Three Contributions to the "Sonic Turn"

Moorefield, Virgil. 2005. *The Producer as Composer: Shaping the Sounds of Popular Music.*
Cambridge, MA, and London: MIT Press.

Doyle, Peter. 2005. *Echo & Reverb: Fabricating Space in Popular Music Recording, 1900–1960.*
Middletown, CT: Wesleyan University Press.

Anderson, Tim J. 2006. *Making Easy Listening: Material Culture and Postwar American Recording.*
Minneapolis and London: University of Minnesota Press.

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Since roughly the mid-1990s, scholars in a number of humanities and social science disciplines have turned their attention to ontological, epistemological, and phenomenological questions concerning sound. Historians Corbin (1998), Smith (1999), and Rath (2003), for example, have sought to "re-sound" historical spaces and eras; historians of science Bijsterveld (2001), Thompson (2002), and Blesser and Salter (2007) have examined architectural acoustics and the construction of a built sonic modernity; Gitelman (1999), Sterne (2003), and Weheliye (2005) have, albeit from quite different perspectives, explored the nexus of sound recording and reproduction technologies and cultural practices in the nineteenth and twentieth centuries; in a special issue of *Social Studies of Science*, Pinch and Bijsterveld (2004) called for the establishment of a field of "sound studies"; and, while having entered the discussion of the sonic somewhat earlier, film historians and theorists, especially Lastra (2000), Altman, ed. (1992), and Chion (1994), have provided crucial analytical and historical sonic frameworks to think both with and against.

Within musicology broadly defined—including ethnomusicology, popular music studies, and historical musicology—scholarship concerning the sonic has exploded in recent years. For many, this "sonic turn" has simultaneously been a turn to the technological: not only the technologies of music production, reproduction, and consumption, but also the technological practices of musicians, sound engineers, producers, and listeners. Studies

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have included the more generally theoretical, such as Kahn (1999), and Evens (2005); many more have focused on musical instruments, such as Théberge (1997), Waksman (1999; 2004), Pinch and Trocco (2002), and Bijsterveld and Schulp (2004); some address listening, hearing, and consuming, including Auslander (1999), Bull (2000), Bull and Back, eds. (2003), Perlman (2003; 2004), and Erlmann, ed. (2004); and there are numerous inquiries into recording studio practice, such as Porcello (1998; 2004; 2005), Zak (2001), Meintjes (2003), Katz (2004), Schmidt Horning (2004), Diamond (2005), and Wallach (2005). Others have sought to problematize distinctions between technologies of sonic production and consumption, especially Greene (2001), Lysloff and Gay, eds. (2003), and Greene and Porcello, eds. (2005). As a permutation of these concerns, Meintjes (1990), Feld (1994; 1996)—whose broader contributions to an anthropology of sound are notable as well—Taylor (1997; 2001), and Born and Hesmondhalgh, eds. (2000) have interrogated the global traffic in (musical) sounds.

This list—though far from exhaustive—illustrates the variety of disciplines, methodological approaches, and topical foci characteristic of this sonic turn. Represented are scholars who position themselves in anthropology, ethnomusicology, historical musicology, composition, sociology, history, science and technology studies, media studies, film studies, cultural studies, and literary theory. Their methods of investigation range from the ethnographic to the archival, the textual, and the critical and theoretical. The proliferation of these and other works suggests the emergence of a field of study, yet as of now no single discipline lays claim to the sonic turn; it is—and rightly so, I would argue—an "inter-" or "multi-discipline," still nascent, and characterized by the atomistic nature of most emergent scholarly fields. As a result, these studies are rarely in explicit conversation with one another. Citations to other sonic scholarship are usually limited to works originating in the author's own discipline rather than to works originating elsewhere; the multidisciplinary scholar is left to do the cross-referencing largely on his or her own.

Virgil Moorefield's *The Producer as Composer: Shaping the Sounds of Popular Music* (2005), Peter Doyle's *Echo & Reverb: Fabricating Space in Popular Music Recording, 1900–1960* (2005), and Tim J. Anderson's *Making Easy Listening: Material Culture and Postwar American Recording* (2006) thus enter an expanding field, each articulating a different relation to existing works. Moorefield most closely links to the literature on recording studio practice, Doyle to discussions of both the aural and referential dimensions of particular sonic signatures of popular music recordings, and Anderson to a cultural history of the technologization and industrialization of music production and listening practices. Each book succeeds reasonably well in terms

of the scope and ambition set by its author, but all reveal their significance more strongly if considered in light of this larger body of scholarship.

Moorefield's brief book on music producers argues that the producer should be thought of as a composer, and that technological changes in the recording process (largely since the 1950s) have led to three primary developments: first, that recording, which was once primarily a technical matter, has increasingly become an artistic one; second, that recording no longer seeks to create (the illusion of) concert-hall realism but instead builds its own realities of sonic spatialization; and third, that the contemporary music producer is best thought of as an auteur. The book is largely organized chronologically: Phil Spector starts the history, and select hip hop producers, the Chemical Brothers, and mash-ups end it. In between, the reader is guided—almost as if strolling past displays at the Rock and Roll Hall of Fame—through mini-biographies of the conventionally canonized legends of pop music production: Brian Wilson, Barry Gordy (with Norm Whitfield), George Martin, Frank Zappa, Alan Parsons, Tony Visconti, Brian Eno, Bill Laswell, Trent Reznor, Quincy Jones, Kraftwerk (and Conny Plank), and Hank Shocklee (with Chuck D).

Most of these exposés use previously published interviews to convey the individual's overall approach to and philosophy of production; in most cases, Moorefield then provides a detailed analysis of one of the producer's best known songs. Thus (to provide but a few examples) Phil Spector's "wall of sound" is described with an analysis of "Be My Baby," Brian Wilson's compositional approach is illustrated with "Good Vibrations," Gordy and Whitfield with "I Heard It Through the Grapevine," Alan Parsons with *Dark Side of the Moon*, and Trent Reznor with both "Mr. Self Destruct" and "Irresponsible Hate Anthem."

Moorefield moves between music analysis and attempts to describe songs as sonically organized artifacts of the recording process itself. When done well, these sections have the potential to open the reader's ears to new ways of appreciating some familiar hits. A case in point is the discussion of Spector's production of "Be My Baby," which considers both instrumentation and mix placement in ways that allow for a deeper appreciation both of what one is hearing (especially with respect to the castanets) and of how the mix is crucial to the specificity of that hearing.

Yet not all of Moorefield's illustrations open up such insights. For example, the section concerning Quincy Jones's production of Michael Jackson's "Billie Jean" is illuminating in its description of the interaction of musical elements:

> The performance and production of the vocals blend seamlessly to create a unique sonic signature. Throughout the track there is a subtle interplay

> between solo voice; a dry, foregrounded chorus; a main chorus; and assorted whoops, yelps, and shouts that add up to a percussion section of their own. (86)

But when Moorefield moves from description to interpretation, his terminology becomes problematic. Discussing differences between the final album track and a demo version that Jackson had recorded at his home studio, Moorefield writes, "Everything in the album version is carefully sculpted: every single sound is clear, and there for a reason. Yet though there's not a hair out of place, the overall impression of the track is that it is organic" (86). And shortly thereafter, "The chorus is thoroughly satisfying, taking the song to an ecstatic plateau as Jackson delivers his message . . . The vocals are massed thirds and sixths mixed with slinky unisons" (87). As anyone who has tried to write about musical texture, tone color, or timbral blending of the type inherent in sound mixing can attest, linguistic description of these sonic dimensions is difficult, yet many scholars who have worked on recorded sound have actively sought to develop more precise ways of describing these elements of a sonic mix; Moorefield's use of terms like "organic," "ecstatic," and "slinky" reflects a vague and uncritically subjective approach that is no longer necessary in contemporary scholarship on sound.

The Producer as Composer is resolutely a-social in its approach to technology, to shifts in musical production practices, and to how particular individuals may come to prominence and power in, to paraphrase Howard Becker (1982), "art industry worlds." The book's dual focus on auteur theory and technological change results in an unfortunate, technologically deterministic iteration of a Great Man (and I do mean *man*) history:

> But it seems that there will always be people who do something particularly well, no matter whether the context is marks on paper or samples in the studio . . . It is not surprising that far from removing "sacred cow auteurs," modern technology has simply shifted the metaphor from exceptional accomplishment on paper by "composers" to exceptional accomplishment on hard disk by "producers." Moreover, the producer and his machines are on stage, just as the composer was once a performer. At the top of the current charts, one increasingly finds cases in which the producer is the artist is the composer is the producer; and technology is what has driven the change. (111)

While few would contest that the producers discussed in the book were key innovators in studio technology use, and that many of them created truly extraordinary recordings by taking advantage, in many cases, of new possibilities that emerged as recording technologies changed throughout the twentieth century (and working, one might add, most often in conjunction

with truly talented musicians), that alone cannot account for why these individuals have been lionized when others haven't, nor can it address the complex ways in which technology not only frames but, equally importantly, *is* framed, by use.

For those wishing for an introduction to canonical figures in the history of record production and for some exposure to conceptualizing music as the outcome of a complex process of mediation that leaves audible traces on "the music," *The Producer as Composer* will prove an accessible entry point. Those who have read biographies of the individuals profiled in the book, or whose interests reside in more social and cultural aspects of recorded sound, may well be left with reservations. The social construction of technology (SCOT) framework (Bijker, Hughes, and Pinch 1987), for example, provides the concept of "boundary shifters"—individuals or organizations whose social practices change the possible uses imagined for technologies (see Pinch and Trocco 2002)—as a way to address more subtly the kinds of innovators that this book highlights. From the list of individuals discussed to the unproblematic gendering of "the producer and his machines" in the final paragraph of the book, the history of male hegemony in the ranks of producers is neither questioned nor addressed. Finally, one is left with little understanding of how other changes in the music industry in the time frame that the book considers (e.g., the breakdown of union structures, the establishment of music business degree programs at many universities, the consolidation of major labels and their shift to focusing on distribution as much as on production) affected the profession and practice of music production.

The orientation of Doyle's *Echo & Reverb* is decidedly more social. The very thoughtful introductory chapter immerses the reader in a semiotics of spatiality in sound recording, especially as achieved though the careful manipulation of reverberation in sound mixes. In Doyle's view, the foregrounding of reverb in many American recordings made before 1960 is no accident. Prior to the era of magnetic tape–based blues and country recording, he argues, reverberation reflects issues of place and identity that circulated in the social worlds of musicians: "The social, the personal, the geographic, the demographic, the physico-spatial conditions of [musicians'] lives (and of life in general) were rendered into aesthetic effects" (7). By the 1950s, "echoicity" in Hollywood soundtracks—especially in Westerns, and in horror and noir films—had created meaning-laden structures of spatiality that were often transferred to musical recordings and that listeners were primed to render similarly meaningful.

Doyle's project is simultaneously descriptive and semiotic, roaming across musical genres while striving to access the denotative and connotative

meanings that echo and reverberation provide to—or elicit from—listeners. Doyle seeks to chart the emergence of "spatial vocabularies" (24) over time, and confines most of his discussion to the pre-stereo era of recorded music, when spatiality could not be easily coded onto a left-right axis. Intriguingly, Doyle suggests that because it enabled a fixed structure for encoding spatiality, stereo was *less* open to creative and exploratory spatializing practices than was monaural recording, which had to rely on more inventive sonic techniques. Further, the significance of spatial effects changes throughout the history of recorded music:

> Generally speaking, the earlier we are in the history of sound recording, the more denotative the uses of spatial effects tend to be ... By the late 1940s, however, a much wider range of possible meanings was available to record makers and listeners, and many of these are at odds with others (such as the use of reverb or echo to locate a voice at a marked physical distance from the imagined "center stage" and also to suggest the inner voice or conscience of the singer). (14)

Doyle is keenly interested in accessing the meaning of spatial effects, but is careful to acknowledge that it is no simple task to determine how listeners at a given point in time may have encountered and interpreted the spatial effects the book discusses. Nonetheless, he argues, "broad consistencies" in popular music's space-making practices do exist, and thus it is possible to argue "for the existence of a coherent spatial semiotics operating in popular music recordings" (31).

After a strong chapter which positions echo and reverberation in myth, architecture, and gender theory, and also charts the emergence of romantic "intimacy" on sound recordings as a result of radio's sonic conventions, Doyle provides a series of roughly chronological case studies, the first of which examines hillbilly, blues, and jazz recordings. The central figures are Jimmie Rodgers, whose recording of "Blue Yodel No. 1 (T For Texas)" set the stage for the use of depth as an assertion of musicians' individual personhood via sonic emplacement; Robert Johnson, whose "corner sound" recording technique inserted the microphone between the performer and a wall in order to embed the audience (literally and sonically) in the performance; and the "convex" recordings of Duke Ellington and Billie Holiday that issued "the invitation, implicit or explicit, to the listener to enter the space" (91). Doyle positions these four artists in the early development of a spatialization that did not seek to map a literal geography of performance ensemble space onto the recording. This chapter effectively showcases the possibilities of Doyle's descriptive and interpretive approach; the reader learns about the techniques used and the auditory traces they generate on the recordings, and

is led to a more subtle appreciation of how spatializing traces can structure the listening experience.

Subsequent chapters treat the "Western" or "cowboy" recordings of the 1920s through the 1940s (with a particular effort to situate them in the context of sonic conventions of contemporaneous Hollywood Westerns); Hawaiian music recordings' evocation of "distant otherness"; a series of West Coast recordings (highlighted by but not limited to Les Paul and Mary Ford) in which the electric (often steel) guitar line is located in the mix away from the singer in order to act "as a kind of commentator on the main vocal line" (168); various late 1940s and early 1950s Sun and Chess Studios sessions; and finally a consideration of the early years of rock 'n' roll, with special attention to several Elvis Presley recordings.

These chapters meet with mixed success. Each provides an excellent discussion of recording techniques and sonic traces, and one literally experiences the songs differently after reading Doyle's descriptions. Consider this passage addressing spatializing techniques and their associated meanings in Presley's "Mystery Train" recording from 1955:

> By the time "Mystery Train" was recorded, all the major elements of the "Sun Sound" were in place. The last and arguably more crucial innovations were to locate the singing voice "inside" echo and reverb, and at the same time dispense with the realist, pictoralist, landscape traditions of echoic/reverberant sound in favor of expressionist, nonliteral zones. At the same time, however, [Sam] Phillips and Presley were able to harness many of the potent significations of echo and reverb that were already extant. In previous chapters reverb and echo were seen to be used in movies and on recordings as signifiers of the uncanny, of shifting consciousness, of ghostly presences, of subjective fear and awe, and magical, shamanlike occupying of place and the exerting of power over objects. (193)

In passages like this, Doyle's argument is both ear-opening and convincing.

But not all of the book's interpretive moments (many framed within Deleuze and Guattari's framework of "territorialization," "deterritorialization," and "reterritorialization") successfully maintain what Doyle recognizes as a vexed boundary between "obsessive and overheated interpretation" and careful semiotic analysis (14–15). Doyle's discussion of visual/aural conventions in the 1953 cowboy film *Shane* provides an example. The movie, set against a backdrop of massive mountains, concerns a community at the edge of the reach of civil law. Doyle writes,

> The spectacle of the mountains looming in the distance in *Shane* might be seen as a kind of symbolic rendering of "the Law"—simultaneously remote

> from the immediate action, but an immense, immutable and immovable presiding presence . . . over a nervous, ambiguous moment of transition or contestation between divine law, civil law, and anarchy. (108)

Referring to a character's shout that is seemingly echoed by the mountains, Doyle continues:

> The sonic marker of the mountain is the echo. In the real world, the phenomenon of echo in open spaces is caused when sound waves encounter a large obstacle and are reflected in such a way that they retain enough of their original characteristics to be heard as a delayed, reduced replica of the original sound. If these mountains in some way stand for "the Law," then the echo here might be the voice of that law: a (diminished) voice of the father, an "absent parent" [itself an important element of the film's plot]. (108)

To which one might respond: Well, yes, the mountains might represent all that, or perhaps they might not, or perhaps they might be interpreted as meaning that by some subset of viewers at some particular point in time. But rather than quibble with the specifics of this interpretation, I would suggest that this passage highlights the end limits of the interpretive approach to semiotics used in *Echo & Reverb*. For all its revealing description of spatializing techniques, the book's more strained interpretations of meanings created by those techniques suggests the necessity of a more social semiotics, one based in empirical inquiries about the meaning(s) of such spatializing practices, and which begins with the recognition that meaning is immanent and emergent, not simply fixed by the structuring of textual features. This, of course, is not Doyle's project and the reader can make of his specific interpretations what she will. Doyle's book emerges from within the tradition of textual analysis in popular music studies, and does a strong job of pointing to an alternative kind of textual analysis within that tradition—one firmly rooted in the sonic. While replicating some of the limitations of popular music studies, *Echo & Reverb* is generally an insightful—and often a delightful—contribution to the study of the history of recorded music.

In contrast to Doyle and Moorefield, Tim J. Anderson's *Making Easy Listening* stresses the industrial and economic contexts of recorded music by arguing that "the very elements of modern music production *cannot* be separated from the economic scenarios and material arrangements that affect our production and perception of these objects" (184). Also implicit in this statement (which leaves one wondering whether Anderson sees this as the case only for modern music) is the role of the listener, largely absent from the work of Moorefield and (somewhat less so) Doyle. Anderson's orienta-

tion is that of mass media and communications scholarship, the interests of which reside with the sound recording as a material object, and with a belief that "the study of recordings should always posit an understanding of any recording's relationship to a media industry" (183), in part because "in popular culture, both aesthetic and economic issues have decided influences on our understanding of any given product or movement that cannot be easily distinguished from one another" (xxxv). Anderson's emphasis on the materiality of the object and its origins and reception within an industry framework insulates this book (more than either Moorefield's or Doyle's) from treating sound (or music) as an autonomous, a-social entity.

Anderson concentrates on recorded music in the post–World War II United States, a context in which production and consumption had largely shifted "from song to sound" (xvi), as music came to be primarily engaged with by Americans through recordings, not sheet music or in-home performance. These shifts, of course, did not happen of their own accord, but in conjunction with (and arguably as a result of) efforts by media industries to get Americans to invest both economically and ideologically in a culture of recorded sound and the technologies necessary to listen to (and, in some cases, to make) them. The book thus moves between examinations of the industry, recording processes, and specific recordings.

Anderson organizes the book around three thematic sections. The first concerns the American Federation of Musicians strikes of 1942–44 and 1948, analyzed through Attali's (1985) "stockpiling" and "repetitive society" framework. Anderson suggests that the strikes reflected two important industry changes: first, a growing distance between musicians, who found value in an economy based on performance, and the media industry, which increasingly located value in musicians' ability to "facilitate the production, distribution, promotion, and sale of mass-produced objects" (xxxv); and second, an effort by the AFM to resist industry pressure to make recordings the primary means of experiencing music (xxxvi). As with most histories of the strike, Anderson's places AFM president James Petrillo at the center of the story, though ultimately Anderson criticizes scholarship that narrowly locates Petrillo's motivations in his opposition to the negative effect of the radio industry on the livelihood of performing musicians. The two chapters devoted to the AFM strikes address how the union sought to counteract a shifting logic of music production, in which performance was displaced by an industry structure that changed musicians from performers into laborers.

The second theme of the book is "versioning," examined in two chapters that chart the trajectory of *My Fair Lady* from the Broadway stage version in 1956 to the Hollywood film of 1964, with particular attention to the various musical soundtrack records of Lerner and Loewe's score. Anderson argues

that the multiple recorded versions of *My Fair Lady* illustrate an aesthetics of creative difference: "Each restaging individuates itself through the exposition of significant differences in elements such as timing, the intensity of expression, locale, the use of effects, music, and so forth" (63). As Anderson's analysis unfolds, it becomes clear that he is less concerned with these differences per se than with how they reveal an industrialization of musical and sonic intertextuality that continues unabated into the present (via, for example, the release of boxed anthology sets that often include re-mixed, or previously withheld, versions of songs). This double context, of the social value and the industry logic of versioning, frame the second *My Fair Lady* chapter, in which Anderson provides a fascinating catalogue and description of the multiple extant recordings of the musical's songs—not merely the well-known ones associated with the controversial casting of Audrey Hepburn in the role originally sung by Julie Andrews. Anderson's approach provides a welcome counternarrative to the "star image" explanations usually offered in such cases; he argues that the Andrews-Hepburn choice should not simply be analyzed as a casting controversy, but as an intertextual site of debate over the recording activities and artifacts of specific media industries, including the very specific sonic associations that audiences would by then have had for Andrews's and Hepburn's recorded voices.

The book's final theme links most closely to Moorefield, Doyle, and the question of the sonic. Whereas *Echo & Reverb* almost exclusively examines the pre-stereo era of recording, the final two substantive chapters of *Making Easy Listening* concern the intersection of stereo, technological developments in audio playback, and the postwar fascination with "novelty" records. The promise of playback technologies to provide "fantastic acoustic spaces" (xliii), Anderson argues, led to recordings in which aesthetic innovation is less associated with the pleasure of music and more with the pleasure of listening; consumption thus begins to drive production in a tangible way. Much of what Anderson illustrates parallels (though in abridged fashion) the discussions of space in Doyle's and (to a lesser extent) Moorefield's books. Anderson argues, for instance, that musical recording and playback systems in the postwar period were infused with the promise of providing "musical and sonic possibilities that were distinct from live musical spaces and occasions" (113), and that record labels and recordings consequently deployed stereo as a compositional element, several examples of which are discussed in the second chapter of this section. Unlike Doyle, Anderson turns to film theory to frame his discussion. Film studies, he rightly suggests, has a long history of examining the way that cinematic processes situate the viewer (142), whereas popular music scholars have done comparatively less work on analogous auditory *mise-en-scene* processes. However, Anderson

offers only a brief indication of what such scholarship might reveal through a comparison between concert-hall realism and early stereo demonstration disks.

While Anderson's book, of the three considered here, is the most satisfying in terms of its accountability to social and industrial aspects of sound, it may also be the most problematic for readers widely conversant in the literature discussed at the opening of this essay. For example, he quotes a 1993 article stating that, "music scholarship lacks a general theoretical vocabulary for talking about recording" (xlii). This claim is not entirely without merit; certainly the theoretical vocabulary for describing sound pales in comparison to that for describing music. Nonetheless, it is troubling that Anderson takes the assertion at face value. A key feature of some of the scholarship cited above—as well as work by some practicing sound engineers, especially Moylan (1992)—has been a systematic effort to advance both theoretical and practical vocabularies for sound. Additionally, while the three major themes of the book are certainly related to one another, they remain rather modular in their development. Ultimately, the reader is left to do much of the work of interrelating the sections, especially with respect to how the concerns raised in the section on the AFM strikes connect to the issues in the section on stereo. The sections read most strongly in isolation rather than as a group, and the book will likely be most useful in courses in this modular fashion. This leads to a sense of diffuseness about the book's central claims, which is augmented by multiple statements in the introductory and concluding chapters concerning what the main thrusts and arguments in the book in fact are (see, for example, xix, xx, xxi, xli, 186). Anderson's writing is engaging and his love for the recordings he discusses in the final section (in fact his love for the material artifacts of recorded sound in general) is evident. The shortcomings mentioned here are limitations, not deep flaws (one does wish, though, that the reference to the famous Memorex ad campaign (115) had gotten the ad's catch phrase correct).

Scholarship in which the "sonic turn" intersects with studies of music and technology is generally built on one (or more) of three approaches: textual analysis, historical study, and ethnography. Each approach has its merits, of course, and such an interdisciplinary field can welcome them all. The textual analyses offered by Moorefield and, more extensively and richly, by Doyle not only open up new "structures of listening" through which to engage with sound recordings, but also provide the ability to track how recordings have structured the relationship between sound and music across genres, time periods, cultures, technological shifts, and changes in industry organization. The more historical approach utilized by Anderson (with a healthy dose of cultural studies, in this instance) has the capacity

to destabilize the "taken-for-grantedness" we often bring to contemporary engagements with sound recordings, as the apparent naturalness of how they (should) sound is revealed to be the artifact of socially constructed and contested processes of production and listening.

Textual and historical studies of the music/technology nexus far outweigh the ethnographic, though the latter approach is taking noticeable hold in ethnomusicology. The value of ethnography, of course, is its ability to concretize the ways in which social actors engage with technologies and material artifacts, make meaning in the process of producing and consuming them, and conceptualize, create, and render the significance of their own practices. Such questions are key to an examination of the social life of sound, and are integral to the issues raised in the books under review. If the sonic turn is, as I have suggested, most appropriately interdisciplinary, then one would hope to see more ethnographic scholarship that adds such grounding to the textual and historical works discussed here.

References

Altman, Rick, ed. 1992. *Sound Theory, Sound Practice*. New York and London: Routledge.

Attali, Jacques. 1985. *Noise: The Political Economy of Music*, translated by Brian Massumi. Minneapolis and London: University of Minnesota Press.

Auslander, Philip. 1999. *Liveness: Performance in a Mediatized Culture*. New York and London: Routledge.

Becker, Howard. 1982. *Art Worlds*. Berkeley and Los Angeles: University of California Press.

Bijker, Wiebe, Thomas Hughes, and Trevor Pinch, eds. 1987. *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*. Cambridge, MA, and London: MIT Press.

Bijsterveld, Karin. 2001. The Diabolical Symphony of the Mechanical Age: Technology and Symbolism of Sound in European and North American Noise Abatement Campaigns, 1900–40. *Social Studies of Science* 31 (1): 37–70.

Bijsterveld, Karin and Martin Schulp. 2004. Breaking into a World of Perfection: Innovation in Today's Classical Musical Instruments. *Social Studies of Science* 43 (5): 649–74.

Blesser, Barry and Linda-Ruth Salter. 2007. *Spaces Speak, Are You Listening? Experiencing Aural Architecture*. Cambridge, MA, and London: MIT Press.

Born, Georgina and David Hesmondhalgh. 2000. *Western Music and Its Others: Difference, Representation, and Appropriation in Music*. Berkeley and Los Angeles: University of California Press.

Bull, Michael. 2000. *Sounding Out the City: Personal Stereos and the Management of Everyday Life*. Oxford: Berg.

Bull, Michael and Les Back, eds. 2003. *The Auditory Culture Reader*. Oxford: Berg.

Chion, Michel. 1994. *Audio-Vision: Sound on Screen*, translated by Claudia Gorbman. New York: Columbia University Press.

Corbin, Alain. 1998. *Village Bells: Sound and Meaning in the 19th-Century French Countryside*, translated by Martin Thom. New York: Columbia University Press.

Diamond, Beverly. 2005. Media as Social Action: Native American Musicians in the Recording Studio. In *Wired for Sound: Engineering and Technologies in Sonic Cultures*, edited by Paul D. Greene and Thomas Porcello, 118–37. Middletown, CT: Wesleyan University Press.

Erlmann, Veit, ed. 2004. *Hearing Cultures: Essays on Sound, Listening, and Modernity*. Oxford: Berg.

Evens, Aden. 2005. *Sound Ideas: Music, Machines, and Experience*. Minneapolis and London: University of Minnesota Press.

Feld, Steven. 1994. From Schizophonia to Schizmogenesis. In *Music Grooves*, edited by Charles Keil and Steven Feld, 257–89. Chicago and London: University of Chicago Press.

———. 1996. pygmy POP: A Geneology of Schizophonic Mimesis. *Yearbook for Traditional Music* 28: 2–35.

Gitelman, Lisa. 1999. *Scripts, Grooves, and Writing Machines: Representing Technology in the Edison Era*. Palo Alto, CA: Stanford University Press.

Greene, Paul D. 2001. Mixed Messages: Unsettled Cosmopolitanisms in Nepali Pop. *Popular Music* 20 (2): 169–88.

Greene, Paul D. and Thomas Porcello, eds. 2005. *Wired for Sound: Engineering and Technologies in Sonic Cultures*. Middletown, CT: Wesleyan University Press.

Kahn, Douglas. 1999. *Noise, Water, Meat: A History of Sound in the Arts*. Cambridge, MA, and London: MIT Press.

Katz, Mark. 2004. *Capturing Sound: How Technology Has Changed Music*. Berkeley and Los Angeles: University of California Press.

Lastra, James. 2000. *Sound Technology and the American Cinema: Perception, Representation, Modernity*. New York: Columbia University Press.

Lysloff, René and Leslie C. Gay, Jr., eds. 2003. *Music and Technoculture*. Middletown, CT: Wesleyan University Press.

Meintjes, Louise. 1990. Paul Simon's *Graceland*, South Africa, and the Mediation of Musical Meaning. *Ethnomusicology* 34 (1): 37–73.

———. 2003. *Sound of Africa! Making Music Zulu in a South African Studio*. Durham, NC, and London: Duke University Press.

Moylan, William. 1992. *The Art of Recording: The Creative Resources of Music Production and Audio*. New York: Van Nostrand Reinhold.

Perlman, Marc. 2003. Consuming Audio: An Introduction to Tweak Theory. In *Music and Technoculture*, edited by René Lysloff and Leslie C. Gay, Jr., 346–57. Middletown, CT: Wesleyan University Press.

———. 2004. Golden Ears and Meter Readers: The Contest for Epistemic Authority in Audiophilia. *Social Studies of Science* 34 (5): 783–808.

Pinch, Trevor and Karin Bijsterveld, eds. 2004. Special Issue on Sound Studies: New Technologies and Music. *Social Studies of Science* 34 (5).

Pinch, Trevor and Frank Trocco. 2002. *Analog Days: The Invention and Impact of the Moog Synthesizer*. Cambridge, MA: Harvard University Press.

Porcello, Thomas. 1998. "Tails Out": Social Phenomenology and the Ethnographic Representation of Technology in Music Making. *Ethnomusicology* 42 (3): 485–510.

———. 2004. Speaking of Sound: Language and the Professionalization of Sound-Recording Engineers. *Social Studies of Science* 34 (5): 733–58.

———. 2005. Music Mediated as Live in Austin: Sound, Technology, and Recording Practice. In *Wired for Sound: Engineering and Technologies in Sonic Cultures*, edited by Paul D. Greene and Thomas Porcello, 103–17. Middletown, CT: Wesleyan University Press.

Rath, Richard Cullen. 2003. *How Early America Sounded*. Ithaca, NY: Cornell University Press.

Schmidt Horning, Susan. 2004. Engineering the Performance: Recording Engineers, Tacit Knowledge, and the Art of Controlling Sounds. *Social Studies of Science* 34 (5): 733–58.

Smith, Bruce R. 1999. *The Acoustic World of Early Modern England: Attending to the O-Factor*. Chicago and London: University of Chicago Press.

Sterne, Jonathan. 2003. *The Audible Past: Cultural Origins of Sound Reproduction*. Durham, NC, and London: Duke University Press.

Taylor, Timothy D. 1997. *Global Pop: World Music, World Markets*. New York and London: Routledge.

———. 2001. *Strange Sounds: Music, Technology, and Culture*. New York and London: Routledge.

Théberge, Paul. 1997. *Any Sound You Can Imagine: Making Music/Consuming Technology*. Middletown, CT: Wesleyan University Press.

Thompson, Emily. 2002. *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900–1933*. Cambridge, MA, and London: MIT Press.

Waksman, Steve. 1999. *Instruments of Desire: The Electric Guitar and the Shaping of Musical Experience*. Cambridge, MA: Harvard University Press.

———. 2004. California Noise: Tinkering with Hardcore and Heavy Metal in Southern California. *Social Studies of Science* 34 (5): 675–702.

Wallach, Jeremy. 2005. Engineering Techno-Hybrid Grooves in Two Indonesian Sound Studios. In *Wired for Sound: Engineering and Technologies in Sonic Cultures*, edited by Paul D. Greene and Thomas Porcello, 138–55. Middletown, CT: Wesleyan University Press.

Weheliye, Alexander G. 2005. *Phonographies: Grooves in Sonic Afro-Modernity*. Durham, NC, and London: Duke University Press.

Zak, Albin. 2001. *The Poetics of Rock: Cutting Tracks, Making Records*. Berkeley and Los Angeles: University of California Press.