hush

Media and
Sonic Self-Control

mack hagood

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Sign, Storage, Transmission

A series edited by
Jonathan Sterne and Lisa Gitelman

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Introduction

Hearing What We Want

Hear What You Want. This is the tagline of one of the most culturally resonant television ad campaigns in recent years, produced for headphone maker Beats Electronics. In these commercials, which first began airing in the United States in late 2013, star athletes are portrayed using smartphones and Beats Studio Wireless noise-canceling headphones to shield themselves from the verbal abuse of opposing teams' fans or the insulting interrogations of reporters. In one ad, San Francisco 49ers quarterback Colin Kaepernick peacefully strides through a gauntlet of deranged, insult-hurling Seattle Seahawks fans outside their National Football League (NFL) stadium. Though shot years before the athlete's national anthem protests, the ad eerily foreshadows his impending status as political lighting rod. Kaepernick walks through a near-riot of hatred—all directed at him—yet he barely hears it, his face displaying an equanimity derived from noise cancellation and the ego-affirming sounds of Aloe Blacc's song "I'm the Man" (figure I.1). The "Hear What You Want" campaign, in the words of one reporter, "went beyond marketing and actually became part of pop culture," generating millions of views online and sending Blacc's song to the top of the iTunes singles chart (Beer 2015). The crescendo reached new heights in May 2014, when

Figure I.1 An athlete besieged in Beats' "Hear What You Want" ad campaign.

HEAR WHAT YOU WANT

Figure I.2 Kaepernick displaying sonic self-control.

Apple acquired Beats Electronics for $3 billion, confirming the ascendency of headphones in the global electronics marketplace.

Despite the campaign's popularity, however, there is something curious about the heroism these ads depict. We see no game, no team protecting Kaepernick, no field where he vanquishes his opponents, nor any spectacular display of physical prowess, joy, or celebration. There is only the lone man, protecting himself from the scrutiny and invective of "haters" through an act of sonic separation, getting himself into the mental zone necessary for success. As Kaepernick finally enters the stadium, a victorious grin forms on his lips. His victory is over the maddening crowd, which has failed to touch him. We last see him alone, stretching before the game, headphones on, at peace: in the end, the mastery he has displayed is a mastery over himself, a *hush* cast over his own senses and emotions (figure I.2).

ORPHEUS - 3. *Orpheus als Argonaut.*
LIEBIG PRODUCTEN vergemakkelijken de keuken.

Figure I.3 Orpheus fighting sound with sound to create a safer space.

Media devices that provide control and customization of individuals' sonic environments are proliferating. Generating billions of dollars in revenue, these technologies include not just noise-canceling headphones, but also white noise machines, smartphone apps designed to make a noisy office or bedroom sound like the seashore or a rainy country field, wearable sound generators to suppress the sound of tinnitus, and new in-ear smart devices ("hearables") that filter, alter, and hush the sounds of the world. In Greek mythology, the musician-priest Orpheus heroically drowned the Sirens' fatal, mind-captivating voices in sound waves of his own, singing and playing his lyre to create a space of safe passage for the Argonauts as they returned with the Golden Fleece (figure I.3). Similarly, what I call "orphic media" promise to help users, as represented by the Beats-wearing Kaepernick, remain unaffected in changeable, stressful, and distracting environments, sonically fabricating microspaces of freedom for the pursuit of happiness. Hear no evil, fear no evil.

Until now, neither consumers nor scholars have seen the disparate devices discussed in this book as a singular and prevalent type of media technology, but I argue that they should. The hush fabricated by white noise machines, nature sound recordings, noise-canceling headphones, and sound-filtering digital apps and devices reshapes our engagement with self, other, and world. As Natasha Dow Schüll writes in her study of video

machine gambling, "Although interactive consumer devices are typically associated with new choices, connections, and forms of self-expression, they can also function to narrow choices, disconnect, and gain exit from the self" (2012, 13). Indeed, the freedom not to choose something, not to connect, not to attend to unwanted aspects of self and world, is a powerful form of choice in itself. The orphic dynamics I describe in this book involve much more than just the experience of sound and silence—orphic media foreground a deep desire for control as freedom, a desire that motivates the use of nearly all electronic media today. Studying these technologies reveals how media function as a controllable interface between subject and environment—and as an interface between a society's ideological imperatives and the personal poetics of its citizens' self-making, self-defense, and self-control.

Understanding orphic mediation—the control of how we allow ourselves to resonate, especially where the vibrations of others are concerned—has important sociopolitical potentials. It provides a sensory and material framework for our often-abstract debates about public and private spheres, media echo chambers, urban noise, online noise, fake news, trigger warnings, and safe spaces. Central to all of these controversies about physical and digital spaces are our beliefs about how—and how much—we should affect and be affected by one another. When we use mechanical or electronic sound to reshape space, the blueprints are these often-unexamined beliefs about what self, freedom, and society should be. Intuitively, using the tools the market provides, we build the acoustic architecture of the future, but we do so piecemeal, individual by individual.

One of the risks associated with the unprecedented choice our new media tools offer is an ever-increasing need to literally and figuratively "hear what you want," fostering intolerances both sensory and political. But at the same time, new media's din of mediated voices—diverse and democratic, yet overwhelming and often hateful—makes guarded listening a necessity for sensory and emotional self-care. In this context, auditory freedom of choice is a self-reinforcing necessity: both personal and political, "sensitive listening," with all the ambivalence that term implies, becomes a central issue of our time.

In *Hush*, I argue that addressing the literal and figural problem of sensitive listening begins with changing our notions of what media are and what they do, thinking, as John Durham Peters puts it, "beyond messages" to understand media as "our infrastructures of being, the habitats and materials through which we act and are" (2015, 14–15). Drawing on the philosophy of Baruch Spinoza (1970) and subsequent theorists, I argue that the real es-

sence of media use is not the transmission of information but rather the attempted control of *affect*, the continually changing states of bodies that condition their abilities to act and be acted upon. Subjectively speaking, affects are the immediate impacts that other "bodies" (defined broadly as composites of moving or resting material relations) make upon our bodies (Spinoza 1994, 128). Although affect can be transmitted through representation, it operates nonrepresentationally, overcoming us before we can even "read" an experience or give a name to it as an emotion, as in the moment a loud sound startles, a musical chord overwhelms, or the sudden memory of such an event echoes through us as if the sound were in the air all over again. Affect also accumulates slowly over time, gradually conditioning the range of possibility for future action.

The word *hush* itself speaks to sound's affective power and utility. Its sound is not an arbitrary signifier or a mere carrier for a message—it is both onomatopoetic and performative, defying our Enlightenment-derived "binary separation of internal cognition from external vibration" (Samuels and Porcello 2015). *Hush* sounds like the hushed murmur of a crowd and the masking noise of its *shhh* has been soothing babies and disciplining the unruly from time immemorial—displaying controlled sound's ability to enact and enforce social and bodily states. Similarly, while Orpheus's song had words, its lyrical message was secondary to its sonic force in silencing the Sirens. And of course, any music fan can speak to the wide array of physical and emotional conditions that wordless music can bring forth. Plentiful examples such as these make sound a convenient sensory modality for understanding affective media with powers beyond effective messaging.

Like the Argonauts, we all travel through a world of things that affect us. Attempting to navigate these sometimes rough seas and atmospheres, we use media to pursue what feels enlivening and enabling—and to avoid what makes us feel diminished and disabled. In this way, we enact the same "autopoietic" (self-making) biological phenomenology that causes a single-celled organism to engulf a sensed food source and recoil from a perceived threat (Maturana and Varela 1998, 48–52). Yet unfortunately, as we use media to affectively engage the world, many of our motivating feelings and beliefs about what empowers and disempowers us are "inadequate ideas"—shortsighted, incomplete, and inaccurate (Spinoza 1994, 154–58). In fact, as Paul Roquet (2016) points out in his study of ambient music and video in Japan, autonomy-loving neoliberal cultures encourage subjects to disavow "atmospheric determinations of self" (15) even while "turning the atmosphere into a site of ever-increasing control and regulation" (11). "We need

to learn to *read the air* in a way that better recognizes the forces moving through it," Roquet asserts, highlighting its potentials as a technology of self (15, emphasis in original).

But reading the air in this way provides other kinds of insights as well. Conceiving of media orphically, as the technologies of our often-misguided and ideologically driven attempts to control affectivity, dissolves the seeming paradox of recent media history: the spread of information through digital interconnectedness has fostered the retrenchment of identities and the proliferation of filter bubbles, echo chambers, trolling, and misinformation, rather than fulfilling the cultural fantasy that better communication would enlighten, cure social ills, and foster democracy (Dean 2009; Peters 1999).

To address the current impasse around listening, this book traces the modes and potentials of affective media use, identifies the ideologies that motivate it, and examines how the remediation of affect—particularly affects of fear and aversion—is designed, marketed, and monetized. While affective media practices *do* foster certain kinds of freedom and relief, they also often work against the best interests of individual and social "bodies politic" (Protevi 2009). The personal sense of control that orphic media provide often derives from the suppression of the biological, social, and material differences that make us who we are—a suppression of difference that actually makes us more compliant as subjects of the control society we inhabit (Deleuze 1992). Ultimately, the technologies I call orphic media may be designed to hush an age-old secret that is both too obvious and too frightening to contemplate: that we have never been, and will never be, in control.

Structure and Argument of the Book

Hush presents its explication of mediated self-control through the ethnographic and archival study of a half century of fighting sound with sound in the United States. Since the early 1960s, American consumers have increasingly turned to orphic media to increase their sense of personal ability as they respond to an ideological ableism that fears difference in human bodies, a postwar capitalist landscape of disrupted spatial coherence and social stability, and a neoliberal information economy that demands individualized attention and, therefore, the suppression of audible difference as unwanted

noise. The book contains three parts. Each centers on a different affective modality through which orphic media fight sound with sound to pacify space for beleaguered subjects: suppression, masking, and cancellation.

Part I presents an ethnographic study of the personal experience and clinical treatment of tinnitus, a "phantom sound" of the body that is sometimes deeply disturbing to those who hear it. Tinnitus is the sound of a subject's own auditory system, yet it interacts with environmental sound, growing subjectively louder in quiet spaces and quieter in loud spaces. Due to this fact, clinicians and tinnitus sufferers often use orphic media to sonically *suppress* its aural presence, thereby providing the ethnographer an intimate opportunity to examine these technologies of the self through the experience of disability. Through tinnitus, I plumb the depths of aural suffering, showing how an affect of fear can attach to our listening at a neurological level when we feel sonic difference diminishes our ability to act. In tinnitus, sonic threat feels inescapable, presenting a heightened version of the kind of dynamic that animates the orphic media practices in the rest of the book. Tinnital sound and suffering emerge in a complex relationship between neurophysiology, sociomaterial environment, and an ideologically infused habitus of listening (Becker 2004) that hates tinnitus, fears it, and locates it exclusively in a supposedly anomalous body. Not only does this "ideology of ability" (Siebers 2008) misunderstand the nature of phantom sound—it also feeds into subjects' suffering, making tinnital suppression the most affectively charged form of orphic mediation.

In part II, I pull back from this intimate suffering to work at the larger scales of commercial and national history, surveying the evolution of white noise machines, nature sound LPs, and their digital descendants in order to isolate the cultural catalysts and repercussions of orphic mediation. This history maps the sociomaterial conditions that gave rise to these *sound-masking* technologies and examines their production, marketing, and use to discern Americans' changing ideologies about sound, space, self, and society. Marpac's noise-generating "sound conditioner," the Sleep-Mate, first domesticated and feminized noise to sonically privatize the home for sleep in the early 1960s (chapter 2). However, soon the company found itself rebranding the same device as the Sound Screen, responding to demand for an almost opposite functionality—enhancing concentration and reducing distraction in work and study settings. In both cases, I argue, consumers and producers were responding to a postwar destabilization of physical space and temporality that accompanied the increased circulation of people

and capital. Syntonic Research Incorporated responded to these changes in a different way. Its *environments* series of nature recordings (1969–79) recast the phonograph as a cybernetic medium of techno-pastoral liberation, human and nonhuman interconnection, and self-development—a brief countercultural deviation from the utilitarian use of orphic media (chapter 3). However, today's contemporary smartphone apps such as TMSoft's White Noise return even more rigidly to Marpac's utilitarian sleep/concentration binary, helping users mask affective interconnection to live up to the physical and attentional demands of a 24/7 economy that disdains the limitations of the human body and conceives of even consciousness itself as information capital (chapter 4).

Part III audits the racial, gender, and class politics of fighting sound with sound in the twenty-first century. It does this by studying the social construction of the orphic mode of *phase cancellation*, used by noise-canceling headphone manufacturers to turn environmental sound into a self-canceling signal. Recounting the development, marketing, and reception of noise-canceling headphones, I ask who these media are designed to protect from sound and why, whose sounds are perceived as too noisy or disruptive, and why we have such a hard time listening to one another in a milieu of unprecedented social diversity and interconnection. Using the noise-canceling headphones currently sold by Bose (chapter 5) and Beats Electronics (chapter 6) as case studies, I analyze the differing racialized, gendered, and classed conceptions of noise promoted by these manufacturers in their products' early days. Early Bose marketing and reviews centered on the elimination of what could be called "white noise," which often included women's and children's voices, heard from a white, male, upper-middle-class point of audition. Over a decade later, the "Hear What You Want" campaign introduced Beats noise cancellation as a solution to the "black noise" of racism that threatens even the most successful man of color. Although both companies would soon diversify the representations in their advertising, these early ads show a masculinist and neoliberal problematization of listening across difference that both companies still promote.

Finally, the book's conclusion sounds a cautionary note on the future of listening, examining orphic media's miniaturization (and weaponization) as "hearables," in-ear computers designed to turn the aural world into a database of content for selective access and control, taking "hearing what you want" to a new level and potentially further atrophying our ability to listen across difference. But despite its critiques and warnings around audio technologies, *Hush* is not intended to simply condemn orphic media—nor

is it a book only about sound. Rather, its purpose is to create awareness of this ubiquitous form of mediation, explain why it exists, and, through its example, encourage greater understanding of the orphic aspects of *all* media use. Reflecting on our affective entanglements and the reductive, defensive, and utilitarian ways we often remediate them is the only way to challenge our self-defeating attempts to be free of one another—and a first step toward more ethical and inclusively empowering media practices. In the remainder of this introduction, I will present the theoretical underpinnings of the book and provide a brief historical backstory of how sound became a problem in need of personal remediation.

Making Room for Self-Control

As a musician-priest, Orpheus shows how the mastery of sound (and other sensory modalities) can be used to move and unite people across differences— an affordance of affective mediation that music and the arts have long mobilized. The question, then, is why have orphic media emerged in such defensive and utilitarian configurations?

Perhaps the most intuitive answer to this question would be that people use orphic media because the world has gotten too noisy—both acoustically and in the sense of distraction and nonsense that prevents us from processing information efficiently. Acoustic ecologists such as Barry Truax and R. Murray Schafer (1994) first sounded the alarm on the issue of our degraded "soundscape" back in the 1970s, while more recent popular press books with titles such as *In Search of Silence* (Narse 2011), *In Pursuit of Silence* (Prochnik 2011), *Zero Decibels: The Quest for Absolute Silence* (Foy 2010), and even the rather resigned-sounding *One Square Inch of Silence* (Hempton and Grossmann 2009) attest to ongoing anxieties around noise both as unwanted sound and as unwanted information or informatic interference. Noise has also been a central concern in the interdisciplinary field of sound studies, with many cultural and philosophical analyses written on the topic—some of which have strongly influenced the present work.

Nevertheless, I have not found noise, in itself, to be a robust explanation for what people do with orphic media. As Hillel Schwartz explains, noise is "a register of the intensity of relationships" in a given space and time and therefore its history is fourfold. To understand noise in a given milieu, we must apprehend the ambient sounds of its sonic environment; its ways of listening and evaluating sounds; its definitions and theories of noise; and its

practices of condemning, defending, reducing, and producing noise (2011, 21). As a scholar working on the present and recent past, I find that our contemporary definitions and theories of noise often make it more difficult to examine relationships of intensity. Like information—and, to a great degree, *because of* information theory and cybernetics—noise has become a sprawling and shape-shifting epistemological presence in modernity. While a skillful analyst like Marie Thompson (2017) capably combs out noise's many matted meanings and rehabilitates the term for scholarly duty, noise still remains an overdetermined phenomenon in everyday life. Therefore, I have largely excluded noise as what ethnographers call an "etic" category (an implement in the scholar's own analytical toolbox) so that I can better scrutinize the discursive and material dynamics behind its emergence as an "emic" category (one in use among the people being studied).

In other words, I treat noise as a symptom, not a cause. The historical argument in this book does not reduce to noise, but nevertheless attempts to explain at least some of its facets. Orphic media have arisen to silence a blaring contradiction in our liberal, capitalist, and increasingly "infocentric" society, which generates the imperative for a focused, free, and disembodied subject while also complicating the environmental conditions that have always negated the possibility of such a subject. The noise people use these technologies to block out is symptomatic of this more fundamental conflict, which is both societal and deeply personal at once.

A humorous early twentieth-century device called the Isolator both anticipates the use of orphic media and hints at its longer Euro-American philosophical and social heritage (figure 1.4). Invented by the techno-utopian science fiction pioneer Hugo Gernsback, the Isolator is something like a diving helmet for immersion into paper media. As shown on the cover of the July 1925 issue of Gernsback's magazine *Science and Invention*, the helmet is isolating enough to require the use of an oxygen tank, creating a sonic buffer between the author and the world outside as he writes or edits his articles and stories. Peripheral vision is also limited. In fact, the eye slits in the Isolator are so small that "it is almost impossible to see anything except a sheet of paper in front of the wearer." This attempt at disappearing the sensing body and projecting one's consciousness into the representation that one is manipulating anticipates William Gibson's cyberspace by more than sixty years. Making a claim that might resonate with both the professoriate and noise-canceling headphone-wearing business travelers, Gernsback wrote, "The greatest difficulty that the human mind has to contend with is lack of concentration, mainly due to outside influences."
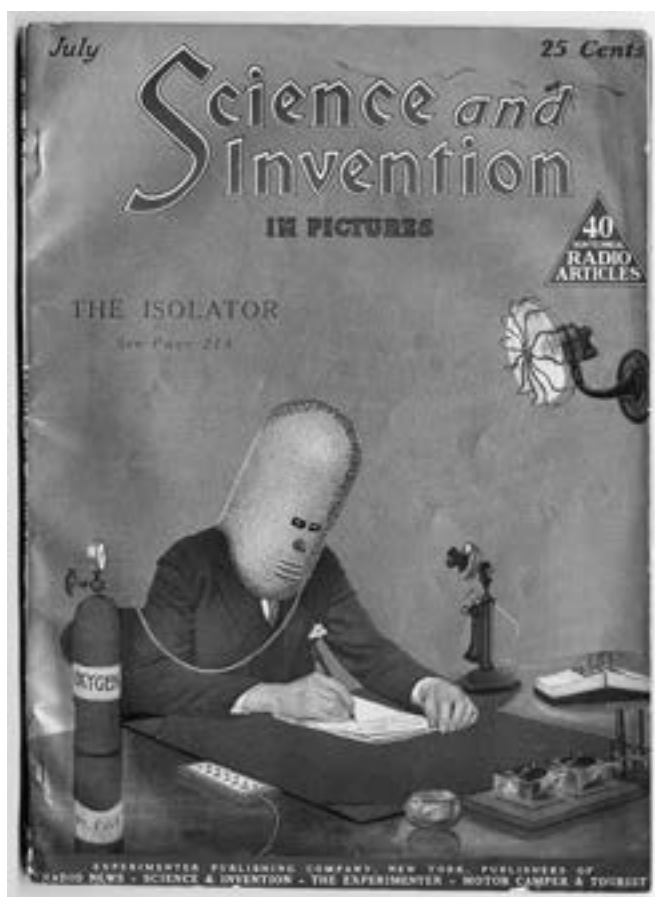
Figure I.4 Hugo Gernsback's Isolator, shown on the cover of his magazine *Science and Invention*, July 1925.

The Isolator was meant "to do away with all possible interferences that prey on the mind." Looking at the accoutrements that surround the helmeted scribe, it is possible to get a sense of the interfering conditions that make the production of silence so salient in modernity. An electric fan, a telephone, an address book, and some sort of remote control device surround him, facing him expectantly, offering up the affordances (and interferences) of electrical and informatic circulation and connection. It's only a short jump from the Isolator to a sound conditioner—or a digital app such as Freedom, which promises to prevent you from being distracted by shutting off social media and the World Wide Web. However, despite then-recent inventions

such as the phonograph, radio, and Eric Satie's utilitarian "furniture music," Gernsback doesn't light upon sound generation as a less cumbersome means of controlling one's self.

By the arrival of the Walkman (1979), Discman (1984), and iPod (2001), sonic self-control came into full view and scholars began framing the personal stereo's powers of "mobile privatization" (Du Gay et al. 1997; Williams 2003) as a response to the distracting and alienating conditions of modernity and capitalism, generating a literature that perhaps comes closest to the subject matter of this book. The most prolific and accomplished analyst of the personal stereo, Michael Bull, characterizes its use through a different Greek hero—not Orpheus, but the Sirens' best-known opponent, Odysseus, who orders his men to tie him to the mast and fill their ears with wax before sailing through the Sirens' strait: "This passage from Homer is significant, in part, because it is the first description of the privatisation of experience through sound, experienced now as a commonplace in iPod culture" (2007, 19). Drawing on Horkheimer and Adorno's reading of the myth (1972), Bull writes that "the auditory self" of the iPod user "rebels at the very same time as it is seduced—this is the dialectic of iPod culture" (23). Users want to be Odysseus, the hero of their own universe, but they achieve this by binding themselves to the mast, finding cognitive freedom "precisely through a tethering of cognition to the auditory products of the culture industry" (23, 133). Scholars and critics working in this Odyssean mode of analysis mainly disagree as to whether the headphone wearer, "whose step occupies the vague threshold between zombism and activism" (LaBelle 2010, 98) is truly a hero or more of a dupe, with some emphasizing individual agency through music listening (Chow 1990; DeNora 1999; Hosokawa 1984), while others, like Bull, are more aligned with a Frankfurt-inspired, anti–culture industry approach.

A comparison between the Odysseus and Orpheus myths illustrates *Hush*'s debt to—and differences with—personal stereo scholarship. In the Frankfurt School reading, Odysseus represents the prototypical bourgeois individual, instrumental in his reasoning, with no particular concern for sound until he enters the Siren Strait of modernity. Modern capitalism gives us both the dulled senses of the workers/rowers and the instrumental listening of the managerial Odysseus. However, as Bull does note, the very existence of these Greek myths shows that the dream of auditory self-control *predates* modernity (2007, 18). Even the philosopher Seneca, after prescribing a Stoic indifference to urban noise, admitted defeat and retreated to the quiet Roman suburbs. "Why should I need to suffer the torture any longer than I want to," he wrote, "when Ulysses found so easy a remedy for his companions even

against the Sirens?" (Atkinson 2015, 15). An orphic perspective, on the other hand, emphasizes that sonic entanglements are indeed ancient and multivalent. Orpheus, son of the musical muse Calliope, is aurally sensitive from birth and sonic in his everyday practices. His power comes not from wax-filled ears, but from listening to the world's vibrations, taking musical lessons from the birds and attending to the sounds of spiders spinning their webs (Wroe 2011, 15). When Orpheus encounters the Sirens, he combats their song with a song of his own, displaying the affective modes of connection and disconnection, harmony and dissonance, that sound has always afforded. The problem in modernity, then, is not that these affective entanglements are new, but rather that they are now simultaneously denied, suppressed, revealed, and multiplied, affectively ensnaring us in complex new ways.

Gernsback's Isolator serves as the perfect symbol of this contradictory state. This helmet for wranglers of representations harkens back to René Descartes's *Meditations* ("Now I shall close my eyes, I shall stop my ears, I shall disregard my senses") and technologically inscribes a cognitivist, liberal view of a rationally detached, thinking self (1951, 33). At the same time, the helmet's existence suggests how difficult it is to achieve such a disembodied, unaffected state—and to what absurd lengths we will go in the attempt. The contradiction the Isolator embodies is both naïvely idealist and naïvely materialist—on the one hand, the body is just the unimportant physical carrier of the all-important, immaterial mind, but on the other, we are desperate to perfect what we perceive as that body's disabilities (Siebers 2008, 7). Similarly, we tend to think of our environment as a transparent, idealist grid to be filled with our grand designs in one moment, while in the next, we think of it materially, a field or stockpile of matter that confounds or furthers our wishes (Lefebvre 1991, 30). The oscillation between idealist and materialist thinking powers the modern advance of science and capitalism, but it also prevents a holistic understanding of our relation to body and environment.

Thus, the orphic perspective draws on Bull's critique of post-Enlightenment instrumental reason, but also focuses more intently on its consequences for the capacities of bodies and their relations to environments. Ironically, the outputs of instrumental reason have included a proliferation of commodities, images, and voices that affect us beyond all reason, as well as scientific and sociological revelations that undermine or disprove any notion of self as a unique, coherent, autonomous, and agentive mind (Barglow 1994; Gergen 1991, 1996, 2000; Jameson 1991; Lyotard 1984). At the same time, economic and environmental transformations have required the average person to be more disciplined with her powers of attention. "At the moment when the

dynamic logic of capital began to dramatically undermine any stable or enduring structure of perception," Jonathan Crary writes, "this logic simultaneously attempted to impose a disciplinary regime of attentiveness" (2001, 13). Technologies and labor practices reshaped perception, absorbing and immobilizing subjects through attentive practices aimed at production or consumption. From this perspective, "stopping our ears" looks less like a dubious act of rebellion and more like a requirement of modern living.

Examining the century preceding the advent of orphic media, one sees noise problems escalating in tandem with economic and political demands for autonomous selfhood and attentional discipline. It is no coincidence that the eighteenth- and nineteenth-century forerunners of Richard Florida's "creative class" (2014) were the loudest public noise critics of their day. William Hogarth's 1741 engraving "The Enraged Musician," for instance, which shows an angry middle-class maestro railing against the noises of the London street outside his window, portrays the sonic hindrances of the lone, urban creative (figure I.5). Over a century later, in 1862, the famed mathematician Charles Babbage blamed his inability to complete his mechanical computer, the Analytical Engine, on the "vile and discordant" sounds of London's street musicians (Swade 2001, 212). One of Babbage's contemporaries, the writer Robert Carlyle, constructed an architectural forerunner to orphic media—a literal room to think—a double-walled and windowless soundproof study for reading and writing. John Picker avers that such Londoners' noise problems stemmed from "their own fledgling and curious status as housebound professionals, workers whose place of rest doubled as their place of labor" (2000, 428). The technological and social practices of the industrial revolution were generating economic liquidity and affording a spatial and temporal proliferation of economic activity, including that of both the street musician and the genteel home worker whom he would torment. Nineteenth-century physicians and psychiatrists increasingly came to the opinion "that years spent toiling amid ever-present noise do in time take their toll, if not in nervous collapse then in a loss of mental focus" (Schwartz 2011, 343). In this era, sonic fatigue rose as a cultural concern while sleep and concentration became threatened personal and economic resources.

Then, as now, privileged individuals tended to locate the noise problem not in the structural contradiction they inhabited, but rather in the person of the noise-making other. Many have pointed to the classist and xenophobic aspects of London intellectuals' complaints about street music, the sound of which was actually quite harmless in comparison to the industrial noise that was literally deafening boilermakers and other workers at the time

Figure I.5 William Hogarth's *The Enraged Musician*, 1741. Retrieved from the Library of Congress, https://www.loc.gov/item/miller.0342/. (Accessed March 20, 2018.)

(Bailey 1996; Goldsmith 2012; Hendy 2013; Keizer 2010). Far removed from the greatest sonic hazards of the industrial revolution, Babbage decried the noise of "those whose minds are entirely unoccupied" (Goldsmith 2012, 113), while Carlyle complained of the "vile yellow Italian grinding" and "vagrant musical scamps . . . with guitars and Nigger songs" (Hendy 2013, 243–44).

From the soundproof study to the Isolator to the noise-canceling headphone to the filter bubble, we see the miniaturization, refinement, and virtualization of technologies that afford the freedom of not listening to difference. At first, these technologies were mostly *passive* attempts to block out sound, compensating for our lack of "earlids" through architecture or earplugs. Their effectiveness was limited: Carlyle found no relief in his study, as its insulation from outdoor sounds seemed to reveal all manner of noises coming from within the house. As for earplugs, while a sensitive artist such as Franz Kafka was a devotee, a combination of social stigma, ineffective and uncomfortable materials, hygiene concerns, and other factors prevented most people from using them (Bijsterveld 2008; Schwartz 2012). Like architectural acoustical treatment, the earplug would find its technological refinement

and widespread adoption only in the twentieth century, although, like Carlyle's soundproof study, earplugs tended to reveal interior noise—in the form of tinnitus.

However, by the 1960s, when attention came even more under siege, electromechanical and electronic technologies emerged that *actively* mobilized the affective potentials of vibration—not merely buffering subjects, but instead fighting sound with sound. When Gernsback was working on his Isolator, a little over half the U.S. population lived in urbanized areas and the nation's rural way of life was quickly waning. Both industrialization and, later, a postindustrial economy reshaped and fragmented the spaces and temporal rhythms of work and home life, while media supplied a proliferation of new sensory inputs. With the rise of the information economy, the problem of attention found its full overdetermination. Insofar as it posits information processing as the essence of consciousness, what I call "infocentrism" may be the ultimate disciplinary discourse, placing the responsibility on each of us to control that which cannot be controlled, especially in the informatic din it has catalyzed. In this setting, an "attention complex" emerges, a network of power relations that produces the problem of attention in individuals—thus a "complex" in two senses of the word (Rogers 2014).

In response to these attentional conflicts and pressures, individuals use orphic media as "technologies of the self" (Foucault et al. 1988, 19), technologies that make them "capable of bearing the burdens of liberty" (Rose 1999, viii), in an attempt to be the kinds of individuals they think they are supposed to be. In liberal, market-driven democracies, freedom, self-reliance, and individuality are less the motives of government than its requirement (Burchell 1996, 271). On the one hand, the relationship to self becomes highly *managerial* as we are expected to maximize our own attentional potential in a marketplace of precarious labor with little in the way of a safety net (Gershon 2011). On the other hand, government's respect for private space and individual autonomy leads it to take a hands-off approach to the kinds of neighborly noise that can degrade our abilities to maximize our powers of attention (Bijsterveld 2008, 262).

In such a sonic setting, the market supplies "technologies of individuality for the production and regulation of the individual who is 'free to choose'" (Rose 1999, 232). However, the technological freedom from being affected is most often used by subjects to thrive *within* prescribed spaces of power and value. The kinds of spiritual or economic freedom they support are thus highly individualized and circumscribed. As designed and constructed today, orphic media provide freedom of choice *within* the system, not the

freedom to listen carefully, reflect upon our situation, and potentially choose a different system altogether. These devices encourage us to hear *private* problems of sonic self-control and noise-making others where, in fact, a *shared* social dissonance affects us all. In order to address this social dissonance, it is important to examine the affective modes and potentials that subtend our current configurations of orphic media—modes and potentials that also offer possibilities of reconfiguration.

Sonic Space and Empty Media

The story of this book began two decades before I knew I would write it. It was 1994 or so, my workday at an educational magazine in Taipei, Taiwan, was over, and I was indulging in my frequent habit of walking for miles through the streets of that vast city. As night fell, I found myself in the narrow alleys of an old section of Taipei's Wanhua District. Somewhere up ahead, I heard the sound of a lone male voice chanting a Buddhist sutra. Pursuing the sound, I eventually came upon a conundrum: the voice came through the open and uncurtained window of a dimly lit room, but the singer wasn't there. Instead, the room was practically empty save for a small, wall-mounted altar holding flowers, incense, an electric candle, and a box of some sort that I couldn't identify. Nevertheless, the voice repeated its short, enchanting refrain over and over again until, after a few minutes, I forced myself to move on.

When I later related this uncanny case of the invisible monk to a Taiwanese friend, she told me the voice came from a *nianfo ji* (念佛機, literally "reciting—or chanting—Buddha machine"), a cheap, plastic audio device used to generate karmic merit and bring peace to its user (figure 1.6). According to religion scholar Natasha Heller, the *nianfo ji* "brings forth the sound of the Pure Land," an important heavenly realm in Chinese Buddhism, "creating an environment that is both protective and efficacious" (2014, 301). Fascinated with their looped recitations on digital chips, I began purchasing these little sutra boxes, which, I learned, were found in Buddhist households across Mainland China and the Chinese diaspora. Sometimes I would turn on one or more of my chanting machines and listen, often imagining that unseen devotee in Wanhua and wondering what feeling he or she may have derived as its sound filled the small house from that otherwise empty room.

This scenario reminded me of the occasional sleeplessness of my own childhood and the soothing company I found in a late-night show for

Figure I.6 A *nianfo ji*, which "brings forth the sound of the Pure Land."

long-haul truckers on a little AM radio, which seemed to transform my dark bedroom into a safer space. Years later, I would learn that the Spinoza-inspired theorists Gilles Deleuze and Félix Guattari recognized this sort of sonic spacemaking as well:

> A child in the dark, gripped with fear, comforts himself by singing under his breath. He walks and halts to his song. Lost, he takes shelter, or orients himself with his little song as best he can. The song is like a rough sketch of a calming and stabilizing, calm and stable, center in the heart of chaos. Perhaps the child skips as he sings, hastens or slows his pace. But the song itself is already a skip: it jumps from chaos to the beginnings of order in chaos and is in danger of breaking apart at any moment. There is always sonority in Ariadne's thread. Or the song of Orpheus. (1987, 311)

In *A Thousand Plateaus*, Deleuze and Guattari refer to the child's song as a form of "Refrain," a practice that reworks the emergent relations between sound, space, and subjectivity. There is also a social dimension to this kind of mediation: "Radios and televisions are like sound walls around every household and mark territories (the neighbor complains when it gets too loud)," they write (1987, 311).[1] Sitting in the resonant territory of the sutra box and reflecting on my childhood radio refuge, I got an inkling of how

sound can *pacify* a disordered space, *establish fortifications* around an already orderly space, or *open up new spaces* of possibility by breaking down such barriers—the three (de)territorializing potentials of the Refrain (312).

About a decade after my experience in Taipei, Beijing-based electronic musicians Christiaan Virant and Zhang Jian convinced a Chinese manufacturer to produce a custom version of the *nianfo ji*, replacing the sacred chanting with ambient music loops of their own design and branding the result in English as the Buddha Machine (figure I.7). With the help of American underground music distributor Forced Exposure, the two musicians—known together as FM3—turned the Buddha Machine into an international indie hit, selling tens of thousands of units, setting the blogosphere abuzz, and capturing the attention of minimalist, ambient, and electronic pioneers Philip Glass, Brian Eno, and Throbbing Gristle. At this point, in the mid-2000s, I was back in the United States and studying popular music as a graduate student in Indiana University's departments of Folklore and Ethnomusicology and Media and Culture. Now, a happy convergence befell me: the pleasures of the Buddha Machine rekindled my interest in the *nianfo ji*, while my reading of Deleuze and Guattari gave me an initial vocabulary for analyzing how (and to what purposes) it created "protective and efficacious" spaces.

My initial question at the time was simply, *What exactly are people doing with these Buddha Machines?* My hunch was, there were material and practical commonalities between the Buddhist and secular use of these little devices. Since the mid-2000s, I have explored these commonalities by identifying other sonically spacemaking media, isolating the processes by which they operate, and trying to understand what these objects and processes tell us about human nature, culture, and politics. In this endeavor, I have drawn on the work of primarily *visually* focused scholars such as Brian Massumi (2002), Bernard Stiegler (1998), Mark N. B. Hansen (2004), and Eric Jenkins (2014), who "demonstrate the significance of affect as a force in the contemporary media landscape . . . present[ing] constant threat of danger and *manipulation*" but also "the promise of moving past old distinctions and creating new connections" (Sheppard 2017). I also join the efforts of affect-minded theorists such as Steve Goodman (2010), Christoph Cox (2011), Julian Henriques (2011), and Marie Thompson (2017) who, working in the interdisciplinary space of sound studies, similarly consider the potentials of *sound* as affective vibration.

Using sound as a way to think about media, and mediation as a way to think about sound, I present an orphic model in which media use is neither informational nor representational, but instead *relational*, the means by which differing mediated intensities suffuse the bodies, conscious states,

Figure I.7 A Buddha Machine by FM3.

and intentions of ostensibly free and rational subjects. The different uses people have made of Buddha Machines suggest the multivalent potentials of orphic mediation: through interviews and exploring reviews and online discourse, I found Pure Land Buddhists using these devices to fortify the already orderly spaces of temples, white-collar workers using them to pacify disorderly workspaces, and musicians like FM3 using them to open up new spaces of artistic and social possibility through interactive improvisation.

Yet, ironically, although religious and secular Buddha machines inspired this book, their representational complexities eventually led me not to include a chapter on them.[2] This decision has to do with a problem I perceive in the recent wave of affect-driven media and music studies: since both media technologies and our conceptions of them are so suffused with representations and codes, it can be very hard to discern the exact influence of the affective. This problem is evident in the work of Deleuze and Guattari themselves, who famously write, "We will never ask what a book means, as signified or signifier: we will not look for anything to understand in it. We will ask what it functions with, in connection with what other things it does or does not transmit intensities, in which other multiplicities its own are inserted and metamorphosed" (1987, 4).

By describing a book in this way, the philosophers attempt to strike at the heart of representationalism; yet by choosing an object so thoroughly

understood as representational, they make it more difficult for the reader to tease out its affective dimensions. If words and images can be vectors for both affect *and* ideology, how do we know which modality (or admixture) is most salient in a given instance? In *A Thousand Plateaus*, Deleuze and Guattari also filter their ideas on sonic affectivity through the aesthetics of music. This forces us to contend with a tangle of affectivity and semiotics similar to that found in media studies, due to the fact that music—even the noisy avant-garde music they advocate—is, in part, a cultural code.

This problem of isolating affectivity is exacerbated by infocentrism. This prevailing cultural ideology reduces all matter and action to the flows of an often poorly defined, shape-shifting, and mystically immaterial substance called "information," creating an impression that "pattern is predominant over presence" (Hayles 1999, 19), redefining the human as "information processor," and casting nature as "information to be processed" (Bolter 1984, 13).[3] For all of the remarkable technologies and academic disciplines this idealist notion has catalyzed, transcendent, immaterial "information" may have passed its sell-by date in critical media scholarship's marketplace of useful ideas. As media scholar Nicole Starosielski writes, "analyses of twenty-first-century media culture have been characterized by a cultural imagination of dematerialization: immaterial information flows appear to make the environments they extend through fluid and matter less" (2015, 6)—a critique that could be extended to our understanding of the human beings who use media as well. Deploying an unproblematized notion of information in the analysis of media's affective and material roles in human life is not so unlike using the Invisible Hand as the basis of a critique of free market capitalism—in both cases, a tacit understanding that should be an object of critique instead roots the analysis.[4]

Therefore, the use of affect theory in media and music studies by scholars who still maintain tacitly informatic and representational conceptions of media technology can lead to a lack of concreteness in analysis. As Lawrence Grossberg puts it, affect often becomes "a magical term," allowing scholars to reference nonrepresentational effects without doing "the harder work of specifying modalities and apparatuses of affect" (2010, 315). As a result, despite affect theory's huge popularity in the humanities, affect still too often feels like an also-ran to semiotics or a ghost in the informational machine of our media and music technologies.

The study of orphic media is intended as a methodological intervention in affect studies because it brackets representation to a large degree, easing "the harder work" by identifying technologies that clearly defy informatic and representational logics. Answering the question *What other kinds of work do*

media do besides information work? pushed me to "de-center media radically to see what else is in the picture" (Gray 2009, 17), observing people's practices of mediation and eventually coming to study some devices that don't fit our received notions of media at all. Whereas the words of a Buddhist sutra or the notes of a musical loop from a Buddha Machine are representationally complex, the orphic media presented in this book foreground media's material and affective dynamics because they are more or less "contentless."[5] The monotonous rainfall sound of the website rainymood.com is impossible to pay attention to for long—and this is its very utility. The sound of a white noise app carries no representations, yet it is meaningful in people's lives.[6] These technologies do not tell stories, entertain, or inform. Instead, they offer people the nonrepresentational utility of using sound to control their relations to their surroundings, and in so doing, to control themselves.

Lisa Gitelman writes, "the success of all media depends at some level on inattention or 'blindness' to the media technologies themselves (and all of their supporting protocols) in favor of attention to the phenomena, 'the content,' that they represent for users' edification or enjoyment" (2006, 6). Orphic media complicate this dynamic because *their content is designed to negate itself as content*, creating a perceptual absence rather than attention-grabbing presence for edification or enjoyment. Studying the widespread use of media without content shifts our attention to *the ability to shift attention itself*—the abilities to see or not see, feel or not feel, and hear or not hear that media afford, moving the site of our analysis from the phenomena of media representations to the phenomenological and ontological affordances of media technologies and protocols.

Ultimately, orphic media are useful to consumers—and, I argue, to scholars—because they are, in certain senses, "empty." First, as just indicated, they show us that while media may often function as "container technologies" (Sterne 2006), they don't always carry the representational content we assume. Second, and more fundamentally, orphic media point us away from the everyday perspective, in which media content is shared, used, and manipulated by pregiven individuals. Instead, they point us instead toward an "emptiness" in the Buddhist sense, a perspective in which the world is "without body or form," not made of pregiven subjects, objects, and spaces (Uchiyama 2004, 11). In this empty perspective, the world is a haphazard *process* in which subjects, objects, and spaces arise—and media are a means of grappling with this process of presence- and absence-making, a way of managing the material and attentional unfolding of world and self.

Orphic Media

Orpheus was more than an adventurer who fought the Sirens' sound with sound: Greeks and Romans knew the young Thracian king and shaman as the first poet, the first musician, the inventor of the gods' names, and the first teller of their tales (Wroe 2011, 35). In these rituals and arts, Orpheus used sound not only as a mode of mastery, but also as a medium of divine interconnection that brought people together with one another and the nature of creation (figure 1.8). An unlikely hero, Orpheus wielded only poetry, a lyre, and a melodious voice. His sole prowess was an ability to perturb the air, yet there was great power in those perturbations. Orpheus's sonic ability to figuratively and literally move animals, rocks, rivers, and humans with his songs speaks to the way that sound, as vibration, mediates lived space, fostering social, physical, spatial, and sensory entanglements that can vitalize bodies or threaten to shake them apart. For this reason, Orpheus personifies media's ability to pacify, fortify, and transform both spaces and the selves that inhabit them. In this section, I define orphic media and the sonic "modes" and "potentials" through which they operate.

In defining orphic media, we might think in terms of three concentric circles. In the smallest circle are the tinnitus maskers, white noise machines, LPs, apps, headphones, and hearables in the case studies that follow—technologies designed for the sonic control of one's affective state and environment, usually deployed in utilitarian practices that privilege sleep, concentration, and the freedom to remain unaffected. As stated above, this collection of devices is useful because they provide insights into contemporary media use and the problem of sensitive listening, while also helping us isolate affective potentials and practices in other media. These core technologies are a subset of the second circle, which contains audio media technologies more broadly, all of which modulate affectivity through orphic modes and potentials. Music and film sound, for example, work to construct, energize, unify, pacify, dominate, or terrorize spaces and the subjects that fill them. The third and widest circle contains *all* media, since film, radio, television, and digital media all orphically channel affective desires and modulate our sensory and attentional engagement with our environment and one another. To offer just one example, the safe space that orphic mediation provides is the reason my grandmother slept in the living room, in front of the television, for the rest of her life after my grandfather died. The television's light, sound, and human presences did not serve to entertain or inform in those moments, but rather to soothe, comfort, diffuse attention, and fill the darkness.

ORPHEUS - 1. Orpheus bezweert de wilde dieren.
LIEBIG PRODUCTEN: kracht en smaak van 't vleesch.

Figure I.8 Orpheus personifies media's ability to pacify, fortify, and transform both spaces and the selves that inhabit them.

Media do this kind of work by altering the "modes" through which we affect and are affected by our environment. As Eric Jenkins describes them, modes are "how one body plugs into or interfaces with another to produce affections. As such, modes are the flip-side of affects, the orientations or manners necessary for certain perceptions to flow forth and thus for certain affects to be sparked" (2014, 15–16). We can think of modes, then, as a snapshot of all the virtual possibilities of affectivity in a given moment—they emerge from the preceding actions of bodies upon one another and they condition the actions to follow. "Media thus shape modes by enabling or disabling certain capacities," reshaping the virtual possibilities of encounters between our perceiving bodies and other "bodies" writ large (17). Media are able to sonically remediate modes only because our perceptions, relations, and subjectivity are already affectively mediated. The subjective experience of environmental sound connects a vibrating object (such as the speaker in a radio), a molecular field of transmission (such as the air), the ear, the brain's neuronal networks (not just the auditory system, but also systems of filtration, memory, and emotion), and an entire discursive and experiential history embodied in the listener. Each of the elements in this resonant relationship—from the electronic to the organic to the cultural—functions as a medium for sound, affecting how all of the other elements affect one another in a web of *biomediation* (Hagood 2017; Thacker 2004).[7]

In essence, people use orphic media to sonically *re*mediate uninhabitable relations that emerge between these heterogeneous elements—noxious combinations of material and immaterial bodies that leave subjects feeling "poisoned" or unable to act (Deleuze 1978). For example, a complex combination of economic pressures, poor acoustic design, individual hearing acuity and attentional abilities, a garrulous coworker, and so forth may leave an office worker feeling stressed, diminished in her ability to act, and ready to purchase noise-canceling headphones. From the worker's perspective, she may simply be blocking out the voice of an annoying coworker, but from our analytic perspective, she is using one element in a complex affective space to remediate the modes of relation between all the others. The orphic remediation of this kind of affective "poisoning" can be *intramodal* (fighting sound with sound by *suppressing*, *masking*, *canceling*, or simply *shifting aural attention*), and it can also be *cross-modal* (using silence or sound to alter the experience of other sensory modalities, affective states, or the passage of time). The orphic industries and practices I describe in the chapters ahead leverage both intramodal and cross-modal remediation, fighting sound with sound *and* using sound to fight affectivity transmitted through other sensory modes.

In their sensory and attentional focus, intramodal and cross-modal remediation describe orphic processes from the *human* side of the subject–environment relationship. However, we can also describe what orphic media do in terms of the construction, fortification, and demolition of sonic-affective *spaces*. On this side of the equation, I draw on a tripartite schema by Barry Truax (1984) to propose three *sonic potentials*, or ways that sound mediates—and is mediated by—the environment. First, sound can be understood through the *energy transfer model*, which depicts sound as a physical wave carried in a medium such as the air. If the acoustical energy is sufficient and the air is in contact with another resonant medium—say a window pane—the wave motion is transferred from the first to the second medium. As David Cecchetto points out, because a sound is literally nothing but change (in the pressure of a medium), it confounds us as an immaterial phenomenon with very tangible effects, a seemingly consistent object of perception and knowledge that is, in reality, "nothing but difference" (2013, 3). The mediating potential of energy transfer inheres in the fact that it embodies both repetition and difference, as diverse bodies (organic and inorganic) are activated as media, resonating (or not) according to their unique energetic potentials and passing along the energy, expressing a "single" impulse as multiple collisions between bodily differences.[8]
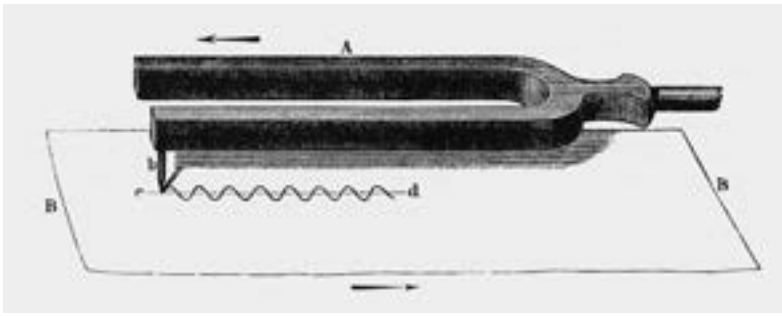
Figure I.9 Hermann Helmholtz's inscription of the sound wave.

In reality, a vibrating object propagates a *three-dimensional* molecular pattern of expansion and compression in a medium, but as a cultural construct, the energy transfer model represents sound as a linear, sender–receiver process—a two-dimensional waveform that transfers its energy along a horizontal axis, as seen in Hermann Helmholtz's nineteenth-century book *On the Sensations of Tone* (1954). "To render the law of such motions more comprehensible to the eye," Helmholtz suggests affixing a stylus to a tuning fork and moving a sheet of paper horizontally beneath it (21; see figure I.9). This abstracted "sound wave" facilitated new technical understandings and practices around harmonics, noise, and the capacities of the human auditory system; it also eventually came to resonate in public consciousness as much as it did on the screens of oscilloscopes, ascribing a false sense of fixity to sound's "nothing but difference." For the purpose of studying orphic media, we can be alert to this cultural history of the energy transfer model and its epistemological distortions, while still also taking advantage of this paradigm's affordances for understanding sound's affective potential. After all, the essence of the energy transfer model is the ability of sound and medium to affect and be affected by one another.

A second and closely related sonic potential is *signal processing*, which, in its classic form, involves the transduction of acoustical energy into an electrical signal by a microphone; the signal's storage, manipulation, and transmission via the "black boxes" of audio media technologies; and, finally, the signal's subsequent transduction back into acoustical energy via a speaker.[9] From an orphic perspective, the purpose of transduction and signal processing is to increase sound's ability to affect and be affected: electroacoustic media extend sound's mutability, reach, and impact, *both as sign and signal at once*, making it a second, human-crafted machine of sonic affectivity. Combined

with the epistemological shift of the energy transfer model, the material practice of transduction rendered sound as material, "an object to be contemplated, reconstructed, and manipulated, something that can be fragmented, industrialized, and bought and sold" (Sterne 2003, 9). Usually, these twin revolutions in sound are understood as affording the circulation of sonic messages, representations, and/or reproductions through the phonograph, radio, telephone, and other audio media. However, they also facilitated an unsung revolution in affect management, generating new modalities for the circulation and control of sonic intensities and their perceptual effects. These two models transduce the messy, everchanging, nonlinear sonic environment into more directable, durable, and controllable chains of cause and effect.

In the third potential of sonic mediation, sound is not the thing mediated, but rather the medium itself.[10] From this perspective, sound is "a space of transformation" (Serres 2007, 70), a *mediatic* dimension of connection and disconnection between subjects and between subjects and environment, as indicated in Steve Goodman's term "vibrational ontology" (2010). Sound is a resonance that *requires* a distance but also *bridges* that distance, calling forth the hearer and the heard by awakening the space between them—thus functioning as a medium in the Aristotelian sense (*metaxu*), a resonating gap that both separates and unites the sensed and sensing (Kearney 2015, 108).

The sense humans make in this connective gap is meaningful. Because Spinozan and Deleuzian sound theorists treat sound as material resonance and sonic affects as preconscious impacts, they have sometimes been criticized for minimizing the role of meaning and auditory culture in hearing (Kane 2015, 16). However, for Spinoza, affects include not only enlivening and diminishing relations between bodies, but also the *ideas* that arise *about* those relations—ideas that feed back into and alter the capacities of listening bodies. In other words, a vibrational ontology must remember the microscale vibrations of brain waves and account for sound in its remembered, imagined, phantom, and linguistic forms. As David Novak and Matt Sakakeeny write, "Metaphors for sound construct perceptual conditions of hearing and shape the territories and boundaries of sound in social life. Sound resides in this feedback loop of materiality and metaphor" (2015, 1). Rather than treating affect as "prior" to culture, an affect-minded scholar might, in Brian Kane's words, "demonstrate the successions and relays between cognition and affect" through which "the capacities of the body are cultivated at the same time that cultures become embodied" (2015, 8). The third sonic potential, then, conceives of sound as a communicative space of meaningful material resonance.

To review, modes of orphic mediation are underwritten by the interplay of three different sonic potentials: (1) sound is mediated as mechanical waves in an environmental medium, such as the air; (2) sound can also be mediated and altered as a signal through electroacoustic and digital processes of transduction and signal processing; and (3) sound is also mediatic in itself, a sensory-spatial process of interaction though which subjects and objects emerge in modes of affective relation. Through the first potential, subjects and objects make sound. Through the third potential, sound makes subjects and objects. Using technologies we call electronic media, subjects leverage the second potential of signal processing as they attempt to control the modes of affectivity enacted through the first and third potentials.

Returning to the Beats headphone commercial this introduction opened with, we can see the emergent interaction of the wave, signal, and mediatic potentials of sound. Understood through the first potential, the jeering haters in the Beats Electronics ad are sounding bodies that enact the molecular medium of the shared space they inhabit as mechanical waves to be received by Kaepernick's body. Leveraging the second potential, Kaepernick's noise-canceling headphones intramodally remediate these sound waves into a cancelable electronic signal, while cross-modally dampening the haters' visual and haptic presence. Considered through the third potential, it is Kaepernick, the haters, the headphones, and the space they inhabit that are all mediated by sound, sonically called forth into their actual states by their meaningful relations of resonance, dissonance, and cancellation. The quarterback, the crowd, and the space they share come into being, moment by moment, though sensory experience—enacted in the affective dynamics of jeering, hearing, and electronic remediation.

An orphic reading of "Hear What You Want" presents media use as the amplification, transformation, and tamping down of intensities and sensory perceptions—the mediations through which selves and worlds arise. While Seneca claimed that a quiet mind could maintain its distance from any sonic surroundings, his eventual retreat from sound—like Kaepernick's—speaks to the way that the sensed and the sensing are born in the resonating gap that both separates and unites them. Most orphic media use is motivated by the fear of how easily this empty gap transforms us. Manufacturers readily market the impossible dream of rising above the affective processes that make us what we are. In the next chapter, I examine the electronic remediation of tinnitus to understand how this dream of sonic freedom can ironically catalyze painful sensitivities to sound—even to sounds that, in some respects, can be said not to exist at all.

Notes

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Introduction: Hearing What We Want

1 Also, Peter Doyle has written a wonderful analysis of the sonic territorialization that record producers perform through the use of echo and reverb (2005).

2 This is not for lack of trying! My research into these more complex devices is ongoing and I plan to publish an analysis of them that builds on the work on orphic media presented here.

3 Critics of this line of thinking have correctly pointed out that the development of information science was marked by a careful concern for the material technologies and bodies it endeavored to connect (Mills 2011b). However, this history is also marked by a tension between those such as Claude Shannon, who was reticent about applying the concept of information too broadly and those such as Norbert Wiener, the father of cybernetics, who would spread information as far and freely as possible. There is no argument but that the second camp won: genetics, psychology, and economics are but a few of the fields that have been remade in information's image, leading eventually to this immaterial presence occupying every corner of the imagined universe.

4 For example, Anahid Kassabian, who studies musical technologies similar to those in the present book, draws on distributed computing to describe sonic affect in terms of "distributed subjectivity": "a nonindividual subjectivity, a field, but a field over which power is distributed unevenly and unpredictably, over which differences are not only possible but required, and across which information flows, leading to affective responses. The channels of distribution are held open by ubiquitous musics. Humans, institutions, machines, and molecules are

all nodes on the network, nodes of different densities" (Kassabian 2013, xxv). While this paradigm attempts to challenge the cognitivist Enlightenment liberal subject, it unintentionally reinstates it by conceiving sonic affect in terms of information processing. Conceiving of music as sonic information that is merely processed differently by different freestanding "computers" misses the essential point that bodies of listeners and bodies of music are *produced* in their specificity only through their interaction. Affectively speaking, there is no a priori information transmitted between senders and receivers because no two people ever hear the same sound; rather, different sounds and subjects are produced through modes of interaction, according to different circumstances of vibration, spatial position, neurophysiology, enculturation, and so on.

5   Although clearly the mantra-like repetition of the sutra box and the minimalism of the music of the Buddha Machine both foreground the orphic aspects of sound over the representational potentials of audio media.

6   Rainymood.com is a single-serving site (SSS) that does nothing but play a rainfall sound while simulated beads of water roll down the computer screen. White noise, of course, has its own connotations and thus still holds some semiotic function—in fact, for many people white noise connotes the ability to get a good night's sleep. Nevertheless, the utility of digital white noise and rain-sound products is not the transmission of entertaining or edifying representations.

7   Eugene Thacker uses the term *biomedia* to describe both information technology's reframing and reworking of organic bodies and the already informational nature of these bodies that allow them to be mediatized in these ways. I too assume an underlying molecular contiguity between life and media but, as discussed below, I do not reduce this relationship to the immaterial concept of information, focusing instead on the material, machinic potentials of affective resonance.

8   The outer ear, for example, can be thought of as a kind of funnel that collects acoustic energy, while the tympanum (or eardrum), stapes, and cilia of the ear transfer this energy along progressively finer scales. Noting that early sound transcribing and recording technologies were inspired by the human tympanum, Jonathan Sterne refers to the mechanism of the energy transfer model as *tympanic* (2003, 22).

9   Transduction has proved to be a productive model for sound and media scholars who wish to emphasize ontological contiguity in sound's mediation rather than assuming that mediation implies a distancing from reality, as seen in much postmodern theory (Helmreich 2007; Sterne 2003). When sound is transduced from energy into signal, there is no ontological shift from materiality into representation, nor from reality into hyperreality, for that matter (Hagood 2014).

10   Here, I take inspiration from Truax's model of "acoustic communication," in which sound mediates meaningful relationships between listeners and their environments, rather than being mediated by the linear transmission of energy or

signal. This is Truax's intervention, making a move from the linear, objectivist orientation of the engineer to the three-dimensional, subjective experience of acculturated and emplaced listeners. Truax's intention in this move is similar to the intentions of practice theory, performance studies, actor–network theory, and similar contemporary frameworks in anthropology, sociology, and cultural studies—to understand sonic experiences and phenomena as they emerge in the context and actions of everyday life. Such an intent forms the basis for soundscape study and design: "If we shift our focus from the sound wave and the audio signal as the artifact to the soundscape, where sound mediates relationships between the individual and the environment, we will be able to understand the intricacies of how sound *functions*, not simply how it behaves. Functionality, rather than simply aesthetic quality or the absence of annoyance, becomes the criterion for design" (1984, 12). In *Acoustic Communication*, Truax articulates an orientation also found in works on "acoustemology," "auditory culture," "aurality," and other manifestations of sound studies—that sonic experience is of historical, cultural, contextual, and practical concern.

The problem with Truax's model of acoustic communication, however, is that it casts the listener–environment relationship in terms that are highly cognitivist, semiotic, and informatic, purposefully minimizing the material dimensions of this relation. Truax proposes an "approach to acoustics [that] deals with the exchange of *information*, rather than the transfer of energy," in which the listener "is not engaged in a passive type of energy reception, but is rather part of a dynamic system of information exchange" (1984, 9–10, emphasis in original). Truax draws a sharp distinction between *hearing* as "the processing of acoustic energy" and *listening* as "the processing of sonic information that is useable and potentially meaningful to the brain" (9).

Such a model minimizes the material, affective power of vibration, as well as its cultural meanings and political potentials. It also instates a body/mind dualism in aurality between material *vibration processing* and immaterial *information processing*, discounting the former and privileging the latter. Truax's purpose in making these divisions is to show that the energy transfer and signal processing paradigms are inadequate to the job of designing better sonic environments for people: even the most "transparent" electroacoustic reproduction of a sound will lose that sound's original cultural and contextual "information," while even the complete elimination of noise through soundproofing will not create a meaningful soundscape for the listener. However, there is an irony to Truax's use of information in this argument, in that information theory itself was developed in an effort to eliminate noise in the transmission of voice signals across telephone lines (Shannon and Weaver 1964). In fact, the notions of information and communication that Truax deploys derive in large part from the very noise-eliminating signal processing practices he finds reductive (Mills 2011a, 122–24; Peters 1999, 22–25; Sterne 2012, 20).

What makes information such a powerful concept is that it allows a message to *become independent of its original material context* and thus highly manipulable and circulatable. This makes information a curious paradigm through which to understand cultural and physical context or the embodied subjective experience of sound; indeed, one can see the inherited linear intentionality of audio media practices in Truax's emphasis on what is "useable and potentially meaningful to the brain." Thus, while his paradigm seeks to transcend the limitations of the engineer's perspective, it unintentionally projects an engineering epistemology and intentionality upon the human–environment relationship. While the environmental orientation of the acoustic communication model is a necessary intervention, its reliance on an informatic notion of sound weakens its potential both as an approach to affect and as a model for the critique of media practices. For this reason, I retain Truax's conception of sound-as-medium without reducing the mechanism of its mediation to the transmission of information.

Chapter 1: Tinnitus and Its Aural Remedies

Epigraph: Michel Serres, 2008, *The Five Senses: A Philosophy of Mingled Bodies*, translated by Margaret Sankey and Peter Cowley, 178 (London: Continuum).

1 With the exception of Joel Styzens, who appears later in this chapter and has been very public about his experience with tinnitus, the names of tinnitus sufferers have been changed. The names of tinnitus researchers and clinicians are unchanged.

2 I use the term *tinnitus sufferer* to refer only to a person bothered by tinnitus, not to a person who experiences tinnital sound but does not feel negatively affected by the experience.

3 "In several recent [scientific] publications, tinnitus has been likened to the phenomenon of pain. Because tinnitus can be associated with every known pathology of the entire auditory system, it has often been referred to as the 'pain' signal of the hearing mechanism—that is 'auditory pain'" (Vernon and Møller 1995, xiv).

4 In this study, I follow Jastreboff and Hazell in reserving the term *tinnitus* for sounds that cannot be heard by others. Some subjects hear their own circulatory system or other bodily sounds that can be heard by a clinician with a stethoscope. Jastreboff and Hazell refer to these as "somatosound" (Jastreboff and Hazell 2004, 3).

5 In the past, Mol notes, sociologists of medicine added a social, subjective component, "illness," to the object of disease. Subsequently, sociologists came to see both illness and disease as socially constructed, so that "illness" came to refer to the perspective of the patient and "disease" to the perspective of medical staff. Mol goes further, moving away from epistemology and into ontology with a third step

that "foreground[s] practicalities, materialities, events" (2002, 12–13, emphasis in original).

6   Neuromonics, "How It Works," http://www.neuromonics.com/?page_id=89, accessed March 20, 2013.

Chapter 2: Sleep-Mates and Sound Screens

Epigraph: Charles Babbage, in *Making Noise: From Babel to the Big Bang and Beyond*, by Hillel Schwartz, 2011, 234 (New York: Zone).

1   Though it seemingly hasn't so far. In fact, Pauline Webb and Mark Suggitt's *Gadgets and Necessities: An Encyclopedia of Household Innovations* (2000) makes no mention of sound machines at all.

2   The Buckwalters met just after the end of World War II at the Jacksonville, Florida, USO. After the couple married, James Buckwalter worked for a watch company while earning a degree in accounting at Franklin and Marshall in Pennsylvania, which he completed in 1947. In 1948, they moved to Wooster, Ohio, where he began work for the Wooster Rubber Company as a traveling salesman, eventually becoming sales manager, then vice president of sales, then finally moving into product development. According to his daughter Janet Zimmerman, Buckwalter went through a series of jobs after leaving Wooster in 1957.

3   "Personal Therapy in the U.S.: Electronic Massagers and Other Sensory Devices," MarketResearch.com, August 1, 2007, http://www.marketresearch.com/Packaged -Facts-v768/Personal-Therapy-Electronic-Massagers-Sensory-1432870/view -toc/.

4   Ihde's difference from Deleuze (and Latour, for that matter) is a strong concern with subjects' sensory perspectives. For the purposes of this chapter, this is a feature, not a bug. The orphic media users that I interview do, of course, feel themselves to be individual agents—and it is a basic precept of contemporary ethnography to take subjective experience seriously. In this book, I often take a more Deleuzian approach, examining ontologically how orphic media intercede in the emergence of subjectivity, changing affective relations in ways that individuals are not consciously aware of. Presently, however, I examine how orphic technologies have come to mediate our microperceptual experience of the homes we inhabit within a macroperceptual regime that privileges circulation above all else.

5   Media's status as objects of interactive or attentional focus has long been an area of inquiry and debate in media and cultural studies; just recently, we have seen video game scholar Ian Bogost and other media and art scholars embrace Graham Harman's object-oriented ontology (OOO) as a means of doing a phenomenology from the position of the objects themselves (2011). For Harman, both Foucault's historical analysis and phenomenology are idealisms in materialist

clothing—the former because it explores materiality only in terms of the evolution of subjectivity and the latter because it claims we can only know the world through the filter of human experience. However, I think Harman's critique is too totalizing and his alternative has some troubling potentials. While I do believe that the discursive and postphenomenological approaches offer incomplete pictures, I also think that, taken together, they offer a politically potent view on human–technological relations. Though appreciative of OOO's appreciation of objects and their relations, I find myself among those who question the political consequences of such a radical decentering of the (post)human. It seems to me that there is plenty left to learn about human subjects' interactions with media—and that the stakes of doing so are high. As a white male, I also can't help but notice that my fellow white guys are the group most interested in speaking for objects, and I can't help but see continuities between OOO and a long history of "objectivities" that have redounded to the benefit of white males (Harman 2011).

6   Sound scholar Karin Bijsterveld and her collaborators take Ihde's cocoon on the road, pointing out that automobiles have been molded in such a way as to acoustically seclude the driver from her immediate surroundings through the "acoustic cocooning" of soundproofing and radio while also connecting her to music, news, mobile telephony, and satellite navigation (Bijsterveld et al. 2013).

7   Adolph P. Meisch, message to "PBY Catalina/Canso" group, http://groups.yahoo .com/group/PBY/message/16839.

8   It should be noted that by the 1940s the term *sound conditioning* was being used by the Celotex Corporation to market their sound-absorptive ceiling tiles (Schwartz 2012, 287). I have found no indication that Buckwalter was aware of this.

9   Moreover, the U.S. Patent Office offers a second type of document called the "patent interference," which records efforts by one party to turn another party's patented black box into a contested artifact; such documents have proved more interesting to some historians of technology than patents themselves (e.g., Chapin 1971).

10   Dave Theissen told me of the painstaking and largely fruitless efforts that ensued when Mr. B encouraged him to improve upon the Sleep-Mate design. Though Theissen managed to create substantial sonic improvements in the fan blades and adjustable housing, when it came to size and shape, it seemed that Buckwalter had initially happened upon a near-optimal design. Theissen's changes were no better and many were much worse. "I've often thought that we haven't gotten knocked off on the electromechanical machine because no one can do a better shape," he told me.

11   http://webdesign.about.com/od/webdesignbasics/a/whitespace.htm.

Chapter 3: Cybernetic Soundscapes

Epigraphs: R. Murray Schafer, 1994, *The Soundscape: Our Sonic Environment and the Tuning of the World*, 160 (Rochester, NY: Destiny).

N. Katherine Hayles, summarizing Friedrich Kittler, 1999, *Gramophone, Film, Typewriter*, 48 (Stanford, CA: Stanford University Press).

1 For more on guides, set, and setting in LSD psychotherapy, see Grof (1994). Chapter 1 is online at http://www.druglibrary.org/schaffer/lsd/grofhist.htm.

2 Teibel's promotion and distribution efforts took place before the present era of computerized technological convergence, however. Teibel took and developed photos, did graphic layout, wrote ad copy, and recorded audio in separate physical media that required quite different skill sets and physical channels of supply, production, and distribution.

3 Tony Conrad remembers it as January 1969, while Teibel wrote that it was the winter of 1968 (Teibel 1984, 224).

4 Bruce Lambert, "Louis Gerstman, 61, a Specialist in Speech Disorders and Processes," *New York Times*, March 21, 1992.

5 Teibel never uses Gerstman's name in the essay, though he appears three different times as seemingly different individuals (Teibel uses no names in the essay at all). Miriam Berman confirms that these references are indeed to Gerstman, leaving one with the question of why Teibel would divide and obscure the important roles this individual played. One likely answer is that Teibel did not want Gerstman's role to rival his own in this public account.

6 My reading of Helmholtz's *On the Sensation of Tone* does not bring to light a claim that natural sounds could be psychologically beneficial.

7 The irony is that many genres of minimalist and droning music are designed to cultivate similar states of mind *through* repetition, a fact that underscores the lack of a natural or automatic connection between particular sounds and particular mental states.

8 This professor well may have been Gerstman, but, as the test was not an official research study, there is no record to confirm its existence, let alone any details.

9 These quotes originally included full names and addresses, which I have removed.

Chapter 4: A Quiet Storm

1 http://www.doctoroz.com/episode/dr-ozs-13-miracles-2013?video=16259. Accessed February 27, 2013.

2 Results as of January 15, 2013.

3 http://mashable.com/2010/11/08/jimmy-fallon-gives-late-night-its-first-mobile
-app-video/. Accessed February 26, 2013.

4 Shannon's "abstract yet measurable" conception of information had precedents
in the work of his Bell Labs colleague Ralph V. L. Hartley, as well as the British
statistician and geneticist R. A. Fisher (Byfield 2008, 126–27).

5 I address criticism of this position on p. 235n3.

6 https://www.ted.com/talks/mihaly-csikszentmihalyi_on_flow/. Accessed Janu-
ary 20, 2013.

7 Indeed, this interpretation of sound app pragmatics fits nicely into the history of
information theory, which began with the attempt to fight the entropy of noise
in telephone lines and ended up domesticating noise itself, using its masking
properties to promote the more efficient transmission of information.

8 https://www.tmsoft.com/white-noise-player/. Accessed May 10, 2016.

9 Sindya N. Bhanoo, "Smartphone Applications Include Health-Care and Fitness
Options," *Washington Post*, February 3, 2009, http://www.washingtonpost.com/wp
-dyn/content/article/2009/02/02/AR2009020202203.html?noredirect=on.

10 Issue 18756: "StageFright—setLooping(true) Leaves a Noticeable Gap in Audio,"
https://code.google.com/p/android/issues/detail?id=18756; accessed January 24,
2016.

11 "Life of a Bug," https://source.android.com/source/life-of-a-bug.html#resolved
-issues. Accessed January 24, 2016.

Chapter 5: Bose QuietComfort and the Mobile Production of Personal
Space

Epigraph: Amar Bose, *Cancelling Noise*. Video interview with Amar Bose, 2009, The
Futures Channel, accessed May 3, 2010, http://www.thefutureschannel/dockets
/critical_thinking/bose/.

1 This phrase was used in the marketing copy of the American Bose website until a
recent update. It can still be found on the Australian Bose website: http://www.bose
.com/controller?url=/shop_online/headphones/noise_cancelling_headphones
/index.jsp. Accessed July 20, 2010.

2 For an account of the heroic individual narrative as it relates to another sound-
scaping technology, see du Gay et al. (1997, 44–46).

3 See, for example, Timothy Mitchell's *Colonising Egypt* (1988), which explains the
role of a modern and objectifying gaze in European colonialism.

4 For a fascinating exploration of aural architecture, see Barry Blesser and Linda
Ruth Salter's *Spaces Speak, Are You Listening?* (2007).

5 Morse (1990) sets out to understand the psychology and ontology of subjects whose
daily lives are lived in the dominant "spaces" of contemporary capitalism: televi-
sion and its "analogs" such as freeways and malls. She characterizes these as non-

space, a space of flows between two- and three-dimensional realities, virtuality and actuality, and presence and absence of mind; this nonspace forms the ground of our everyday, semiconscious activity. If we follow Morse's logic, QuietComfort users are fighting one nonspace with another.

6   http://www.businesstraveller.com/discussion/topic/The-fattest-person-I-have-ever-sat-next-to, accessed July 22, 2010.

7   A user testimonial video currently on the Bose website, for example, features comments from two women dressed in professional attire, though the great majority of the ad features white professional men.

8   "Bose 'Mimes' by Euro RSCG Singapore," *Campaign*, July 21, 2009, https://www.campaignlive.co.uk/article/bose-mimes-euro-rscg-singapore/921537.

9   Given my subject matter, the irony is, of course, particularly rich in my case.

Chapter 6: Beats by Dre

Epigraphs: Liana M. Silva, 2015, "As Loud as I Want to Be: Gender, Loudness, and Respectability Politics," *Sounding Out!*, February 9, https://soundstudiesblog.com/2015/02/09/as-loud-as-i-want-to-be-gender-loudness-and-respectability-politics/.

Positive K, "I Got a Man," 1992.

1   Randall Roberts, "Aloe Blacc's 'The Man': From Dr. Dre Reject to iTunes Chart-Topper," *Los Angeles Times*, January 23, 2014.

2   Burt Helm, "How Dr. Dre's Headphones Company Became a Billion-Dollar Business," *Inc.*, May 2014, http://www.inc.com/audacious-companies/burt-helm/beats.html.

3   "Colin Kaepernick Explains Why He Won't Stand during National Anthem," https://www.youtube.com/watch?v=ka0446tibig&ab_channel=KTVU. Accessed November 19, 2017.

Conclusion: Wanting What We Hear

1   Tim Ingham, "Spotify Is Making Its Own Records . . . And Putting Them on Playlists," Music Business Worldwide, August 31, 2016, https://www.musicbusinessworldwide.com/spotify-is-creating-its-own-recordings-and-putting-them-on-playlists/.

2   Liz Pelly, "The Problem with Muzak," *The Baffler*, December 2017, https://thebaffler.com/salvos/the-problem-with-muzak-pelly.

3   Andrea Bartz, "How City Noise Is Slowly Killing You," *Harper's Bazaar*, July 25, 2017, http://www.harpersbazaar.com/culture/features/a10295155/noise-detox/; Winnie Hu, "New York Becomes the City That Never Shuts Up," *New York Times*,

July 19, 2017, https://www.nytimes.com/2017/07/19/nyregion/new-york-becomes-the-city-that-never-shuts-up.html; Jonathan Wolfe, "New York Today: Blocking Out the City's Noise," *New York Times*, July 24, 2017, https://www.nytimes.com/2017/07/24/nyregion/new-york-today-blocking-out-the-citys-noise.html.

4   Mike Elgan, *This Week in Tech*, podcast no. 569, July 3, 2016.

5   Philip Jaekl, "Why People Believe Low-Frequency Sound Is Dangerous," *The Atlantic*, June 19, 2017, https://www.theatlantic.com/science/archive/2017/06/wind-turbine-syndrome/530694/; Anne Gearan, "U.S. Investigating whether American Diplomats Were Victims of Sonic Attack in Cuba," *Washington Post*, August 10, 2017, https://www.washingtonpost.com/world/national-security/us-investigating-whether-american-diplomats-were-victims-of-sonic-attack-in-cuba/2017/08/10/.

6   https://hereplus.me, accessed July 21, 2017.

7   Although Oliveros, part of the New Communalist milieu, did sometimes use informatic language—as in her essay collection *Software for People* (1984, xxiii)—her techniques of listening are profoundly affective in their orientation and not at all reducible to an information-transmission model.