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PING-PING-PONG-PONG

by Robert Long

Does Vanguard's new four-channel "Surround Sound" foreshadow the stereo of the future?

THE POSSIBILITY OF four-channel stereo for home entertainment has been intriguing audiophiles ever since Sid Frey rocked the music industry a decade ago with his announcement that Audio Fidelity was about to release (two-channel) stereo discs to the general public. The idea of more-than-two-channel stereo is even older than that, of course. Walt Disney's *Fantasia* gave us three distinct sound sources for movie theaters in 1940. Wide-screen movies in the early '50s used separate sound sources to localize aurally the action on the screen, with Cinerama incorporating as many as six independent channels. Later, composer Edgard Varèse caused a sensation at the 1958 Brussels Exposition with his *Poème électronique*, which was spatially distributed over 400 speakers in the Philips Pavilion.

None of these innovations, to be sure, was suitable for the average living room. Thus, when we heard rumblings that Acoustic Research was planning a series of four-channel broadcasts in the Boston area this fall using the FM-multiplex signals of stations WGBH and WCRB—and requiring the listener to have two stereo FM systems, one tuned to each of the stations—we realized that something was about to break through the experimental underground to the public surface.

It exploded with Krakatoan force late this past

June when Seymour Solomon, president of Vanguard Records, announced plans to issue tape recordings in a four-channel format to the general public for release the middle of this month. If few have the equipment to reproduce four-channel stereo, well, remember that just as few had anything on which to play Audio Fidelity's discs when Mr. Frey made his announcement in 1957. And, as with the earlier discs, Vanguard's forthcoming tapes will be playable (but without the two new channels, of course) on current stereo machines as well.

Adding even a third channel to conventional stereo, as experiments at Bell Laboratories long ago showed, can improve the sense of depth. We're not talking of a center-speaker system, such as many music lovers use today to cure a "hole in the middle" in a stereo image. That technique mixes left and right signals to power the phantom channel; Bell Labs' three channels required three distinct program signals. By using four channels, according to Mr. Solomon, the entire reverberant field of the original recording site can be reproduced, changing the ambience of your listening room into that of Carnegie Hall or the Bayreuth Festspielhaus.

To simulate the concert-hall experience, the main sound source is reproduced on a pair of speakers in front of the listener, the hall's reverberation on



The microphone setup at the Eastman Theater during a recent recording session illustrates one method of capturing four-channel sound. The four microphones in the center pick up the group much as they might for conventional stereo, with two mikes on each channel to broaden the coverage. The nearer mikes at the sides are aimed away from the musicians to pick up reverberation from the auditorium. The music being taped is Warren Benson's *Symphony for Drums and Wind Orchestra* with the composer directing the Eastman Wind Ensemble.



Thomas W. Mowrey, producer of the Eastman recording session, listens to the four-channel playback from the spacious control room's tape recorder at the left. He hears the main orchestra pickup coming from the far pair of speaker systems, in front of him. The reverberation tracks reach him from behind, emanating from the two speakers shown in the foreground.

speakers behind him. But other four-channel techniques are possible. The four channels might be used for double ping-pong effects—perhaps a quadriphonic version of “Switched-On Bach.” Or the listener could be plunked down in the center of the ensemble—most appropriately, perhaps, in pops.

Vanguard’s initial offering in what it has termed “Surround Sound” will include the Berlioz Requiem, which calls for four brass bands to be spread around the cardinal points of the hall (in this case, the Mormon Tabernacle) and Mahler’s Symphonies No. 3 and 9, performed by the Utah Symphony under Maurice Abravanel, Joan Baez’ “David’s Album”; Buffy Sainte-Marie’s “Illuminations”; and “The Amazing Electronic Sounds of Jean Jacques Perrey.”

Other companies should have little trouble producing quadriphonic tapes if they so desire. (One major record company has been exchanging ideas and information with AR on four-channel reproduction for quite some time now.) The almost universal use of multichannel tape equipment in recording studios means that there exists a huge backlog of multichannel master tapes that could be remixed for four-channel issue; at least one company and probably more has actually used two of the channels for ambience.

AR has also been working with the Eastman School of Music in Rochester, New York to produce four-channel tapes of the school’s ensembles. One, with the members of the Collegium Musicum scattered about the 3,358-seat Eastman Theater, features “spatial music” by Henry Brant, the composer conducting; another, by the Eastman Wind Ensemble, contains music by Percy Grainger, Darius Milhaud, Warren Benson, Krzysztof Penderecki, and John T. Williams, with Donald Hunsberger and Mr. Benson sharing the conductorial chores. As of this writing, no plans have yet been made to issue the tapes commercially. (As for AR’s quadriphonic

broadcast plans this fall, they will include Boston Symphony Orchestra concerts presented live from Symphony Hall as well as some concerts taped at Tanglewood this summer.)

The practical mechanics of playing simultaneously all four tracks of the new tapes at home presents some problems, however. Vanguard’s recordings are being planned for release on four-track ¼-inch open reels and in cassettes. There is also the possibility of cartridge release. All systems will require, for starters, special heads to reproduce the four tracks simultaneously. Open-reel equipment with this type of head can already be obtained on special order from several tape recorder manufacturers—Crown International, Teac, and Viking, to name three. In addition, according to Mr. Solomon, at least one tape recorder manufacturer will offer a conversion kit consisting of the four-track playback head and an extra set of playback preamps. With this kit, you would also need a second basic stereo amplifier and an extra pair of speakers.

Obviously, the approach to making and reproducing four-channel stereo must be standardized among recording companies and equipment manufacturers if the technique is to be a boon to home entertainment rather than merely a prelude to another “battle of the speeds” that proved so disastrous to the classically-oriented purchasers of 45-rpm equipment in the late 1940s. There is presently the strong possibility of proposals that run counter to Vanguard’s format; some industry insiders feel that a unanimity of approach should have been assured before the public was asked to buy the product.

Whether Mr. Solomon’s four-channel tapes will ultimately be as successful as Mr. Frey’s stereo discs remains to be seen. A vast amount of listening, evaluation, discussion, and hard work lies ahead for everyone concerned if four-channel stereo is to become a commercial reality—or even if it isn’t.