a visiting professor, heard it and subsequently said: "We paid attention when we realized that we were in the presence of something far beyond the ordinary pupil."

Sibelius wrote the second, in B flat, a year later, and this one meant enough to him for him to call it his Opus 4. In both works, one recognizes various German influences—Beethoven, Schubert, Mendelssohn, Brahms—plus a dash of Grieg, but the unique voice that would eventually become Finland's most famous had already begun to sing, and recognizably. The Sibelius Academy Quartet gives both works capable, loving performances, and Finlandia has recorded them expertly. Playing time: 59:54. (Finlandia FACD 345. Distributed by Harmonia Mundi, U.S.A.)

*P.M.*

### BRUCKNER SYMPHONIES: PHILHARMONIA, KLEMPERER

Otto Klemperer's 1960s recordings of Bruckner's Fourth and Seventh symphonies belong in every collection, especially on these excellent midprice CDs. Though these performances may be equalled, they will never be bettered as examples of architectural conducting at its finest. Klemperer sees each work as a whole and is willing to sacrifice the thrill of the moment to better reveal the big picture. Witness his treatment of the Seventh: Where so many conductors speed up the dancelike third subject in the first movement, Klemperer

keeps the tempo steady, allowing rhythm and harmony to provide sufficient contrast. Similarly, he is one of the few conductors to grasp that the glorious coda of the first movement must not dwarf the virtually identical passage that concludes the work. Klemperer's is the finest peroration this symphony has ever received.

His account of the Fourth Symphony offers similar satisfaction. The opening section, usually a series of isolated horn calls, becomes an actual musical phrase at Klemperer's quicker, flowing tempo. The pace adopted in this passage, by the way, can be seen to refute the widely held view of this conductor as a ponderous and lethargic interpreter. What Klemperer so often did was to alter the relative balance between quick and slow sections, as his comparatively rapid Andante and slow Scherzo demonstrate. But has the rustic drama and atmosphere of this "hunting" movement ever been so clearly projected? The recorded sound on both discs is first-rate, the Seventh a bit warmer than the more brilliant Fourth. Angel EMI should waste no time in releasing the rest of Klemperer's Bruckner, especially his revelatory performance of the Sixth Symphony. Playing times: 60:59 (Angel EMI CDM 69127); 65:11 (Angel EMI CDM 9126). *D.H.*

### MOZART, WEBER CLARINET QUINTETS: BRUNNER, HAGEN

Why is it that, in the entire 19th- and late-18th-century chamber music repertory for winds, almost all of the genuinely first-class material belongs to the clarinet? Where in that gamut are there sonatas for piano and wind instrument that can compare with the two clarinet sonatas written by Brahms? Where are there concerted works, for wind instrument and strings, that rival the clarinet quintets of Brahms, Mozart, and Weber? The latter two pieces are paired on a new Deutsche Grammophon CD that features the youthful and highly polished Hagen Quartet and Eduard Brunner, principal clarinetist of the Bavarian Radio Symphony Orchestra. It's a good mix of music: Weber's bubbly 1815 work, pitched in the bright key of B flat, sounds like a sonic dessert after the weightier, meatier K. 581 Quintet in A of Mozart. And the performances are straightforwardly excellent, notwithstanding some oddly unstylistic treat-

ments of appoggiaturas in the Mozart and a lot of audible key-clicking from Brunner throughout. Playing time: 56:24. (Deutsche Grammophon 419 600-2.) *J.W.*

### RAVEL ORCHESTRAL WORKS: LILLE PHILHARMONIC, CASADESUS

This CD belongs to Harmonia Mundi's bargain-price series "Musique d'Abord," and it has a lot to recommend it. The Lille Philharmonic, which is domiciled in France's industrial north, sounds highly professional, well trained, and responsive. Mezzo-soprano Nadine Denize and conductor Jean-Claude Casadesus, between them, bring off one of the sultriest, sexiest performances of *Shéhérazade* I've ever heard, and Denize's French enunciation caresses the ear. Also on the disc are *Deux Mélodies hébraïques*, Suite No. 2 from *Daphnis et Chloé*, and *Pavane pour une infante défunte*. For some reason, the engineers have recorded all this at an unusually low level; I can't recall ever having had to set my volume control so high for a CD. Once you crank it up, though, it sounds fine. The leaflet provides none of the song texts, but at this price, *tiens*. . . . Playing time: 48:49. (Harmonia Mundi HMA 190064. Distributed by Harmonia Mundi, U.S.A.) *P.M.*

### PALESTRINA MASS, MOTETS: CHRIST CHURCH CHOIR, DARLINGTON

Palestrina wrote 104 masses, of which the *Missa "Dum complerentur"* is one of the most beautiful. There is very little that is stylistically unique about it; its appeal stems largely from the rich sonorities that are typical of this composer. Stephen Darlington leads the Choir of Christ Church Cathedral, Oxford, in a clean, direct reading of the mass, maintaining a strong sense of flow and keeping the slower sections from lagging. This work is followed by five fine motets; *Super flumina Babylonis* receives a particularly loving treatment.

One's reactions to these performances will depend largely on one's disposition toward English cathedral choirs. The Christ Church group is quite proficient, and the boy sopranos produce an unusually rich tone for an English group. They seem to tire as they approach the end of the mass, however, and are sharp on a number of their later entrances. The choral mix is rather top-heavy: 16 sopranos overbalance a total of 14 of the other voice parts com-



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bined. This is emphasized by the recording, which captures the church acoustic nicely but has placed the men well behind the boys. Still, an enjoyable release. Playing time: 54:31. (Nimbus NI 5100.) C.R.

**DVOŘÁK SERENADES:  
LONDON PHILHARMONIC, HOGWOOD**

The current Compact Disc catalogs already list at least four pairings of Dvořák's Opus 22 Serenade in E for strings and Opus 44 Serenade in D minor for winds. A new account of these familiar masterpieces from the late 1870s, then, is not

going to generate headlines, not even if the conductor is Christopher Hogwood and the scholarly attention to interpretive detail is as keen as what Hogwood typically applies to works from much earlier periods. (In this instance, some of the details may be insignificant, but certainly not the restoration of long passages traditionally omitted from the third and fifth movements of the serenade for strings). On the other hand, Hogwood's performances with members of the London Philharmonic Orchestra are just as good as those offered by the conductorless Orpheus

Chamber Orchestra (on Deutsche Grammophon), and in terms of animation and clarity, they're arguably superior to those by Neville Marriner and the Academy of St. Martin-in-the-Fields (on Philips) and Alexander Schneider and the Chamber Orchestra of Europe (on Musicmasters). Indeed, collectors just getting into Dvořák would do well to start here. Playing time: 55:15. (London 417 452-2.) J.W.

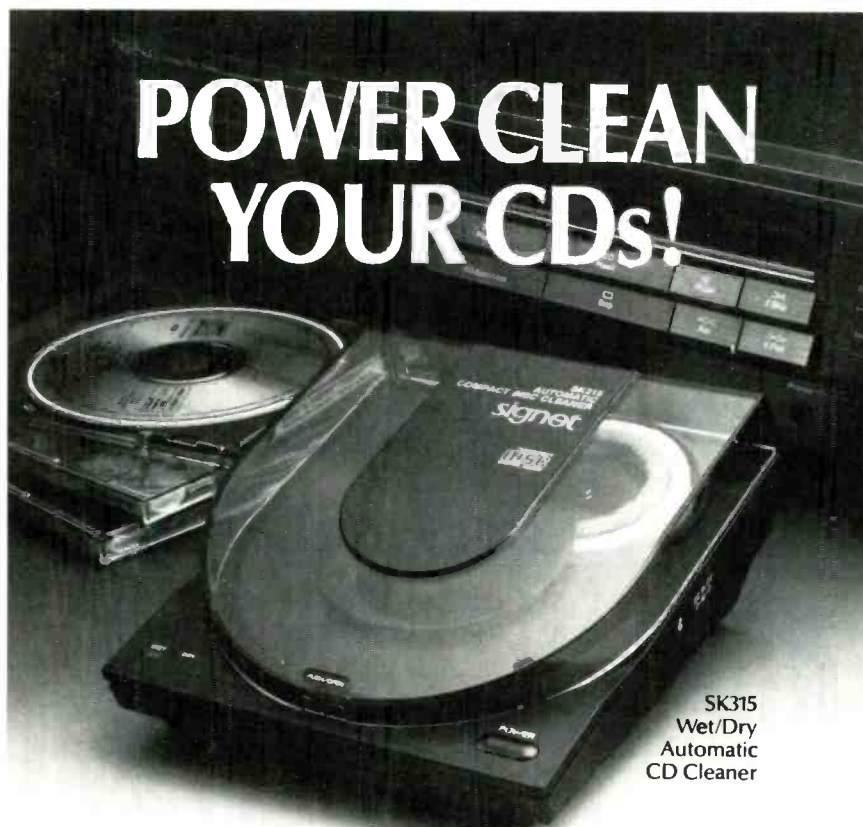
**BRAHMS "LIEBESLIEDER":  
MATHIS, FASSBAENDER, ET AL.**

Edith Mathis, Brigitte Fassbaender, Peter Schreier, and Dietrich Fischer-Dieskau are accompanied by Karl Engel and Wolfgang Sawallisch in this all-star account of Brahms's *Liebesslieder* and *Neue Liebesslieder*, Opuses 52 and 65. The performance is rather heavy-footed, and for all the beauties of the singing, many listeners—especially those who know these charming pieces as the soundtrack for George Balanchine's exquisite 1960 ballet *Liebesslieder Walzer*—will prefer something a little less schmaltzy and a lot more danceable. Since there isn't anything better to be had on CD right now, the best course may be to sit this one out. The Opus 64 vocal quartets fill out the disc. Texts but no notes. Playing time: 54:46. (Deutsche Grammophon 423 133-2.) T.T.

**MAHLER SIXTH SYMPHONY:  
PHILHARMONIA, SINOPOLI**

Giuseppe Sinopoli and the Philharmonia Orchestra deliver a performance of Mahler's Sixth Symphony that is transparent, finely detailed, and often mesmerizing. Sinopoli takes an essentially non-neurotic view, which puts forth the power of this work without emotional hysteria. "My Sixth will propound riddles the solution of which may be attempted only by a generation which has absorbed and truly digested my first five symphonies," Mahler wrote, and the act of digestion is an apt analogy for Sinopoli's deeply considered approach. Though he takes a full ten minutes longer with this work than Herbert von Karajan does, and fifteen minutes longer than Leonard Bernstein, the pace never seems to slacken, because of his extraordinarily intense concentration. Nor do the slow tempos deprive the symphony of its frightening climaxes. Rather, Sinopoli offers the listener an opportunity to examine this event-filled music in a rare way—one can almost see what is going on while at the same time being affected by it. A similar approach characterizes the Adagio from Symphony No. 10, which fills out the second disc in the set.

Deutsche Grammophon provides a recording of great clarity and impact for the gorgeous playing of the Philharmonia Orchestra. Playing time: 125:37. (Deutsche Grammophon 423 082-2.) R.R.R.



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# Hindemith Gems

## FROM THE

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**HINDEMITH: Mathis der Maler (Symphony); Trauermusik\*; Symphonic Metamorphosis on Themes of Carl Maria von Weber.**

Walther\*; San Francisco Symphony. Blomstedt. Andrew Cornall, prod. London 421 523-2 (D). □

This is the second release to come our way from Herbert Blomstedt and the San Francisco Symphony (the first was of the Nielsen Fourth and Fifth Symphonies), and it offers remarkably supple accounts of three Hindemith masterworks. All of the performances are quite fine—particularly that of the *Trauermusik*, which features the elegant playing of the orchestra's principal violist, Geraldine Walther.

Hindemith's 1934 symphony from the opera *Mathis der Maler*, no less than the opera itself, is a seminal work in 20th-century music. It was with this piece that the composer effectively spoke out against Nazi tyranny in the arts, at the same time reaffirming his commitment to the cause of creating a listenable modern music that nevertheless stimulated and challenged the ear. Blomstedt and his orchestra offer a flowing, refined performance that makes the work sound almost easy, both to hear and to play. The interpretation has neither the cragginess of Jascha Horenstein's reading (on Chandos) nor the *gravitas* of William Steinberg's (the best of all, on

Deutsche Grammophon, soon to appear on CD). But Blomstedt's ability to knit the music together pays great dividends, especially in the rather episodic finale.

The *Symphonic Metamorphosis on Themes of Carl Maria von Weber*—one of Hindemith's most carefree works despite the daunting title—gets a truly joyous and virtuosic interpretation, especially in the rip-roaring "Turandot" Scherzo. This movement unfortunately prompts Blomstedt's only miscalculation: He opts for crash rather than suspended cymbals in the "Chinese" percussion solos, making nonsense of Hindemith's sonic concept. Also, the flute playing in the following *andantino* is breathy and obtrusive, though part of the problem may stem from producer Andrew Cornall's preference for instrumental spotlighting. On the whole, this is a commendable release, and it's great to see this terrific music getting the attention of a major label.

One last point: The cover art, by Graham Wood, based on the movement titles of the *Mathis* Symphony, is of an ugliness that quite defies description. Why couldn't London give us the three actual panels of Matthias Grünewald's Isenheim altarpiece that inspired Hindemith in the first place? This is no way to attract those who are just dipping into the modern classics. Playing time: 56:08. *David Hurwitz*

**CLEMENS NON PAPA: Missa "Pastores quidnam vidistis"; Motets (4).**

Tallis Scholars, Phillips. Steve C. Smith and Peter Phillips, prods. Gimell CDGIM 13 (D). □ 1585-13. □ 1585T-13. (Distributed by Harmonia Mundi, U.S.A.)

Motets: *Pastores quidnam vidistis; Tribulationes civitatum; Pater peccavi; Ego flos campi.*

**GESUALDO: Tenebrae Responsories for Holy Saturday (9); Motets (4).**

Tallis Scholars, Phillips. Steve C. Smith and Peter Phillips, prods. Gimell CDGIM 15 (D). □ 1585-15. □ 1585T-15. (Distributed by Harmonia Mundi, U.S.A.)

Responsories: *Sicut ovis; Jerusalem, surge; Plange quasi virgo; Recessit pastor noster; O vos omnes; Ecce quomodo moritur justus; Astiterunt reges terrae; Aestimatus sum; Sepulto Domino.* Motets: *Ave, dulcissima Maria; Precibus et meritis beatae Mariae; Ave, Regina coelorum; Maria Mater gratiae.*

Two highly recommendable discs of Renaissance sacred music are these recent offerings from the Tallis Scholars. Carlo Gesualdo (c. 1560–1613) is probably better known for having killed his adulterous wife than for his compositions. On the surface, his works adhere very much to the High Renaissance vocal style; he may not have been the greatest of masters, but his settings certainly do not lack in beauty. ▶

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The effect is fascinating, and by no means unpleasant on the ear, since the dissonance is used to color and redirect, not unravel, the lines. The Tallis Scholars are the first group I have heard that sings these works in tune—a considerable technical achievement that by no means interferes with the ensemble's usual poise and eloquence of delivery.

A second disc contains the *Missa "Pastores quidnam vidistis"* and motets by the largely ignored Flemish composer Clemens non Papa (c. 1510–c. 1556). Stylistically, Clemens fits neatly between his famed predecessor, Josquin des Prez, and his worthy successor, Orlando di Lasso, although his pieces are perhaps more backward- than forward-looking. Particularly attractive are the motet *Pastores quidnam vidistis*, upon which the mass is based, and the gentle, repentant *Pater peccavi*. The Tallis ensemble's director, Peter Phillips, has made an enterprising choice of repertory here, for these important devotional works have remained idle too long.

The recorded sound on both discs maintains the proper church ambience and yet is quite clear, if a little hard at the top end. Playing times: 54:15 (CDGIM 13); 52:07 (CDGIM 15).

Christopher Rothko

### COPLAND: Piano Fantasy; Passacaglia; Night Thoughts; Piano Variations.

- Fierro. Heidi Lesemann, prod. Delos DCD 1013 (A).

Charles Fierro comes with good credentials for this music: Nadia Boulanger invited him to play an all-Copland bicentennial recital in 1976 at Fontainebleau, where Copland had gone to study with her in 1920. Also, the leaflet quotes a letter to Fierro from the composer: "I'm very pleased indeed with what you did with the *Piano Fantasy*. I think it is a first-rate rendition, and makes the piece seem shorter than it really is."

Except for the early *Passacaglia* (1922), this selection presents Copland at his most introspective and cryptic. The passage of half a century has made the *Pi-*

*ano Variations'* harmonies and their resolutions seem ever more logical, but the unending dissonances still ring out like steel on steel. The *Fantasy*, a work far ahead of its time, will probably still have to wait a while before audiences discover and embrace it for its true worth.

Fierro deserves that accolade from Copland, and not only for the *Fantasy*—but one recurring mannerism of his annoys me. At various points where the score incorporates a lengthy, but strictly notated, pause (not a hold), Fierro does not count the printed note values, and thus shortchanges the interstitial silences. He may have done this here for reasons that have to do with the recorded medium, but whatever his reasons, this inaccuracy mars these otherwise admirable performances. Playing time: 51:53. Paul Moor

### ELLER: Elegia for Harp and Strings; Five Pieces for String Orchestra; Dawn. RAID: Symphony No. 1, in C minor.

Scottish National Orchestra, Järvi. Brilliant Couzens, prod. Chandos CHAN 8525 (D). © ABRD 1235. □ ABTD 1235. (Distributed by Harmonia Mundi, U.S.A.) This superlative CD, titled "Music from Estonia, Volume 1," features the unjustly neglected Symphony No. 1 of Kaljo Raid (pronounced rah-eed), who was born in 1922 and since 1954 has been a Baptist priest in Canada. Written in 1944, the 38-minute symphony commands instant attention: It is a work of great imagination, mystery, and beauty, generally rather sombre, but with several bright, positive interludes. There are traces of Janáček, Scriabin, and Hanson, and a near-quote from Prokofiev's *Romeo and Juliet*, but the writing is nonetheless quite distinctive, revealing the hand of a true master of orchestration.

The symphony's funereal first movement reaches a majestic conclusion, setting the stage for a deliciously lighthearted Scherzo. The Finale begins impressively with a stirring theme of presumably nationalistic character. The brass are stunning in a climax followed by a triumphant, grandiose coda. There could well be a program to this symphony, but the limited notes that accompany the CD tell little about either of the two composers, or their music.

Heino Eller (1887–1970) has been called the "father of modern Estonian music," and he was one of Raid's teachers. His *Elegia for Harp and Strings* (1931) is rather strangely titled, as the harp part is



almost nonexistent. The *Five Pieces for String Orchestra* (1953)—actually arrangements of earlier piano works—show a cool, Nordic approach. Only in the brief tone poem, *Dawn* (1918), does Eller display a style that could be called Romantic.

Estonian-born conductor Neeme Järvi offers superlative accounts of all of this music and gets wonderful support from the Scottish National Orchestra, which has never sounded better. The reproduction is somewhat glassy and overly bright (rather typical of Chandos), but the recording well conveys the apocalyptic climaxes of *Raid's* symphony. I hope future volumes in the series will include more of his music. In the meantime, this first issue is highly rewarding for anyone interested in out-of-the-way 20th-century symphonic music. Playing time: 75:18.

Robert E. Benson

**GERSHWIN (arr. Mayorga): Songs (18).**

*Nixon, Mayorga. J. Tamblyn Henderson, Jr., prod. Reference RR 19CD (D).* ©

*Let's Call the Whole Thing Off; I've Got a Crush on You; But Not for Me; The Real American Folk Song; Blah, Blah, Blah; Blue, Blue, Blue; The Babbitt and the Bro-mide; Nice Work If You Can Get It; Someone to Watch Over Me; Summertime; By Strauss; Embraceable You; I Got Rhythm; Soon; Maybe; Looking For a Boy (medley); Of Thee I Sing; The Man I Love.*

Less than 24 hours after giving a recital of early Schoenberg, unpublished Webern,



Marni Nixon

early Berg, Weill, and Gershwin, Marni Nixon and Lincoln Mayorga checked into the Civic Auditorium in Oxnard, California, to make this recording—in a ten-hour marathon session with only one break. To

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judge by the result, they must have had a wonderful time.

They bring unusual credentials to this undertaking. *Time* magazine once called Nixon "The Ghostess with the Mostess" because of her providing movie singing voices for Deborah Kerr, Audrey Hepburn, and Natalie Wood; she also recorded with Stravinsky and participated in recording Webern's complete works. Mayorga has provided arrangements for Barbra Streisand, Johnny Mathis, and Mel Tormé, among others, and in the leaflet he traces his pedagogical family tree, modestly: via Schnabel, Leschetizky, and Czerny directly to Beethoven himself. These two artists do indeed make quite a pair.

No matter how well you know your Gershwin, you will probably find some novelties here; I certainly did, several of them genuine delights. "The Real American Folk Song" (from *Ladies First*) tips its derby to the likes of Scott Joplin; "Blah, Blah, Blah" (from *Delicious*) twits the June-Moon clichés of Ira Gershwin's less gifted colleagues. Imaginative, tasteful musical surprises abound: Nixon starts "Soon" as she might start a Rachmaninoff or Ravel vocalise, and Mayorga (honorably giving credit to Steven Blier) leads into "Embraceable You" with the first of Bach's two-part Inventions.

Nixon's admirable diction makes almost every syllable crystal-clear. Neither too austere nor too elaborate, this program presents these wonderful songs at their best. "My dear Mr. Gershwin," as Alban Berg said cordially after listening to him play his songs for the better part of an hour, "music is music." Playing time: 49:06. *Paul Moor*

### HAYDN: Symphonies: No. 93, in D; No. 99, in E flat.

London Philharmonic Orchestra, Solti.  
Michael Haas, prod. London 417 620-2 (D). ⊕ ⊞

These are two of Haydn's most energetically inventive symphonies, and two of the wittiest. Their humor is to be found not only in the broad jokes—the bassoon, for example, that impatiently terminates a tiresome difference of opinion between the strings and woodwinds in the second movement of Symphony No. 93. It is to be found in the astonishing profusion of ideas in every movement: in the startling, boisterous eruptions of the entire orchestra; the equally unexpected pianissimos; the bits of melody that separate themselves from the tune and head off on their own in some new direction; the unexpectedness of that direction itself. Moreover, unlike the startling occurrences in the works of most other composers of the period, Haydn's surprises are never intrusions of unrelated material. Harmonically and motivically

they are all simply different aspects of one intricate construction, built to be able to show more sides than most compositions can.

Georg Solti's accounts of these two



Superb Haydn from Sir Georg Solti

symphonies are superb, although he takes the admittedly grandiose Minuet of Symphony No. 93 too slowly to support his emphatic treatment of its rhythmic contour. The recorded perspective is more distant in Symphony No. 99, and consequently the sound there is cooler and more reverberant than it is in Symphony No. 93. Playing time: 52:50. *Thomas Hathaway*

### JANÁČEK: Glagolská mše.

Söderström, Drobková. Livora, Novák, Hora; Prague Philharmonic Chorus, Czech Philharmonic Orchestra, Mackeras. Supraphon C37 7448 (D). (Distributed by Denon.)

Charles Mackerras may come from Australia, but Supraphon, Czechoslovakia's very own recording company, equips this set with a brochure that calls him "the world's leading conductor of the works of Janáček." The origin of that distinction goes back to 1947, when a scholarship took Mackerras to Prague to study with the Czech Philharmonic's great conductor Václav Talich. Here Mackerras has four excellent vocal soloists, a superb chorus, a virtuoso organist, and one of the world's greatest orchestras—all of them musicians steeped since childhood in this heavily idiomatic, bardic, sometimes almost barbaric music. Under such ideal circumstances, not much could really go wrong.

Leoš Janáček composed the *Glagolitic Mass* in 1926, the same year as the more



popular *Sinfonietta*, and both these important works reflect his optimism over the fact that World War I had brought his native Moravia independence for the first time in three centuries. The text (classical Slavonic, translated from the Latin) goes back to the introduction into Moravia of the Glagolitic alphabet by the Byzantine missionary Kirill in 863 A.D.

Mackerras drives this music with a completely appropriate passionate energy, inspiring his forces to pour their hearts and souls into the performance. You may want to know that the leaflet (in which the Japanese firm Denon had a hand) provides the text—an essential component of the overall aesthetic experience—in only three languages: Old Slavonic, Latin, and Japanese. I guess that puts us in our place. Playing time: 39:55. *Paul Moor*

**MOZART: Le nozze di Figaro.**

Allen, Battle, Hynninen, Price, Murray, Rydl, various artists; Vienna State Opera Chorus, Vienna Philharmonic, Muti. James Mallinson, prod. Angel EMI CDCC 47978 (D, 3). (3). (3).

This set is almost worth having for the Sussanna of Kathleen Battle—a perfect example, season after season, of a singer suited to a role by nature—and for the Countess of Margaret Price, who for once sings very movingly and not just perfectly. (As Colin Davis's Pamina, Price gave a performance as musically sterile as it was technically perfect, and in Davis's second *Messiah* she sang "I know that my Redeemer liveth" as though she were only relaying someone else's good news.) Ann Murray does well with Cherubino's recitatives and ensembles, although she is insecure in the two arias. The male principals are neither weak nor notably strong.

Some who buy this set may end up playing it only for Battle and Price, in which case they might as well wait for the single CD of excerpts. For in spite of all its good qualities, the performance as a whole lacks the intimacy that is an essential part

of this domestic drama. Except for the garden scene, *Le nozze di Figaro* takes place within rooms, some of them small, and for the most part between a few characters at a time—characters, moreover, who are no larger than in real life (compared with those in *Elektra*, the *Ring*, or even *Die Zauberflöte*). However, on this recording, where the microphones bring the orchestra close and place the singers farther back much of the time; where the cold sound echoes around the empty Musikvereinsaal; and where there seems to be no mid-

volume to the singing, just pianissimo and forte, the effect is anything but intimate. In such an environment, Riccardo Muti's strict tempos and sometimes jabbing expression come across as being even fiercer than they may have been in reality.

Until James Levine records his remarkable performance, Georg Solti's remains the preferred modern version, although the model, for me, is Fritz Busch's well-recorded 1934 account, in spite of its omission of the recitatives. Playing time: 165:52. *Thomas Hathaway*

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Ⓛ	LP	Ⓜ	Videocassette
Ⓢ	Cassette	Ⓜ	Videodisc
Ⓢ	Compact Disc		

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(A) Analog original (D) Digital original

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# THE World<sup>ON</sup> Compact Disc

## A tour of international, digital folk and pop

**A**s ethnic releases bombard the marketplace, more and more of them are hitting the shelves on Compact Disc. Over the course of several months, I have been listening to hours of world music, with the intention of letting digital enthusiasts know what they are likely to encounter out there in the discographical bush. Things are changing so rapidly, however, that it is not possible to go beyond the limits of a survey article: What a couple of years ago was a handful of albums in a dusty old corner of the record shop has now multiplied into hundreds of titles. Nor is it even remotely possible to isolate "the best" ten or twenty of these exotic CDs. Thus, I have chosen some discs simply because they are brand new, others because they are extremely unusual, a few more because everyone seems to like them. And with the added restrictions of CD availability before deadline, listening/reviewing time, and magazine space, we are undoubtedly passing up more than a few priceless gems. Such, alas, is the nature of surveys, but we nevertheless forge ahead. And for starters, we visit . . .

### ■ Bulgaria

If anyone in the music business had once suggested that a recording by the Bulgarian State Radio and Television Female Vocal Choir would someday sell thousands upon thousands of copies, commitment papers would have been drawn up. The ethnic sleeper of the year, bar none, **Le Mystère des Voix Bulgares** (Elektra/Nonesuch 79165-2) focuses on an area where Turkic, Slavic, and Arabic traditions all fuse to create a weirdly compelling tonality that combines open-throated passions with Gypsy angst—

a haunting echo of the primeval Europe that continues to survive like some buried mud-creature under layers of international schlock-pop. Don't be put off by the bureaucratic-sounding name of the ensemble: This is not the usual socialist ploy to pacify the natives by giving them a whitewashed version of their own music. It's devoid of any artificiality or pompous Europeanizations; in fact, placing traditional dissonances in a modern setting makes them all the more striking.

*Le Mystère* is part of Nonesuch's long-established Explorer Series of ethnic recordings. Two additional Bulgarian titles in the series are now reissued on one extended-length CD: **A Harvest, a Shepherd, a Bride/In the Shadow of the Mountain** (Elektra/Nonesuch 79195-2). Originally made in 1968, these recordings should appeal to those who crave the roots sound of unadulterated Bulgarian village music. All of these Nonesuch titles are drawn from analog masters (as are most of the other recordings under review in this article), yet their sound is superb, and Nonesuch provides informative booklets. The lyrics of the Bulgarian folk songs are translated in full, giving us a much deeper understanding of a dying musical culture where all of life's changes were once recorded in song. (Also celebrating this culture is **Balkana: The Music of Bulgaria**, now available on CD as Hannibal HNCD 1335; distributed by Carthage, P.O. Box 667, Rocky Hill, N.J. 08553.)

### ■ Celtic Regions

A musical culture that steadfastly *refuses* to die is the Celtic tradition. Artists from Ireland, Scotland, and Brittany are represented on the fine new compilation **Flight of the Green Linnet** (Rykodisc RCD 20075), drawn from the Celtic music

catalog of Green Linnet Records. Included are traditional reels, gavottes, bawdy songs, and ballads, given new life through the use of rock rhythms and the careful inclusion of non-Celtic instruments from bouzouki to synthesizer, playing alongside the conventional fiddle, flute, and bagpipe. Again, modernity is not allowed to dilute the historical base: It's fusion, but very discreetly so. The lyrics, by the way, are usually in understandable English, not Gaelic, and speak of the trials of love and political struggle—and also of a charming congregation, "The Parish of Dunkeld" (sung by Andy M. Stewart of the Scottish group Silly Wizard), who grew so tired of their "fire and brimstone" minister that they hung him, installed a whisky still inside the church, and partied every Sunday thereafter.

### ■ Africa

Leading the charge of ethnic CDs are titles from African artists. An early appreciation of their music appears in "Afro-Pop Rocks America" in the August 1984 issue of this magazine, and among the titles mentioned there by Carol Cooper is a collection of South African music that is now available on Compact Disc: **Zulu Jive** (Carthage CGCD 4410). Like old-fashioned rock 'n' roll, South African music is based on just three chords, so there's plenty of room for feeling. This is get-down music played by a hard-working, oppressed people who can still somehow feel joy. Although the rolling accordion and shrill penny-whistle are purely South African, they project a spirit as universal as song itself.

Among the more recent compilations of African pop, the finest I've heard is **Out of Africa** (Rykodisc RCD 20059). Assembling 11 outstanding tracks from

BY JOE BLUM

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South, Central, and West African traditions, Rykodisc has taken care to select artists like Youssou N'Dour, a true Muslim soul-singer, and Ebenezer Obey, keeper of the best rhythm section in juju, both of whom make music uniquely suited to the CD medium. African music is usually mult textured and many-voiced, but on each of these selections, there is careful separation of bass, guitar, chorus, and talking drum, enabling us to appreciate the intricate subtleties of the African aesthetic. Jane Agnime's "Lene N'De" is

some others. Still, the Hawaiian guitars sing like angels, and the vocals are truly down-home.

Lots more down-home vocals can be heard on the Bhundu Boys' fine *Shabini* (Disc Afrique AFRI CD02, distributed by Carthage). The Boys are from Zimbabwe, and they play an upbeat dance style called jit, which combines the gentle vocal harmonies and intense, forward-driving rhythms typical of the area, all above a latticework of sweet guitar and synth riffs. The CD package does not offer extensive

also has a solid South African compilation of its own called *Homeland* (Rounder CD 11549).

## ■ The Caribbean

Salsa CDs are quite rare. Aside from Latin jazz, which is always available (try Concord Jazz's line of Concord Picante releases), the major labels have generally avoided it—though Island has just made a push in the right direction with two Antilles/New Directions releases, Daniel Ponce's *Arawe* (see the review in our May 1988 issue) and Yomo Toro's *Funky Jibaro*. As good as these are, I've opted to focus on other, equally worthwhile items that don't have the benefit of all the publicity.

For one thing, some classic Latin music has begun to surface in the CD bins of Latin record stores. I've seen Tito Rodriguez, Celia Cruz, Willie Colón, and Johnny Pacheco, to name a few, as well as Eddie Palmieri and early Rubén Blades. I also found a nearly hour-long Joe Cuba disc, simply entitled *Joe Cuba Sextette* (Seeco CD 121; distributed by TH Rodven, 10124 N.W. 80th Ave., Hialeah Gardens, Fla. 33016), whose 20 tracks include all those quintessential Latin-soul jukebox hits (such as "To Be with You," sung in English by Jimmy Sabater) plus Cheo Feliciano's incomparable vocal improvisations—not a bad buy. Seeco, like most small import companies, does not provide liner notes, but let it be known that without Joe Cuba, the small-group "hot" style that is salsa might never have congealed. His group swung harder with six pieces than most could with twenty, before Latin bands had the benefit of huge bass amplifiers and 32-track mixing consoles to cover up flaws. The flaws are here, too, but it's a tough, compact sound with the raw energy of the street.

Moving on to what's contemporary, we have a fine Roberto Torres release, *Elegantemente Criollo* (Sar SAR 1043; distributed by Original Music, R.D. #1, Box 190, Lasher Rd., Tivoli, N.Y. 12583). A nouveau salsa sound with Colombian elements, Torres's music has a gentle, folksy feeling to it, although the arrangements make use of all the modern de-



Zimbabwe's Bhundu Boys: gentle harmonies and intense rhythms of the dance style jit

the ultimate example of polyrhythms funneled through the magic of the mixing board: Your brain will be boggled trying to synchronize what your left and right ears are hearing. To really test your coordination, try dancing.

One of the first African musicians to cross over into Western popularity is Nigerian artist King Sunny Ade. *The Return of the Juju King* (Mercury 832 522-2) has 17 surprisingly short tracks of his heavenly, overproduced orchestra sounding more like a juju band should. However, the obligatory (and mostly meaningless) synthesizer passages remain; despite all the hullabaloo over Sunny being the one who modernized African pop, he doesn't use hi-tech nearly as well as

notes, but song topics (partying, paying the rent, unfaithful lovers, jealous brothers) are given next to the titles so that you can better understand what this music is all about.

A significant release on Compact Disc is *Aki Special* (Rounder CD 11545), compiling early recordings by Nigerian artist Prince Nico Mbarga, among them his enormous first hit, "Sweet Mother." Nico plays with a straight up-and-down feeling that joins elements of juju, reggae, soukous, and disco-funk. He does not overpower you with charisma, but listen carefully and you will hear all sorts of inventiveness in the mix. As is customary with the Rounder label, sound quality and packaging are excellent. The company

O. EUAS



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vices. Produced by studio wizard Jon Fausty, this disc lopes gracefully along like a horse on a country road: lots of guajira, son montuno, and cha cha cha to soothe you as well as groove you, performed tastefully by the very best salsaeros.

Once you've been soothed and grooved, you'll no doubt be ready for zouk—**Hurricane Zouk** (Earthworks/Virgin 90882-2), that is, a fabulous anthology featuring some of the swingiest bands from the Guadeloupe/Martinique area, brought to us as part of Virgin Amer-

beguine: It is freer from hooks and gimmicks and generally more direct in presentation, featuring violins instead of horns, cowbells instead of synthesizers, plus an acoustic piano and not that many drummers. **La Case à Lucie** (Blue Silver 8224; distributed by Original Music) does have a synthesizer in there somewhere, but the simplicity of the sound predominates, delicate and quite romantic, with hints of bossa nova and charanga. The disco influence is here as well, but it just seasons the sauce. And this Compact Disc is digi-

thing (missing are such classics as "Natty Dread" and "Them Belly Full"), so you'll be glad to learn that Island has virtually all of Marley's original recordings on CD.

Newly available on domestic CD is Culture's debut album, **Two Sevens Clash** (Shanachie SH 44001; 37 E. Clinton St., Newton, N.J. 07860), one of the most influential reggae albums ever made. Sly Dunbar, Robbie Shakespeare, and others provide backup for Joseph Hill and his inspired crew as they present their 1977 (hence, "two sevens clash") prophecies of revolution and Armageddon. Culture eschews the romantic imagery and soul-stylizations of Marley in favor of a dense, Biblical symbolism that is a bit harder to get to, only because it's so serious—but then Armageddon is serious stuff.

As salsa inhabits New York and zouk thrives in Paris, so reggae reaches back to the Ivory Coast, where Alpha Blondy sings in Arabic, Hebrew, French, English, Mandingo, and his native Dioula. His interpretation of the pan-African reggae message involves pacifism, tolerance, and forgiveness; he distrusts politics and militarism of any kind and visualizes peace and reconciliation as the ultimate revolution. So on **Jerusalem** (Shanachie SH 43054), Blondy sings about the Kalachnikov, a Soviet-made assault rifle: "When you sow hate, you harvest Kalachnikov love." His other Shanachie offering, **Apartheid Is Nazism** (Shanachie SH 43042), asks "Come Back Jesus" to help peace and love return to the world. Musically, I prefer this album: It has a broader range of instrumental and vocal-group backgrounds, whereas *Jerusalem* tends toward just vocal-and-riddim. Blondy is a true reggae stylist, and his West African sensibilities give a light, rollicking quality to a form that can at times get ponderously dependent on bass and drums.

## ■ Brazil

Brazilian CDs exist in abundance: You will surely find a few even in Peoria. Polygram is out front with several new releases, as well as a spate of reissues under the umbrella title *Personalidade*. Of these, the one that really interests me is **Chico Buarque** (Polygram Brazil/Philips 832



*Jamaican Culture: influential reggae prophecies of revolution and Armageddon*

ica's new ethnic-music line. An amalgam of various Afro-Caribbean forms, carefully designed yet fresh, zouk is an ideal answer to the overkill of today's technology. Like soukous of Zaire, it is sprightly, upbeat, and always danceable. In fact, many zouk musicians have collaborated in Paris with artists from Zaire ("Guetho a Liso" features soukous star Kanda Bongo Man on vocals), but zouk is less dependent on guitar riffs and uses a greater variety of studio and instrumental effects. Even when it sounds like sneaky-cute disco, it's deft and bubbly, and Francky Vincent's puerile puns won't bother you a bit if you don't know French.

Malavoi is from roughly the same part of the globe, but the group's music is patterned more precisely on the traditional

tally recorded and mixed, so check it out.

No music is better suited to CD than reggae, with its enormous separation between shrill vocal harmonies and booming bass and its oh-so-careful articulation of each instrument in between. And no better reggae exists than that of Bob Marley and the Wailers, whose "best" recordings are now available on the CD collection **Legend** (Island 90169-2). Singing of love that's human and of Love Divine, the Wailers achieved the highest level of polish and professionalism in the studio without sacrificing an ounce of soul or grit. Simultaneously sweet and tough, with never a wasted word, they penetrated the thickest ex-colonialist hides, giving the Rastafarian message an unexpected global thrust. This collection can't hold every-





## THE World ON Compact Disc

220-2), perhaps because I've never heard him before. Buarque has a dramatic confessional quality, flavored by the tropics. His arrangements are sparse and effective, typically Brazilian in their carefully understated flute and guitar, and his material is varied and occasionally political.

Equally charming is João Gilberto's **Live in Montreux** (Elektra/Musician 60760-2), another fully digital CD. Gilberto proves he has not lost it, working his way effortlessly through 68 minutes with just his guitar and voice—a voice that is disarming, engaging, husky, cajoling, and perfectly musical. Gilberto virtually defines that elegant blend of jazz and sophistication we call bossa nova. Lyrics, fortunately, are translated in the booklet.

The most exciting new Brazilian music, though, is on Celluloid's just-launched Braziloid label, which covers the whole range of contemporary styles from Afro-Brazilian to rock 'n' roll. One recording that was available on CD as we went to press, Gilberto Gil's **Soy Loco Por Ti America** (Braziloid BRCD 4000; 330 Hudson St., New York, N.Y. 10013), is probably the best of the label's first releases, a mini-masterpiece of studio art. Gil is a great singer, sure, but equally important are his skills as both writer and arranger: He invents songs that use the essential movement of a certain style (reg-

gae, for example), then superimposes on it his own uniquely Brazilian sensibility. His musicians play only what is necessary to bring off the concept: a few choice lines here, a dab of color there. Very little bossa, but when it does appear, there's a tough bass line to keep you up on your feet.

### ■ Egypt

Searching for titles from the Mideast, I learned that good Israeli music on Compact Disc is scarce. (Ofra Haza's LP of Yemenite songs, *Fifty Gates of Wisdom*, which made quite a stir among critics when it was released recently on Shanachie's new World Beat/Ethno Pop offshoot, had not yet been released on CD at press time. And I consistently avoided CDs with names like *Twenty Greatest Israeli Folk Hits*.) What can be found on CD, however, is Umm Kulthum (or Om Kolthom; spellings vary). Writing about Aretha Franklin: Nothing you can say will ever convey what the music actually sounds like. **Ei Atlaal** (Sono Cairo SONO 101; distributed by Original Music) is a particularly dramatic rendering by Kulthum, who would stop traffic all over Egypt anytime she went on the radio. She had control over her voice equal to that of the best opera singer, plus the abili-

ty to create with her breath the most delicate shadings and nuances, the most passionate pleadings and sobs. You will hear the audience gasp and cheer with delight each time she gets off the anticipated phrase with unusual sparkle. Although Kulthum was a popular singer, this is not "pop" music by any means, and the moods generated can open up layers of your soul you never knew existed.

### ■ India

Oriental Records has begun to issue completely digital CDs of North Indian music. The one I sampled, **Captivating Melodies of Sitar** (Oriental ORI/AAMS CD 120; Grand Central Station, Box 1802, New York, N.Y. 10017), is a duet that features Ustad Vilayat Khan with tabla virtuoso Zakir Hussain. Khan has a purposeful way of handling his instrument; he develops his raga, "Mian Ki Todi," in a steady manner, with calculated pauses in all the right places so that the melodies are able to sink in. When Hussain enters, the piece becomes expectedly more cheerful, and it soon erupts into a spirited dialogue. Unfortunately, liner notes are minimal.

I also listened to **Ramnad Krishnan: Vidwan** (Elektra/Nonesuch 72023-2), an Explorer Series reissue of an excellent 1968 double album (on one CD) that offers singer Krishnan and four musicians performing songs from the Carnatic tradition. These songs are based on religious themes, but the emotional range given to religious music in India is far greater than that in the West: It is by turns joyful, introspective, anxious, sad, and carefree. This music from South India is structurally more formalistic than its Northern counterpart (the CD has detailed notes on the arrangement and meaning of each song), yet it actually sounds earthier.

### ■ China and Japan

Continuing eastward on our journey, we encounter two more Compact Discs available through the wonderful catalog of Original Music—which, incidentally, is run by ethnic-music authority John Storm Roberts (for more on Roberts, refer again

*(Continued on page 95)*



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(Continued from page 91)

to Carol Cooper's August 1984 article). **Chine/Musique Classique Instrumentale** (Playasound PS 65005) is a recording of Chinese music played on the *tizse* bamboo flute, the *p'i-p'a* guitar, and the *cheng* zither. This seems a bit more reflective of daily experience than Indian music, which thrusts eternity in your face without hesitation. Chinese music, like Chinese poetry, can be meditative and circumspect, but it also has a storybook quality that is very refreshing, and it is always unpretentious. This CD offers solos and duets (nothing too demanding for the Western ear), which at their best soar so freely you will be compelled to soar with them.

Equally accessible for its pure simplicity is **Le Shakuhachi/Japon** (Aavidis AV 6508), showcasing a Japanese bamboo flute that is as difficult to play as it is easy to hear. The liner notes tell us that the shakuhachi is "solid and weighty and could also be used in the past as a defensive weapon"—versatile, indeed! Playing this instrument has been related to the practice of Zen and involves great discipline and breath control. In the hands of masters such as those here—Judo Nôtomi and Gorô Yamaguchi, who each play one long solo piece—it can put you in a trance, but you need to be in a meditative state *before* you listen in order to really hear it.



FETIADI TANZIL

Idjah Hadidjah: enchanting, dangerous

## Indonesia

Finally, we have the Explorer Series recording **Tonggeret** (Elektra/Nonesuch/Icon 79173-2) by Idjah Hadidjah, who sings jaipongan, a fusion of tradition-based Javanese styles that has become quite popular throughout Indonesia during the past decade. Hadidjah performs in an I-mean-business fashion, which is so penetrating that you can feel the heat. It's the ultimate James Bond music: enchanting, but with a pronounced streak of danger. Muted voices and *rebab* (fiddle) come

briefly into consciousness, then suddenly retreat, as several different gamelan lines play simultaneously in the background. The drums (which are used for accent, not for keeping time) provide a constant improvisatory response to the vocalist, who keeps drawing you in like a snake charmer. Because of its great foreground/background contrast, further emphasized in the CD format, this music records a lot better than traditional gamelan music, which has to be seen performed to be appreciated. And besides, *Tonggeret* is a lot more fun.

EACH OF THE DISCS I HAVE MENTIONED has encoded within it, aside from the obviously great sound, thousands of years of a specific history. In that sense, there is no such thing as "world music," but rather many diverse and, in some cases, ancient musics. It has gotten so easy to plug into almost any music these days that we can lose sight of the cultures they celebrate. It may not be necessary to know a civilization thoroughly to appreciate its sound—music being the universal language and all that—but the relationship can work the other way around: The music can serve as a stepping stone to a deeper understanding of places, peoples, and lives that are otherwise remote and inaccessible. Take your time on the endless road before you. □

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# C U R R E N T S

(Continued from page 14)

tweeters flanked on either side by four vertically arrayed woofers—an arrangement said to minimize floor and ceiling reflections. Deep bass output comes from a planar 15-inch passive radiator, and the system can be bi-amplified. The 63-inch-tall 1.2 features a redesigned crossover network and is said to offer greater efficiency and unusually low levels of bass distortion.

Similar improvements are claimed for the SDA SRS/2.3 (\$2,198 per pair), replacing the SRS/2 (test report, November 1986). The new 2.3 is taller than its predecessor (which stood more than four feet) and contains two additional woofers and a third tweeter. Like the 1.2, ample bass comes from a 15-inch passive radiator. *Polk Audio, 5601 Metro Dr., Baltimore, Md. 21215.*

## Unique Combo

Vector Research is the first to combine a Compact Disc changer and a cassette deck in one chassis. The VCD-650CX (\$599) contains a six-disc, cartridge-based CD changer functionally linked to a full-logic, autoreverse cassette deck with Dolby B and C noise reduction. As many as 32 CD tracks can be programmed for "synchronizing" onto a cassette, and an automatic pause function enables you to interrupt the recording so that a song isn't chopped off at the end of a tape side. Other CD-player features include shuffle (random) play and four repeat modes. All functions are duplicated on the supplied wireless remote control. *Vector Research, 1230 Calle Suerte, Camarillo, Calif. 93010.*

## CD Notebook

Can't find an effective way to store your CDs? The "CD-Binder 40" from Univenture offers a solution: Get rid of the clumsy plastic jewel box. The company's storage device is simply a ring-binder notebook containing ten sleeves, each with pockets for four CDs on one side and for the corresponding album booklets on the other. The CD pockets are backed with a soft, lint-free material—said to be the same as that used in many laboratory clean rooms—to prevent scratching, and top flaps keep discs from falling out if the notebook is turned upside down. The Binders come in a variety of colors and sell for \$17.95 and \$22.95 (for the padded, "executive" version). To order direct or to find the name of a nearby dealer, call 800-992-8262. *Univenture, P.O. Box 570, Dublin, Ohio 43017.*

## Tuning on a Budget

At \$219, the TU-909 is Harman Kardon's least expensive AM/FM tuner. The elegantly styled unit offers 12 FM and six AM presets, seek tuning, a blackout LCD display, and a rated alternate-channel selectivity of 70 dB. It joins the TU-911 and TU-920, the latter tested in our March issue. *Harman Kardon, Inc., 240 Crossways Park West, Woodbury, N.Y. 11797.*

## More Time

Maxell now offers its XL-II high-bias (Type 2) audio cassette in a 100-minute length (50 per side), often more suitable for the duration of popular-music CDs. *Maxell Corp., 22-08 Rte. 208, Fair Lawn, N.J. 07410.*

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