

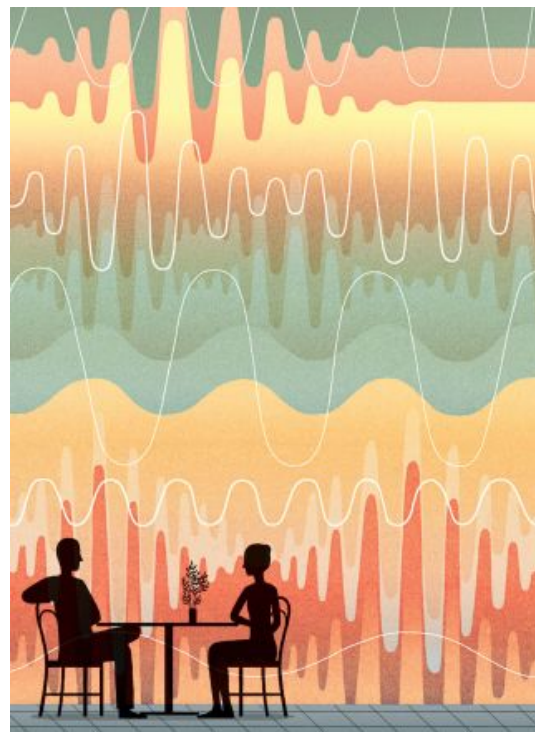
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MUSICAL EVENTS  
**FEBRUARY 23, 2015 ISSUE**

## WIZARDS OF SOUND

*Retouching acoustics, from the restaurant to the concert hall.*

**BY ALEX ROSS**



*Meyer Sound's Constellation system performs the sonic equivalent of Photoshop.*

ILLUSTRATION BY MICHAEL KIRKHAM

**O**n a recent visit to Oliveto, a nouvelle Italian restaurant in the Rockridge neighborhood of Oakland, California, I paid attention less to the food than to the sound. I was at a table of six, in

the restaurant's upstairs section. It was a Friday night, and by the middle of the meal the room was crowded. Conditions were primed for restaurant cacophony: that inexorable crescendo of talking, barking, cackling, and clanking, which threatens to drown out any conversation and prompts diners to shout at one another, adding to the din. On this night, though, I found myself able to tune out the noise and hear only what I wanted to hear. When someone at a nearby table began guffawing at his own jokes, I could still follow the remarks of the calm-voiced man sitting next to me. Friends on the other side of the table spoke across the breadbasket without having to raise their voices. Although we were aware of a general buzz, it all happened at a comfortable distance. It was two hours of acoustical paradise.

The effect was premeditated. The man sitting next to me, a vaguely wizard-like seventy-one-year-old with a Tolstoyan beard, was the audio engineer John Meyer. With him was Helen Meyer, his wife; together, they are the proprietors of Meyer Sound Laboratories, which is based in Berkeley. They manufacture a range of high-end audio products, but they are particularly noted for their ability to enhance, through electronic means, the acoustic of an extant hall or space. When Oliveto underwent a renovation, last year, the owners called upon the Meyers to design a more conversation-friendly setting. The apparatus that the Meyers installed includes a version of the company's Constellation system, which employs microphones, a digital-audio platform, and loudspeakers to sample the noise of a room, modify it, and send it back out in altered form. The walls of the seating area are outfitted with what the Meyers call the Libra system: sound-absorbing panels that have an attractive façade, in this case images of olive groves by the Berkeley photographer Deborah O'Grady. Concealed in a back room is the system's digital processor, which can be controlled with a tablet.

“Each table is in its own sonic zone,” John explained. “But it’s not isolated.” He mentioned a colleague’s earlier attempt to address restaurant noise, which succeeded in suppressing chatter but led to a muffled, sterile environment: “Everyone hated it—the room ended up being completely dead.” Instead, Constellation undertakes a process akin to the Photoshopping of an image, with undesirable elements removed. John explained that there are two components to a sound as it resonates: the early reflections, which contain most of the intelligible information; and the later reverberation, which is blurrier. “Right now, with those loud people right behind me, we’re hearing only their reverb energy—it’s not enough for intelligibility. Early reflections have been cut out: you can hear voices but not what they’re saying.” The effect is conviviality without chaos.

John became so absorbed in his explanation that Helen had to remind him to eat his crab dish. “I’m the timekeeper in this outfit,” she said. “If we’re going to make it to San Francisco tonight, we have to be out of here at seven-forty-five.”

By nine o’clock, we had crossed San Francisco Bay and arrived at an event called SoundBox, presented by the San Francisco Symphony. Michael Tilson Thomas, the orchestra’s music director, had long been contemplating an auxiliary series, in which his musicians would play smaller-scale repertory in a casual, clublike atmosphere. The challenge was to find a suitable venue. At the end of 2013, he turned to the Meyers, who installed a Constellation system in a cavernous rehearsal space, in Davies Symphony Hall, that is used by both the San Francisco Symphony and the San Francisco Opera. Joshua Gersen, who conducted that night, began the show with a demonstration of the Meyer setup. He clapped his hands; the sound resonated handsomely. Then he signalled for the power to be turned

off. Suddenly, the clap was clipped and lifeless. The crowd gasped and applauded. The Meyers, sitting amid a throng of twenty- and thirty-somethings, smiled. “Isn’t that a kick?” Helen said.

Meyer systems are becoming a fixture of the classical world, from the Bay Area to Berlin. Even the storied Musikverein, in Vienna, one of the three or four finest concert halls ever built, makes occasional use of Meyer components: the Musikverein’s richly reverberant acoustic tends to wash out speech, and when performances require narration, as in, say, Prokofiev’s “Peter and the Wolf,” speakers bring greater clarity. In the plaza outside the New World Center, in Miami, where the New World Symphony is based, a Constellation array supplies the fullest, most lifelike outdoor sound I have encountered.

Although no amount of digital magic can match the golden thunder of a great hall vibrating in sympathy with Beethoven’s or Mahler’s orchestra, the Meyers may have come closer than anyone in audio history to an approximation of the real thing.

**J**ohn Meyer was born in Oakland in 1943. His parents produced radio dramas at KPFA, in Berkeley, and, by hanging around the station, he got his first exposure to audio engineering. By the late sixties, he was working at a hi-fi store called Berkeley Custom Electronics. One day, the blues singer Steve Miller, newly arrived in the Bay Area, struck up a conversation with Meyer, who habitually complained about the tinny sound that accompanied rock-and-roll spectacles of the era. At the 1967 Monterey Pop Festival, the Steve Miller Band used a bass-guitar amplification system, devised by Meyer, that added power and texture. In the same period, Meyer began dating Helen, a Russian Studies major at the University of California, who soon dedicated herself to turning John’s audio enthusiasms into a viable business. Their first venture, a company called Glyph, foundered; not even the most opulent psychedelic bands could travel with Glyph’s speakers, which required horns four

and eight feet in diameter, like super-sized Victrolas. Later came the JM-3 speaker, a more compact powerhouse, which established itself as a totem of seventies rock. Meyer played a role in the construction of the Grateful Dead's celebrated Wall of Sound.

Before the dinner at Oliveto, I toured Meyer Sound's research and manufacturing facilities, which employ more than two hundred people and occupy various buildings in Berkeley's warehouse district. In one part of the complex, technicians were assembling components, making use of on-site industrial machinery: pieces of Kevlar were being fed into a German fabric machine in order to produce highly bendable, but virtually unbreakable, material for woofers. The Meyer operation depends on a combination of digital legerdemain and old-fashioned craftsmanship.

In a small in-house theatre, the Meyers showed how Constellation works. Its principal purpose is to enable flexibility, so that halls can adapt to the needs of different kinds of event. Cinema needs a dry, echo-free environment, so that words can be understood. Chamber music benefits from crisp sound with resonant warmth. Orchestras are at home in halls with a longer reverberation time—more than two seconds, at the Musikverein. And choruses thrive on the booming acoustic of a cathedral. Constellation replicates this range of reverb times, which vary with the size of the space. One can choose from among different settings: cinema or lecture hall (0.4 seconds); chamber (one second); theatre (1.4 seconds); concert hall (two seconds); and “sacred space” (2.8 seconds). Thus, the system can give bloom to a somewhat dry acoustic, as at Zellerbach Hall, in Berkeley, and it can supply a cleaner sound for amplified jazz and pop, as at Svetlanov Hall, in Moscow.

“We couldn’t do this until we had a really high-powered computer,” John told me. “It’s calculating twenty thousand echoes a second, and that information has to stay in the memory for four or five seconds—a huge amount of data. Only a few years ago could we pull off the sacred-space setting, which is the most complex of all.”

René Mandel, a violinist who also serves as the executive director of the Berkeley Symphony, was on hand to give a musical demonstration. I was given control of the tablet, and while Mandel played the Largo of Bach’s C-Major Sonata for solo violin, I toggled through various settings. He managed to maintain a flowing musical line while I teleported him from one virtual venue to another, a drawing room mutating into a cathedral. The situation was unnatural in the extreme, yet Mandel’s instrument retained a tangible identity in whichever acoustic I chose. John Meyer commented, “The hardest part of all this is making sure that the image stays on the person playing the music. Surround sound can pull you away into a made-up space. The sound should stay enveloped around the instrument.”

**L**ike many American orchestras, the San Francisco Symphony is seeking to diversify its offerings and capture the attention of a younger audience. With SoundBox, it has hit on a winning formula; the first three editions of the series, which began last December, have sold out quickly. Before an event in January, I heard a young man say to his date, “What are we seeing? Opera ’n’ shit?” Moody lighting and lounge-like furnishings evoked a warehouse club. There was a full bar. The program included Heinrich Biber’s Baroque showpiece “Battalia,” Darius Milhaud’s Brazilian-flavored suite “Le Bœuf sur le Toit,” selections from John Adams’s “Shaker Loops” and from Britten’s song cycle “Les Illuminations,” Bach’s First Cello Suite, and works by Mark Summer and Mark Volkert—the last an assistant concertmaster with the orchestra.

The program was eclectic to a fault, more a tasting menu than a full meal, but it demonstrated the Meyers' ability to conjure a plausible performance space. I was particularly struck by the sound of the tenor Nicholas Phan, in the Britten; the singer's tensile strength and tonal colors came through intact. "It feels like a completely natural and real acoustic," Phan told me afterward. "It even changes and feels different depending upon how full the audience is." All the same, I was never entirely convinced by the string timbre, especially the cellos and the double-basses. At full force, they had a slightly puffy, plastic quality—a familiar handicap of amplification that Meyer technicians haven't yet overcome.

There is something philosophically disquieting about the Meyers' work, as there is in any digital makeover of reality. Both at Oliveto and at SoundBox, the Constellation process never seemed obviously fake or too good to be true, and yet I had a sense of being ensconced in an audio cocoon. In the concert setting, I missed the thrum of floorboards under my feet—the full physical tingle of reverberation. Traditionalists will insist that there is no substitute for a first-class hall, and they will be right. They should bear in mind, though, that technology has been retouching the sound image for centuries; instrument design, concert-hall architecture, and listening habits inculcated by listening to recordings have all shaped what we hear and how we hear it.

In the end, the strongest argument for the Meyer approach is a pragmatic one. The apparatus at SoundBox is hardly cheap, its price tag running into the high six figures, but even a small new venue in downtown San Francisco would have cost many millions of dollars more. The Meyers have thus had a democratizing influence, allowing ensembles to obtain pleasing results in problematic spaces. They have helped to make classical music a more mobile, adaptable beast, one that is freer to roam the entire cultural landscape. A mirage of

the Musikverein can arise almost anywhere, with a few swipes on a screen. The simulation may fall short of perfection, but it trains the ears to yearn for the ideal. ♦

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Alex Ross has been contributing to *The New Yorker* since 1993, and he became the magazine's music critic in 1996.

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