Book Reviews

Emily Thompson: *The Soundscape of Modernity*
MIT Press
Reviewed by Barry Truax

Emily Thompson's book, *The Soundscape of Modernity*, is a major contribution to the growing literature on aural culture, several examples of which have been reviewed in this journal. In this new work, Thompson focuses on what is arguably the period of greatest significance to the emergence of the modern listener, America from 1900 to 1933. The changes in the science and practice of acoustics, the emergence of electroacoustic technology and audio media, and the rise of noise levels in major cities heralded contradictory cultural changes, the implications of which we are still dealing with today.

Thompson, an Assistant Professor of History and Sociology of Science at the University of Pennsylvania, demonstrates how that history should be documented, not merely as technical progress but in terms of the social and cultural context which it inevitably alters. She refreshingly makes the argument that it is not only the soundscape that changes, but listeners change as well. "By 1933," she observes, "both the nature of sound and the culture of listening were unlike anything that had come before." Thompson's approach, though based in the history of architecture and architectural acoustics, is interdisciplinary in that, for the first time, she brings together three themes that in the past have been dealt with as separate histories.

First there is the rise of the modern science of acoustics, starting with the pioneering work of Wallace Sabine in the 1890s and early 1900s, which gave a scientific basis for the design of concert halls, auditoria and offices by controlling excessive reverberation with acoustically treated materials. Even as the public became exposed to the orderly sound of these acoustically designed spaces, the external environment, particularly in large cities, was being inundated with mechanical noise and other irritants, Thompson's second theme. New York City responded to this situation by appointing a Noise Abatement Commission whose 1930 report, *City Noise*, was the first such public document. The third theme, possibly having the greatest implication for the listener, is the phenomenal rise of reproduced and transmitted sound via electroacoustic technology. Amplification, radio, the sound film and recordings all appeared during this period and changed listening habits and preferences. Thompson adroitly frames this period of profound change with the opening of Wallace Sabine's acoustically designed Boston Symphony Hall in 1900 —a building looking backwards to the classical music of the 19th century—and the opening of Radio City Music Hall in New York in 1932, an acoustically deadened space that relied on amplified sound to promote the new, popular culture of the 20th century.

One hopes that Thompson's approach to writing will become the norm among a younger generation of academics. She has an engaging narrative style, complete with telling insights into the personalities involved, particularly Sabine's, but her research and documentation are impeccably detailed. Moreover, she has a set of themes that she weaves throughout the narrative, connecting threads that give meaning to the wealth of detail, which often are technical but never dry or unduly simplified. Perhaps the clearest theme is the advent of a new kind of aural preference for clear, direct, non-reverberant sound and the critical listening habits that it encouraged. This theme makes sense of the progression from the control of reverberation by Sabine's famous formula based on the absorptive properties of materials in a room to the disembodied audio signal picked up by close miking that eliminated space entirely. The control of acoustic space ultimately becomes a separation of sound from space, a signal that can then be reproduced in any other time and space.

This control of the largely indoor environment (linked to artificial lighting and ventilation) was in keeping with the ethic of "efficiency" in the modern Machine Age. As such, it was the antithesis of noise that came to be regarded as wasted energy, as well as a physical and psychological danger. Thompson carefully documents the stages of the technical mastery of sound, the most important being the ability to measure sound, thus surmounting the major obstacle to the development of acoustics as a science in the early 1900s. The microphone and amplifier, famous for their media usage, were key elements in the measurement of sound, allowing the creation of the decibel scale. It is this technical divide that separated the acoustics of Wallace Sabine from the "new acousticians" who exploited the new technology and founded the Acoustical Society of America in the 1920s. They also used this technology to tackle the more intractable problem of urban noise, but with less success. The earliest measurements were based on a curious combination of calibrated signals (produced by machines carried around the city in a truck) judged subjectively by a listener who compared them to the street noise. This approach became standardized in the next decade as the Equal Loudness

Contours, the foundation of modern psychoacoustics.

A fascinating section of the book is devoted to noise and modern music during this period, specifically jazz, Russolo and the Futurists, Ives, Varèse, and Antheil. Besides documenting how the new technological noises invaded and influenced the music of these composers, Thompson includes intriguing accounts of how the experience of that music changed at least certain listeners' reactions to the city noises they heard following the event. As music critic Paul Rosenfeld described it in highly modern prose, "You walk, ride, fly through a world of steel and glass and concrete, by rasping, blasting, threatening machinery become strangely humanized and fraternal; yourself freshly receptive and good-humoured"—clearly a vanished breed of critic. Although Thompson makes passing reference to Thaddeus Cahill's Telharmonium as a modern musical instrument, she misses the opportunity to document its use in providing what we now call background music in upscale restaurants in New York during this period, the perfect antithesis to the city's noise and a good example of the appearance of disembodied sound in the new soundscape; however, we can turn to Reynold Weidenaar's 1995 book for those insights.

In the final two chapters, Thompson turns to the most profound of all of the aural changes brought about by modernism – the impact of audio technology. The possibility of sound reproduction brings with it, among other things, a new type of "critical listener", as Thompson terms it, or "analytical listening" as I've described it (Truax, 2001), whose task is to discern the quality of reproduction and obtain the best possible sound, a process of education that the audio industry pursues to this day. Radio, recording and the sound film eventually settled on close miking to produce the clearest sound within an acoustically isolated studio, with the mixing engineer in charge of combining sounds for the clearest result. Thompson returns to her principal architectural concerns as a conclusion and documents the trend in the 1920s and 30s towards theatres with shorter reverberation times, aided by amplified reinforcement to achieve a type of sound the audience had become used to hearing via electrical recording. Thus we arrive at the detached listener, able to listen critically and analytically to reproduced sound as an escape from the disorderly soundscape; all that is needed is to add the ubiquitous presence of background music to create the distracted listener, and we have all of the essential elements of contemporary aural culture.

In tracing this crucial set of intertwined developments, Emily Thompson has created a seminal book that sets a standard for interdisciplinary research in acoustic communication. The fact that it grounds contemporary aural culture makes it indispensable for understanding our own ambivalent attitudes about the soundscape and technology.

References:

B. Truax, *Acoustic Communication*, 2nd ed., Ablex Publishing, 2001.

R. Weidenaar, *Magic Music from the Telharmonium*, Scarecrow Press, 1995.

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Soundscape—The Journal of Acoustic Ecology

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