

LMJ 22: Acoustics

Sound is a very physical thing.

Admittedly, much music these days is crafted by ephemeral lines of code inside a computer instead of springing from vibrating strings, sputtering reeds or a diva's lips. We listen through tiny earbuds or tinny cellphone speakers rather than from the plush seat of a concert hall. We dismiss much of the urban soundscape as mere noise and actively try to ignore it. But we can't. Our ears have no lids, and even if they did, sound still buffets our entire bodies (think of the dance floor, orchestral *FFF*, fireworks or Formula 1).

In such physicality lies not only sound's power to please, awe or frighten but also the mechanism of meaning in music: The grammar of melody and harmony is rooted in ratios of the lengths of strings, air columns and pressure waves. Over the past century, composers have stretched that grammar to its limits. Serialists, minimalists, noise musicians and sound artists speak different languages but all reference the essential physics of sound—acoustics. The acoustical reality of sound, and its quirky interaction with our sense of hearing, periodically drives artists to return to the “year zero” in music—before the codification of melody, rhythm and harmony—and explore fundamental aspects of the physics and perception of sound.

These explorations can trigger paradigm shifts in musical culture. One such stylistic flowering took place at the end of the 1960s, when composers such as La Monte Young and Alvin Lucier created work based on drones, beating patterns, standing waves, echolocation and architectural acoustics—innovations whose repercussions could later be heard in the massed guitars of Rhys Chatham and Glenn Branca in the 1980s, the wordless ambient electronica of the 1990s and the drone revival of the 2000s. More recently the emerging discipline of “sonification” has mapped non-musical data (from science, finance and elsewhere) with sound and focused attention on acoustic parameters and patterns that exist independent of extant musical forms.

For this volume of *Leonardo Music Journal*, we solicited articles and artists' statements on the role of acoustics and psychoacoustics in music and audio art.

Several authors address the acoustics of musical instruments—from flutes (Robert Dick), guitars (Owain Pedgely et al.) and drums (Tim Feeney) to long strings (Dave Burraston and Ellen Fullman) and hybrid electroacoustic devices (John Driscoll, Phil Edelstein and Dan Wilson). Lewis Kaye discusses the role of architectural acoustics in music perception while Ellen Band, Richard Glover, Henry Gwiazda and Christopher Haworth focus on psychoacoustics and its impact on the compositional process and audience response.

David Prior describes an installation for pipe-like acoustic filters while Kristian Derek Ball reflects on the “amplified soundscape.” Jim Murphy et al. contribute an essay on work with robotic speakers. Alex Wand presents a comparative history of the measurement of consonance in music. David First analyzes intonation in traditional Delta blues. Dave Burraston and Scott Gresham-Lancaster et al. discuss techniques of sonification. Woon Seung Yeo et al. discuss the potential of working with sound at the highest bandwidth of human hearing.

The production of this issue of *Leonardo Music Journal* coincided with a symposium held at Wesleyan University (Middletown, CT) to mark the 80th birthday and retirement of Alvin Lucier [1]. Lucier's musical engagement with acoustical phenomena has been profoundly influential upon composers and sound artists around the globe, and we are fortunate to be

able to include in this volume the papers from the event—by Anthony Burr, Charles Curtis, Andrew Raffo Dewar, Hauke Harder, Ron Kuivila, Richard Lerman, and myself. Justin Yang has contributed an additional essay on Lucier, not presented at the symposium, to this collection. Abstracts of all the articles appear here in the print edition, with the full papers in an on-line supplement. Ron Kuivila provides an introduction to this special supplement, and Dan Wolf has curated the audio CD, focusing on composers influenced by Lucier.

On the subject of octogenarians, we would like to close by celebrating in print the 80th birthday of Pauline Oliveros this year. As a composer, performer, organizer, educator and tireless advocate of “Deep Listening,” Oliveros—like Lucier—has had a deep impact on younger artists. Happy Birthday, Pauline and Alvin! As this issue attests, your serious and extended attention to the essence of sound continues to inspire.

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References

1. *Alvin Lucier—A Celebration*, Center for the Arts, Wesleyan University, Middletown, CT, 4–6 November 2011.