

SOUND AND SPACE

Spring 2008

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Silence itself, in a place of worship, has its music. In cloister or cathedral, space is measured by the ear: the sounds, voices and singing reverberate in an interplay analogous to that between the most basic sounds and tones; analogous also to the interplay set up when a reading voice breathes new life into a written text. Architectural volumes ensure a correlation between the rhythms that they entertain (gaits, ritual gestures, processions, parades, etc.) and their musical resonance. It is in this way, and at this level, in the *non-visible*, that bodies find one another. – Henri Lefebvre, The Production of Space

Sound is not something merely projected into a space. Space is not merely sound's container. To the contrary, sound has the potential to *define* space, to create metaphorical walls. Sound “happens” in space; its waves traverse a distance from source to ear. Furthermore, both sound and space have a structural design, an architectonics. This seminar addresses the sonic qualities of space, the spatial properties of sound, and the myriad other links between space and sound. We will begin by addressing theories of space – particularly those that acknowledge the role of sound, or silence, in shaping and giving character to space. We will then move on to examine some historical examples in which sonic and spatial constructions have worked in concert to define a place in time. The remainder of the semester is devoted to a variety of sound/space applications: artists crafting spaces out of sound, architects creating sonic spaces, sonic landscapes and sculptures, sound in mediated spaces, and auditory media's role in shaping spaces or demarcating boundaries. Everyone will be asked to complete one mid-semester paper on a topic of his or her choice, and a final group project – either a substantial research paper or a creative project. Throughout the semester, additional assignments will be developed collaboratively between instructors and students. Through the completion of these exercises and weekly reading assignments, weekly attendance, and occasional field trips and guest speakers, students will leave the class familiar with a new body of theory, appreciative of the connections between these seemingly unrelated concepts, and aware of how sound shapes the world we live, and listen, in.

Learning Objectives: By the end of the course, students should be able to:

- Think critically about sound in relation to and separate from imaged and physical space.
- Appreciate the importance of a critical examination of sound to both media studies and spatial design practices.
- Practice interdisciplinary scholarship, and appreciate the special challenges and responsibilities of this work.
- Design a sound-centered historiography of media and spatial design.

TEXTS:

You will be asked to purchase the following from Barnes & Noble (5th Ave / 18th St):

- Gaston Bachelard, The Poetics of Space (Beacon Press, 1994)
- Barry Blesser and Linda-Ruth Salter, Spaces Speak, Are You Listening?: Experiencing Aural Architecture (Cambridge, MA: MIT Press, 2007).
- David P. Brown, Noise Orders: Jazz, Improvisation, and Architecture (Minneapolis: University of Minnesota Press, 2006).
- Michael Forsyth, Buildings for Music: The Architect, The Musician, and the Listener from the Seventeenth Century to the Present Day (Cambridge, MA: MIT Press, 1985).
- Philippe Lacoue-Labarthe, Musica Ficta: Figures of Wagner, translated by Felicia McCarren (Stanford: Stanford University Press, 1994).
- Jean-Luc Nancy, Listening, Trans. Charlotte Mandell (New York: Fordham University Press, 2007).

- Additional readings available on the portal

Recommended Reading:

- Martin Heidegger, Poetry, Language and Thought. Tr. Albert Hofstadter. (Harper and Rowe, 1977).
- Theodor W. Adorno, Adorno: Philosophy of New Music, Translated, edited and with an introduction by Robert Hullot Kentor. (Minneapolis, London: University of Minnesota Press, 2006).
- Maurice Merleau-Ponty, Phenomenology of Perception (Northwestern University Press, 1964).
- Philippe Lacoue-Labarthe, Typography, Tr. Eugene Donato, Ed. Werner Hamacher & David Wellbery, with an introduction by Jacques Derrida. (Stanford: Stanford University Press, 1989).
- Nicole Loraux, The Mourning Voice: An Essay on Greek Tragedy, Tr. Elizabeth Trapnell Rowlings, Foreword by Pietro Pucci. (Ithaca and London: Cornell University Press, 2002).
- Colin Ripley, Ed., In the Place of Sound: Architecture | Music | Acoustics (Cambridge Scholars Press, 2008)
- Colin Ripley, Ed. Proceedings of the Architecture | Music | Acoustics Conference, Toronto, Canada, June 8-11, 2006. (Toronto, ON: Reyerson Embodied Architecture Lab, 2006).
- City of Sound (<http://www.cityofsound.com/blog/>)
- Resources here: http://del.icio.us/Shannon_Mattern/sound_space and here: http://www.wordsinspace.net/course_material/sound_space/sound_space_F05.html

REQUIREMENTS:

Attendance. You will be permitted two excused absences during the semester. Subsequent absences will impact your grade, and more than four absences may prevent you from passing the course.

Participation. Because this class is a seminar, your thoughtful participation is essential to its success. You are encouraged to contribute—courteously and meaningfully—to class discussions. Participation is worth 10% of your final grade.

Mid-semester Essay. The first six classes are dedicated to laying some groundwork for our investigation of sound and space – exploring various theoretical frameworks through which to approach the field, placing our subjects of interest within a historical context, etc. Before we delve into more specific topical issues in the latter half of the course, you can take an opportunity to survey this groundwork by exploring the history, theory, or criticism of space and sound in an eight- to ten-page paper on a topic of your choice. This essay is worth 30% of your grade. Due **March 14 @ 4pm**. Submit via hard-copy to Barry and via email to Shannon.

Gallery/Event/Site Review. Throughout the semester New York will host several sound-and-space-themed exhibits in its museums and galleries. We'll keep a running list of relevant exhibits and “sites to see” on a class bulletin board, and we encourage you to visit as many as you can. By the end of the semester, we'd like for you to submit a five- to six-page critique of one of those sites or exhibits. Please describe the site/exhibit, address the key theoretical issues the artist(s)/architect(s) is/are addressing, and assess his/her/their success in grappling with those issues. The review is worth 20% of your grade. Due **April 18 @ 4pm**. Submit via hard-copy to Barry and via email to Shannon.

Final Project. Throughout the course of the semester, each student will design and execute a project or paper that explores some relationship between space and sound. This research project, which should be presented in a twelve- to fifteen-page paper, or a creative project with a three- to four-page accompanying text, is worth 40% of your grade. Due **May 2 @ 4pm**.

JAN. 25

INTRODUCTION

- Daniel F. MacGilvray, “The Proper Education of Musicians and Architects” Journal of Architectural Education 46:2 (November 1992): 87-94.
- Theodor Adorno, “On Music and Language” In Quasi una Fantasia.
- In-class Viewing: “Regen, dir. Joris Ivens & White Flood, dir. Frontier Films,” Musical Scores by Hanns Eisler

FEB. 1

THRESHHOLDS OF LISTENING

Reading:

- Jean-Luc Nancy, Listening (New York: Fordham University Press, 2007): 1-46.
- Barry Blesser and Linda-Ruth Salter, “Auditory Spatial Awareness” In Spaces Speak, Are You Listening?: Experiencing Aural Architecture (Cambridge, MA: MIT Press, 2007): 11-66.

Listening:

- Wagner: Tristan und Isolde: Music as Mythic Return.

FEB. 8

LISTENING IN AND AGAINST NATURE

Reading:

- Toru Takemitsu, in Music from Nature, Terra Nova: Nature & Culture, 2 (Summer 1997).
- Jacques Attali, “Sacrificing” In Noise: 21-45.
- G.W.F.Hegel, “The Relation of the Ideal to Nature” In Hegel’s Aesthetics: Lectures on Fine Art: 160-174.
- T.W. Adorno, “Natural Beauty,” in Aesthetic Theory: 61-77.

Listening:

- Excerpts from Terra Nova: Nature & Culture accompanying CD.

Supplemental:

- Albeto Pérez-Gomez, “Chares-Etienne Briseux: The Musical Body and the Limits of Instrumentality in Architecture” In George Dodds and Robert Tavernor, Body and Building: Essays on the Changing Relation of Body and Architecture (Cambridge, MA: MIT Press, 2002): 164-189.
- Aristotle: “Excerpts” The Poetics pp. 11-48.
- Plato, “Book X excerpt”, The Republic.
- Adorno, “excerpts”, in Beethoven: The Philosophy of Music.
- Erno Lendvai, “Form Principles: Golden Section, Fibonacci Series, Bela Bartok: An Analysis of His Music. Pp. 17-34.
- Laura Moretti, “Architectural Spaces for Music: Jacopo Sansovino and Adrian Willaert at St Marks” Early Music History 23 (2004): 153- 184.

Supplemental Listening:

- Ancient Greek Music: Nature as Limit
- Bach: *Excerpt*, Music as Human Nature
- Beethoven: 6th Symphony, Pastorale: Music as Second Nature
- Stravinsky: Le Sacre du Printemps: Return to Ritual Space
- Bela Bartok, Music for Strings Percussion and Celeste: Formal Nature.
- John Cage, Ryoanji, *conceptual* nature.
- Toru Takemitsu: “Spirit Garden,” “How Slow Wind.” The natural *in* music as second nature.

FEB. 15

THE POETICS OF SPACE

Reading:

- Gaston Bachelard, The Poetics of Space (Beacon Press, 1994 /1958).

Supplemental:

- Phil Hubbard, Rob Kitchin, and Gill Valentine, Key Thinkers on Space and Place (Thousand Oaks, CA: Sage, 2004).
- Richard Cavell, “A Short History of Space” and “Prosthetic Aesthetics” In McLuhan In Space (University of Toronto Press, 2002): 3-30, 69-90. Gilles Deleuze & Felix Guattari, “1837: Of the Refrain” In A Thousand Plateaus: Capitalism and Schizophrenia (University of Minnesota Press, 1987): 310-50.
- Christian Norberg Schultz, Genius Loci: Toward a Phenomenology of Architecture (Rizzoli, 1980).
- Christine McCombe, “Imagining Space through Sound” In Proceedings UK and Ireland Soundscape Community Conference: Sound Practice (Darrington, 2001): <http://eprints.qut.edu.au/archive/00000295/>

FEB. 22`

LISTENING PLACES

Reading:

- Barry Blesser and Linda-Ruth Salter, “Introduction to Aural Architecture” and selection from “Aural Spaces from Prehistory to the Present” In Spaces Speak, Are You Listening?: Experiencing Aural Architecture (Cambridge, MA: MIT Press, 2007): 1-9, 67-103.
- Nicole Loraux, “Dionysus Apollo” In The Mourning Voice: An Essay on Greek Tragedy (Cornell University Press, 2002).

Supplemental:

- Leo Beranek, Concert Halls and Opera Houses: Music, Acoustics, and Architecture (Springer, 2004): 8-12.

FEB. 29

IDEALISM, ARCHITECTURE, AND SOUND

Readings:

- Philippe Lacoue-Labarthe, Musica Ficta: Figures of Wagner (Stanford: Stanford University Press, 1994): xv-115.
- Michael Forsyth, Buildings for Music: The Architect, The Musician, and the Listener from the Seventeenth Century to the Present Day (Cambridge, MA: MIT Press, 1985).

Listening:

- Selections from Bach, Beethoven, Wagner & Bizet TBD

Supplemental:

- Elizabeth Martin, Ed., Architecture as a Translation of Music (Princeton Architectural Press (Pamphlet Architecture 16), 1994): 32-35, 46-49, 50-54.

MAR. 7 NO CLASS: Barry and Shannon at SCMS in Philadelphia
Avery Fisher Hall/ New York Philharmonic Orchestra
 1:00PM Pre-concert talk
 2:00PM Concert

- Haydn: Symphony No. 48, *Maria Theresa*
- Berio: Folk Songs
- Beethoven: Symphony No. 4

MAR. 14 **SOUND AND ARCHITECTURE: The Modern Musical Soundspace**

In-class Viewing: Jacques Tati, Playtime

Reading:

- Emily Thompson, "Introduction: Sound, Modernity, and History," "Noise and Modern Culture, 1900-1933," "Acoustical Materials and Modern Architecture, 1900-1933," "Conclusion: Rockefeller Center and the End of an Era," and "Coda" In The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933 (MIT, 2002): selections may include 1-12, 115-228, 295-324.

Listening:

- Alban Berg, *Lyric Suite, Violin Concerto: "To The Memory of An Angel."*
- Arnold Schönberg, *Moses und Aaron, Supplemental:*

Supplemental:

- Theodor W. Adorno, "Sacred Fragment: Schoenberg's Moses und Aaron," Quasi Una Fantasia, also excerpts in Philosophy of New Music.
- Hanns Eisler, "On the Situation in Modern Music," "The Crisis in Modern Music," "Basic Social Questions of Modern Music" In A Rebel in Music, Ed. Manfred Grabs, Tr. Marjorie Meyers (New York: International Publishers, 1978).
- "Adorno" in Musica Ficta: 117-145.
- Herman Miller, "Sound Masking in the Office"

MAR. 21 NO CLASS: Spring Break

MAR. 28 **JAZZ, ARCHITECTURE AND THE CITY**

- David P. Brown, *Noise Orders: Jazz, Improvisation, and Architecture* (Minneapolis: University of Minnesota Press, 2006).
- Robert Walser, "Out of Notes: Signification, Interpretation and the Problem of Miles Davis" In Jazz Among the Discourses (Durham: Duke University Press, 1995).

Supplemental:

- Steen Eiler Rasmussen, "Rhythm in Architecture" In Experiencing Architecture (MIT, 1991): 127-158, 224-237. (Optional: "Hearing Architecture," pp. 224-237).
- Christopher Pearson, "Le Corbusier and the Acoustical Trope: An Investigation of Its Origins" The Journal of the Society of Architectural Historians 56:2 (June 1997): 168-183.
- Katie Mondloch, "A Symphony of Sensations in the Spectator: Le Corbusier's *Poème électronique* and the Historicization of New Media Arts" Leonardo 37:1 (2004): 57-61.
- Philipp Oswald, "Iannis Xenakis' Polytopes" Contemporary Music Review 21:2/3 (2002): 35-44.

- Susan H. Gordon, “The Good, The Bad, the Remaking of a Libera-Designed Cinema for Ennio Morricone” Architectural Record (March 5, 2007).
- Wolf D. Prix, “Maximum Directness” In Peter Grueneisen, Soundspace: Architecture for Sound and Vision (Boston: Birkhauser, 2003): 28-29.

APRIL 4 **AMBIENT SOUND & AURAL POLITICS**

Reading:

- David Owen, “The Soundtrack of Your Life” New Yorker (April 10, 2006).
- Jonathan Sterne, "Sounds Like the Mall of America: Programmed Music and the Architectonics of Commercial Space" Ethnomusicology 41:1 (Winter 1997): 22-50.
- Shannon Mattern, “Resonant Texts: Sounds of the Post-Hush Library” Senses & Society (November 2007).
- Garret Keizer, "Sound & Fury" Harper's (March 2001).

APRIL 11 **TOUR OF JAZZ AT LINCOLN CENTER**

Meet at Jazz box office in the Time Warner Center, at Broadway/60th Street, near PINK and Hugo Boss stores

Reading:

- Selected readings on Jazz @ Lincoln Center in “course documents” area of Blackboard

APRIL 18 **SOUND ARTISTS AND SCULPTORS**

e.g., Laurie Anderson, Mark Bain, Michael Brewster, Janet Cardiff, Brian Eno, Michael Graeve, Christina Kubisch, Hans Peter Kuhn, Bernhard Leitner, Skeip Leinsay, Alvin Lucier, Paul Miller, Robin Minard, Max Neubaus, Bruce Odland, Steve Peters, Steve Roden, Ben Rubin, R. Murray Shafer, Barry Truax, Richard Teitlebaum, Trimpin, Achim Wollscheid, Iannis Xenakis, composer Lutz Glandien and architect Malte Lueders

Reading:

- Robin Minard, “Musique Concrete and Its Importance to the Visual Arts” In Bernd Schulz, Ed., Resonances: Aspects of Sound Art (Kehrer, 2002): 44-48.
- Brandon LaBelle, “Unstable Volumes” In Peter Grueneisen, Soundspace: Architecture for Sound and Vision (Boston: Birkhauser, 2003): 22-27.
- Brandon LaBelle, “Introduction” Site Specific Sound (Errant Bodies Press, 2004): 6-13.
- Paul Panhuysen, Interview with Duncan McCorquodale In Ken Erlich & Brandon LaBelle, Eds., Surface Tension: Problematics of Site (Errant Bodies Press, 2003): 187-200.
- Jean Strouse, “Perpetual Motion” The New Yorker (May 8, 2006): 36-43.
- Please come to class prepared to share the work of some of your own favorite sound architects or sound-space artists.

Supplemental:

- Christof Cox, “Lost in Translation” Artforum (October 2005): 235-241.
- Helga de la Motte-Haber, Ed., Klangkunst: Tönende Objekte und klingende Räume.
- Brandon LaBelle & Steve Roden, Eds., Site of Sound: of Architecture & the Ear (Errant Bodies Press, 1999).
- “Bernard Leitner” In Bernd Schulz, Ed., Resonances: Aspects of Sound Art (Kehrer, 2002): 124-129.

- Caroline A. Jones, Ed., Sensorium: Embodied Experience, Technology, and Contemporary Art (Cambridge: MIT Press, 2006): 56-61, 68-71 (Janet Cardiff, Ryoji Ikeda).
- Steve Peters, Here-ings: A Sonic Geohistory (Albuquerque: La Alameda Press, 2002).

APRIL 25

MAPPING SOUNDS

Reading:

- R. Murray Schafer, Part 3: Analysis, Part 4: Toward Acoustic Design, Appendix I In The Soundscape: Our Sonic Environment and the Tuning of the World (Destiny, 1977/94): 123-267.
- Iain Chambers, “The Aural Walk” In Christoph Cox & Daniel Warner, Eds., Audio Culture: Readings in Modern Music (Continuum, 2004): 98-101.
- Andra McCartney, “Soundscape Works, Listening, and the Touch of Sound” In Jim Drobnick, Ed., Aural Cultures (Toronto: YYZ Books, 2004): 179-185.
- Quiet American: <http://www.quietamerican.org/>
- SoundTransit: <http://soundtransit.nl/>
- NY Sound Map: www.nysoundmap.org

Supplemental:

- Mags Adams, Trevor Cox, Gemma Moore, Ben Croxford, Mohamed Refaee, and Steve Sharples, “A Palimpsest of Sound in the Urban Environment” In Colin Ripley, Ed., Architecture | Music | Acoustics Conference Proceedings, Toronto (7-10 June 2006).
- Mirko Zardini, Ed., “Sound of the City” *Sense of the City: An Alternate Approach to Urbanism* (Montreal: Canadian Center for Architecture, 2005): 158-207.

MAY 2

PRESENTATIONS

MAY 9

PRESENTATIONS

ACOUSTICS & SOUND SPATIALIZATION

- Peter Grueneisen, “Basic Acoustics” In Soundspace: Architecture for Sound and Vision (Boston: Birkhauser, 2003): 42-71.
- Stuart Jones, “space-dis-place: How Sound and Interactivity Can Reconfigure Our Apprehension of Space” Leonardo Music Journal 16 (2006): 20-27.
- D. G. Malham, “Approaches to Spatialization” Organized Sound 3:2 (1998): 167-177.
- David Worrall, “Space in Sound: Sound of Space” Organized Sound 3:2 (1998): 93-99.
- Simon Emmerson, “Aural Landscape: Musical Space” Organized Sound 3:2 (1999): 135-40.

DESIGNING SOUND SPACES

- Barry Blesser and Linda-Ruth Salter, “Aural Arts and Musical Spaces” and “Inventing Virtual Spaces for Music” In Spaces Speak, Are You Listening?: Experiencing Aural Architecture (Cambridge, MA: MIT Press, 2007): 127-214.
- Alain Bonardi and Francis Rousseau, “Composing an Interactive Virtual Opera: The *Virtualis* Project” Leonardo 35:3 (2002): 315-318.
Supplemental:
 - Barry Salmon, “Soundstaging”, paper given at the 1999 IASPM-US conference.
 - Bob Hodas, “Acoustics in Critical Listening Rooms” In Peter Grueneisen, Soundspace: Architecture for Sound and Vision (Boston: Birkhauser, 2003): 38-9.
 - Bob Hodas, “Acoustics in Critical Listening Rooms”: 38-9.
 - Daniel Ott, et. al., “Sound Box Sound”: 30-33.
 - Helsinki Music Center: 81.
 - Music Studios: 86-165.

MUSIC SCENES

- Megan Elliott, “Sound Space, and the City: Music Venues and the Production of Local Culture,” Masters Thesis, The New School, 2006.
- Sarah Cohen, “Sounding Out the City: Music and the Sensuous Production of Place” In Andrew Leyshon, David Matless, and George Revill, Eds., The Place of Music (New York: Guilford Press, 1998): 269-90.
- John Connell and Chris Gibson, Sound Tracks: Popular Music, Identity and Place (London: Routledge, 2003).
- Holly Kruse, Site and Sound: Understanding Independent Music Scenes (New York: Peter Lang, 2003).
- Additional readings selected from Travis Jackson’s “Scenes and Spatiality” syllabus: <http://home.uchicago.edu/~travieso/Docs/Scenes.pdf>

RADIO CITY & the Spatialization of Sound

- Jody Berland, “Radio Space and Industrial Time: Music Formats, Local Narratives and Technological Mediation” Popular Music 9:2 (April 1990): 179-182.
- Theodor W. Adorno, “Categories of Radio Physiognomics” Current of Music: Elements of a Radio Theory (Berlin: Suhrkamp, 2006): 120-182.
- Robert Hullot-Kentor, “Second Salvage: Prolegomenon to a reconstruction of *Current of Music*” In Things Beyond Resemblance: Collected Essays on Theodor Adorno.

SENSORY DESIGN

- Juhani Pallasmaa, The Eyes of the Skin: Architecture and the Senses (Wiley-Academy, 2005): 1-51.
- Joy Monice Malnar & Frank Vodvarka, “Spatial Constructs,” “The Mind’s Eye,” & “Sensory Response” & “Sensory Cues” In Sensory Design (University of Minnesota, 2004): 1-58, 129-52.
Supplemental:
 - Ted Sheridan & Karen van Lengen, “Hearing Architecture: Exploring and Designing the Aural Environment” Journal of Architectural Education 52 (November 2003): 37-44.

- Nathan Shedroff, "Information Interaction Design: A Unified Field Theory of Design" [unpublished paper]

THE SOUNDSCAPE

- R. Murray Schafer, "The Rural Soundscape," "From Town to City," "The Industrial Revolution," "The Electric Revolution," and "Music, the Soundscape and Changing Perceptions" In The Soundscape: Our Sonic Environment and the Tuning of the World (Destiny, 1977/94): 43-119.
- Fran Tonkiss, "Aural Postcards: Sound, Memory and the City" In Michael Bull & Les Back, Eds., The Auditory Culture Reader (Berg, 2003): 303-309.

SOUND, THE TOWN, THE CITY

- Michael Bull and Les Back, Eds., The Auditory Culture Reader (New York: Berg, 2003):
 - Alain Corbin, "The Auditory Markers of the Village": 117-126.
 - Bruce R. Smith, "Tuning Into London c. 1600": 127-136.
 - Mark M. Smith, "Listening to the Heard Worlds of Antebellum America": 137-164.
 - Tong Soon Lee, "Technology and the Production of Islamic Space: The Call to Prayer in Singapore" Ethnomusicology 43:1 (Winter 1999): 86-100.
 - Martin Stokes, "East, West and Arabesk," in Western Music and its Other: 213-233.
 - Thomas Blom Hansen, "Sounds of Freedom: Music, Taxis, and Racial Imagination in Urban South Africa" Public Culture 18:1 (2006): 185-208.
- Supplemental:*
- Mark M. Smith, "Making Sense of Social History" Journal of Social History 37:1 (Fall 2003): 165+
 - Mark M. Smith, "Producing Sense, Consuming Sense, Making Sense: Perils and Prospects for Sensory History" Journal of Social History (Summer 2007): 841- 858.
 - Alain Corbin, "The Auditory Markers of the Village" In Village Bells: Sound and Meaning in the 19th-century French Countryside (Columbia. 1998): 95-158.
 - Eric Wilson, "Plagues, Fairs, and Street Cries: Sounding out Society and Space in Early Modern London" Modern Language Studies 25:3 (Summer 1995): 1-42.
 - Charles Hirschkind, "Civic Virtue and Religious Reason: An Islamic Counter-Public" In Jim Drobnick, Ed., Aural Cultures (Toronto: YYY Books, 2004): 188-207.
 - Walter Murch, "Manhattan Symphony" and Michelangelo Antonioni, "New York From the 34th Floor Overlooking Central Park," Reprinted in BLDGBLOG (July 3, 2007): <http://bldgblog.blogspot.com/2007/07/new-york-city-in-sound.html>

FOR FUNDAMENTALS OF SOUND STUDIES:

Jacques Attali, *Noise: The Political Economy of Music*, Trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1985).

Michel Chion, *Audiovision: Sound on Screen* (New York: Columbia University Press 1994).

Christoph Cox & Daniel Warner, Eds., *Audio Culture: Readings in Modern Music* (New York: Continuum, 2004).

Jonathan Crary, "Subjective Vision and the Separation of the Senses" In *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge: MIT Press, 1990): 67-96.

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

Friedrich A. Kittler, "Gramophone" In *Gramophone, Film, Typewriter*, Trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999).

Richard Leppert, "The Social Discipline of Listening" In Jim Drobnick, Ed., *Aural Cultures* (Toronto: YYZ Books, 2004): 18-35.

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

FOR IMAGINING LANGUAGE:

Charles Bernstein, Ed., *Close Listening: Poetry and the Performed Word* (New York: Oxford University Press, 1998).

Adelaide Morris, Ed., *Sound States: Innovative Poetics and Acoustical Technologies* (Chapel Hill: University of North Carolina Press, 1997).

FOR FILM MUSIC:

Richard Abel and Rick Altman, Eds., *The Sounds of Early Cinema* (Bloomington: Indiana University Press, 2001).

FOR RADIO NARRATIVES OR SOUND CULTURE:

Douglas Kahn and Gregory Whitehead, Eds., *Wireless Imagination: Sound, Radio, and the Avant-Garde* (Cambridge, MA: MIT Press, 1992)

John Cage, *Silence* (Wesleyan University Press, 1961).