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BEYOND SOUND EFFECTS: DESIGNING SOUND FOR THE AMERICAN THEATRE IN
THE 1970s

BY

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DISSERTATION

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ABSTRACT

This dissertation investigates the engagement between American theatre and sound reproduction technologies in the 1970s. Through an analysis of Abe Jacob's sound design for Broadway and productions created by experimental theatre practitioners such as Robert Wilson, Richard Foreman, and the Wooster Group, I explore how these productions extended formal theatre sound design practice in response to the advent of the recording and reproduction technologies, from microphones, loudspeakers, phonograph, tape recorders, and later digital computers. Although live theatre never had the resources to invest in technical research projects, it was very adept at adapting the latest innovations from other fields. I contend that the development of sound technologies not only shaped the formal innovations in electronic music composition, recordings, radio, and film, but that it compelled theatre artists to incorporate sound as a constituent part of the overall scenography. Tracing the way the sound was dramatized and staged, each chapter sounds out a pairing of the changes in design processes alongside the new approaches to the practice of listening and sound making in the age of mechanical and electronic (re)production: namely, Abe Jacob's rock and roll sound system and Broadway's mediatic resistance; Robert Wilson's auditory landscape and sound event; Richard Foreman's use of a tape machine to create sound objects; and the Wooster Group's use of sound to foreground different modes of listening. The conclusion reflects upon my own sound design for *Ping Chong* and encapsulates the influences of sound technologies on theatre discussed in previous chapters.

While the discourse of theatre sound is mostly comprised of step-by-step sound design instructional textbooks, this dissertation focuses not only on the type and variety of sounds made but also the artistic rationale behind the creative process by combining analyses of dramatic

texts, production history, newspaper reviews, interviews and video recordings. Even though these new practices of sound in theatre were driven by sound technologies, this study reveals that the artistic rationale behind the creative process played an important role in transforming the technology to meet the needs of the production. Ultimately, by providing an account that interrelates the development of sound technology with its users from different artistic fields, this dissertation demonstrates the importance of sound in theatre and opens up the approaches to designing sound beyond its causal and semantic strictures of sound effect.

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INTRODUCTION

The Record Ritual

The Living Theatre's groundbreaking production of *The Connection* in 1959 was praised by critics for its improvisational style of acting and its extensive use of live jazz music performance within the play.¹ Written by the playwright Jack Gelber, the play featured a play-within-a play structure concerning a group of drug addicts and jazz musicians waiting in a loft for the arrival of a character named "Cowboy" to supply them with drugs, while they are being filmed by two cameramen for a movie about their lives. Gelber called *The Connection* a "jazz play" since the dramatic structure of the play was constructed as a jazz composition and jazz musicians, including Jackie Mclean, Freddie Redd (who composed the original score), Larry Ritchie, and Michael Mattos, were cast to play themselves on stage. Between the loose, seemingly improvised dialogues about money, drugs, happiness and loneliness, they played jazz tunes, of which there was approximately thirty minutes in each of the two acts. While most theatre critics found the static nature of the play and less developed characters hard to bear, they were drawn into the virtuosity of the musical improvisation.² As Jerry Tallmer observed: "This is the first production of any sort (not just theatre) in which I have seen (heard?) modern jazz used organically and dynamically to further the dramatic action rather than merely decorate or sabotage it; the music by Freddie Redd and his quartet (written by Mr. Redd) puts a highly

¹ *The Living Theatre* was founded in New York in 1947 as a radical alternative to the commercial theatre by Judith Malina, a German-born American theater director, and Julian Beck, an expressionist painter. During the 1950s and early 1960s, it pioneered the unconventional staging and improvisational acting which marked the start of the Off-Broadway movement. The most successful plays produced during this period were Gertrude Stein's *Doctor Faustus Lights the Lights* (1951), Jack Gelber's *The Connection* (1959), and Kenneth H. Brown's *The Brig* (1963).

² Whereas theatre critic Louis Calta, in the *New York Times*, dismissed the play as "a farrago of dirt, small-time philosophy, empty talk and extended runs of 'cool' music," Robert Brustein, writing for the *New Republic*, expressed his frustration with the stumbling pace of the play: "Nothing, in fact, is happening, and you wait for boredom to release you from the need to care." See Louis Calta, review of *The Connection*, *New York Times*, July 16, 1959 and Robert Brustein, "Junkies and Jazz," *New Republic*, September 28, 1959.

charged contrapuntal beat under and against all the misery and stasis and permanent total crisis.”³ Commenting on the performance of the jazz quartet, Kenneth Tynan also noted: “How they contrive to play so well, so spontaneously, and yet in such perfect coordination with the demands of dramatic timing is a matter I can never hope to fathom.”⁴ Jazz music held an extremely significant presence in the Manhattan avant-garde scene of the 1940s and 1950s. Like the way it provided the beat generation the excitement of discovery and an alternative living style of the fanaticism, it also inspired the Living Theatre’s founders Judith Malina and Julian Beck in terms of directing and staging techniques.⁵ Just as they violated theatrical convention by casting real drug addicts to improvise lines on stage, the use of jazz music broke away from the requirements of traditional dramaturgy. Based on the comments of these reviews, when the tunes were played on stage, the dramaturgical functions of the use of jazz was not only to provide incidental music to underscore certain theatrical moments but, more importantly, to structure the play as a whole by controlling the pace of each performance.

While the critics praised the virtuosity of jazz in *The Connection*, performed live by the Freddie Redd Quartet, they overlooked the performance of jazz that was also presented on stage as recorded music. The staging of the recorded music was described as “the record ritual,” in which a silent character named Harry McNulty came on stage with a portable vinyl record player and played a Charlie Parker record for two minutes while all the characters and musicians “assume[d] an intense pose of listening.” It occurred half way through Act I after one of the drug addicts Ernie’s outburst:

³ Jerry Tallmer, “Review of *The Connection*,” *Village Voice*, July 22, 1959, 9.

⁴ Kenneth Tynan, review of *The Connection*, *New Yorker*, October 10, 1959, 126-9.

⁵ After the Becks read the play, they immediately decided to produce it. “We, who had sought to develop style through variations of formal staging,” says Beck, “found suddenly in the free movement and the true improvisational of *The Connection* something we had not formerly considered.” See Julian Beck, “Storming the Barricades,” in Kenneth H. Brown, *The Brig* (New York: Hill and Wang, 1963), 26.

ERNIE:

Will you stop talking about it? You cats are a drag. It's getting on my nerves. I've got a job tonight and I've got to get straight. *(Blows his mouthpiece)* Why doesn't that bastard get here? He probably took all our money and burned us.

(Knock)

LEACH:

(Off stage)
See who it is, Solly.

SOLLY:

(At the window)
It's Harry. He's got his suitcase.

LEACH:

(Off stage)
Let him in. I hope he doesn't want to stay here.

(Solly opens the door and Harry walks in and looks around. Then he goes to the light socket in center stage and plugs in the cord of the portable phonograph. He opens the phonograph and puts on a Charlie Parker record—all in silence. The record plays for two minutes. Everyone assumes an intense pose of listening. Afterwards there is a silence and Harry carefully picks up the record, closes the phonograph, unplugs the cord, and leaves. There is a long pause. One of the musicians starts playing and the others join him in cementing their feeling. They play for about one minute.)⁶

Seemingly coming out of nowhere, the staging of the process of playing a Charlie Parker record might appear disruptive to the progress of the plot at first glance. However, the staging of the record ritual had two main dramaturgical functions within the play. On the one hand, by serving as a driving force to urge the musicians to keep playing by “cementing their feeling,” it illustrated the influences that the reproduction technologies had on jazz education and performance. Although the value of jazz lied within its live improvisations in which musicians created different harmonies, melodies or rhythms, the formation of the improvisation was based

⁶ Jack Gelber, *The Connection* (New York: Evergreen, 1960), 32-33.

on the studying of the records. By capturing performances belonging to a specific time and place and making it repeatable, recordings helped jazz players not only learn famous solos but also developed their improvisational skills. Unlike classically trained musicians who studied the printed scores, most jazz musicians learned to improvise by repeating and imitating past performances from records.⁷ In this regard, the staging of the record ritual could be understood as sound reproduction technology's ability to evoke voices of the past while allowing the musicians to develop an analytical listening. By listening not just to the performance of Charlie Parker but to a recording of Parker that the musicians had no doubt listened to many times already, they were able to traverse time and alter their own playing.⁸ On the other hand, since Gelber attempted to construct the structure of the play by imitating the structure of jazz composition, the record ritual was employed as a jazz solo break. Within jazz discourse, a break referred to the moment when the rhythm section stops playing while a soloist improvised for a brief period, usually two to four bars leading into the song's first chorus.⁹ As the rhythm section dropped out, it created an effect of time stopping even if the music continued. This suspension of time and disruption of the rhythmic flow of the music is important in jazz improvisation, for it

⁷ As an example of how studying records have influenced jazz musicians' performances, American cornetist Jimmy McPartland has explained the way he learned from the New Orleans Rhythm Kings by studying records: "What we used to do was put the record on ... play a few bars, and then get all our notes. We'd have to tune our instruments up to the record machine, to the pitch, and go ahead with a few notes. Then stop! A few more bars of the record, each guy would pick out his notes and boom! We would go on and play it. It was a funny way to learn, but in three or four weeks we could finally play one tune all the way through." See, Neil Leonard, *Jazz and the White Americans: The Acceptance of a New Art Form* (Chicago: University of Chicago Press, 1962), 96.

⁸ Given the relationship between Charlie Parker and one of the musicians in this production, Jackie McLean, it was fair to assess the recording's influence on jazz performance. McLean first heard Parker when he was fourteen years old. As he recalled, the moment he heard Parker's music, he decided to become a musician. Performing with Parker in his early twenties, McLean was considered to be Parker's most brilliant protégé. On another note, Parker not only shaped the way McLean played saxophone, but he was also the reason McLean started to use heroin in his early career.

⁹ A famous example of solo break in jazz history was Charlie Parker's alto break in Dizzy Gillespie's "A Night in Tunisia." After Parker filled a four-bar section with a stunning fantasia in sixteenth notes during the first recording session, he commented, "I will never make that break again." Due to Parker's virtuosity in that solo break, Dial Record released an excerpt of it as its own track under the title of "The Famous Alto Break." See Carl Woideck, *Charlie Parker: His Music and Life* (Ann Arbor: University of Michigan Press, 1996), 128.

enables moments of musical freedom and heightens the listener's attention. With the staging of the record ritual, Gelber created a break that suspended the flow of time and action on stage for two minutes, engaging the audience's attention in Charlie Parker's improvisation which is mechanically resuscitated by a portable vinyl recorder.

As Harry McNulty entered the stage with the portable recorder and presented the whole process of mechanically reproducing Charlie Parker's past performance in front of the audience, the record ritual also foregrounded a new aesthetic that treated sound as an autonomous performing object. Although the use of phonograph to provide sound effects for a theatrical production dates back to 1890, the Living Theatre was one of a few groups who moved the machine from the back stage to the center of the audience's focus. The use of sound reproduction technology to interrupt the performance was first documented in Bertolt Brecht's notes to the Copenhagen production of *Die Rundköpfe und Die Spitzköpfe* in 1936:

Recently the gramophone industry has started supplying the stage with records of real noises. These add substantially to the spectator's illusion of *not* being in a theatre.

Theatres have fallen on them avidly; so that Shakespeare's *Romeo and Juliet* is now accompanied by the real noise of the mob. So far as we know the first person to make use of records was Piscator. He applied the new technique entirely correctly. In his production of the play *Rasputin* a record of Lenin's voice was played. It interrupted the performance....*In a parable-type play sound effects should only be used when they further the parable, not in order to evoke atmosphere and illusion....It is best to place the record player, like the orchestra, so that it can be seen.* But if such an arrangement would

shock the audience unduly or give too much cause for amusement it should preferably be dropped.¹⁰

Traditionally, sound effects and the devices that produced sounds were located far away from the stage in an invisible area so it did not risk disrupting the scenic integrity and distracting the audience attention from the actors' performance on stage. Since Brecht did not want his audience to identify with the characters and the plot of a play, his advocacy of making sound recording technologies visible transformed it into an alienating device, keeping a critical distance between the stage and the audience. The breakthrough of the dramaturgy of sound in *The Connection* was not just that the record ritual interrupted the flow of the performance, but it treated the reproduced sound of Parker's recording as a co-performer on stage. In other words, the use of jazz in this production was not to reinforce the theatrical illusion by representing an object, creating mood, or expressing certain aesthetic idea. Rather, it was conceived as an autonomous material and its dramaturgical significance only revealed through its interaction with other stage matter such as lights, props, actors, text, and space. In this regard, the record ritual serves as a helping point of departure to examine any change in theatre practice that has emerged in response to sound reproduction technologies: What did the intervention of the machine between the performer and the audience alter the nature of theatrical performance? How did sound reproduction technologies open a new area for designing sound in theatre? How did the reproduction technologies and the sound design process reshape the experience of attending theatre?

This dissertation investigates the engagement between American theatre and sound reproduction technologies in the 1970s. Through an analysis of Abe Jacob's sound design for

¹⁰ Bertolt Brecht, *Brecht on Theatre: The Development of an Aesthetic*, ed. and trans. John Willett (New York: Hill and Wang, 1964), 102-103. Italics mine.

Broadway and productions created by experimental theatre practitioners such as Robert Wilson, Richard Foreman, and the Wooster Group, I explore how these productions extended formal theatre sound design practice in response to the advent of the recording and reproduction technologies, from microphones, loudspeakers, phonograph, tape recorders, and later digital computers. Although live theatre never had the resources to invest in technical research projects, it was very adept at adapting the latest innovations from other fields. I contend that the development of sound technologies not only shaped the formal innovations in electronic music composition, recordings, radio, and film, but that it compelled theatre artists to incorporate sound as a constituent part of the overall scenography. Tracing the role sound played in these productions, each chapter sounds out a pairing of the changes in design processes alongside the new approaches to the practice of listening and sound making in the age of mechanical and electronic (re)production: namely, Abe Jacob's rock and roll sound system and Broadway's mediatic resistance; Robert Wilson's auditory landscape and sound event; Richard Foreman's use of a tape machine to create sound objects; and the Wooster Group's use of sound to foreground different modes of listening. While the formal innovations of theatre sound design were driven by sound technologies, the emergence of these technologies did not replace but coexisted with the prevalent practices. Therefore, in order to better understand the new sound design practices brought by technical possibilities, it is necessary to broadly outline a history of recorded sound in theatre.

A Brief History of Recorded Sound in Theatre

The first documented use of recorded sound was a baby's cry specially recorded for Arthur Law's farce *The Judge*, which opened at Terry's Theatre in London's West End on July 24, 1890. According to the program, the sounds were that "of a real infant recorded by an Edison

Phonograph on Monday, July 21st” and it was “the first use of the Phonograph for stage purposes.”¹¹ By mechanically inscribing an actual baby crying onto a wax cylinder and playing back in the wings three days later, the mechanical reproduction of a baby’s cry created an impression of the presence of a baby in the audience. Affirming the indexical status of this recorded sound, a reporter from the *Marylebone & Paddington Independent* noted: “the phonograph...undertook the role of a fretful baby’s howls and acquitted itself admirably.”¹² However, not all reviews were in favor of the introduction of recorded sound onto the stage. Clement Scott from the *Illustrated London News* ranted about the poor sound quality of the reproduced baby cry in comparison with the sound of nature: “Among the horrors of the play is a terrible reproduction of the voice of a squalling child, through one of the new diabolical inventions to perpetuate sound.... A screaming child is awful enough in real life, but through this ghastly machine it is infinitely worse than nature. It sounds like a passionate infant turned into a dissipated corncrake!... Bother the phonograph, say I, with its squeaks and howling babies! I can conceive a hard-working Londoner being soothed by the sound of a country bird or the mooing of a comfortable cow in a meadow.... If the phonograph can do no better than this, let it be ‘anathema maranatha’!”¹³

Prior to the use of electrically operated ones, sound effects machines belonged in the property department. The prop shop built these machines and the property master maintained, handled, and operated them during the performance. In Harley Vincent’s 1904 article “Stage Sounds,” published in *The Strand Magazine*, he drew attention to what sound effects were used and how they were made at the Drury Lane Theatre. Ever since the oldest existing sound effect

¹¹ Jane W. Stedman, “Enter a Phonograph,” *Theatre Notebook* 30, no. 1 (1976): 3.

¹² “Terry’s Theatre,” *Marylebone & Paddington Independent*, July 24, 1890.

¹³ Clement Scott, “The Playhouses,” *The Illustrated London News*, August 2, 1890, 131.

machine, the *bronteion* thunder device, was made in the ancient Greek and Roman theatre, theatre technicians have developed elaborate systems to effectively produce a wide range of sound effects. In the article, Vincent presented a series of photographs that show the operation of the wind machine, the rain box, the rain barrel, devices that imitate the clatter of horses' hooves, a railway engine, wedding bells, and so forth. Vincent wrote: "There is, in fact, no sound which a competent property-master, such as Mr. Jones, of Drury Lane Theatre, is not prepared to imitate."¹⁴ While most sound effects were mechanically produced, the last paragraph mentioned the use of a phonograph in a 1902/3 production of *Henry V*:

The latest recruit to stage mechanics is the phonograph, which has recently been introduced in Berlin. It proved a grand success, the first attempt being made in Shakespeare's "King Henry V.," a drama in which the din of battle is especially prominent. One who was present declares that not a soul noticed that in place of human voices a piece of pure mechanism was at work. Instead of thirty "supers" crowded together and blocking up each other's way behind the wings there was a little table with an apparatus which could be shifted from one place to another at a moment's notice. And how faithful to his task was this new colleague. No disturbance now would arise owing to awkwardness or to the fault of some malevolent super or untimely wag. The innovation is likely to spread, and will surely prove a considerable economy for the smaller theatre, where the outlay on stage noises of the human and musical sort is no trifle.¹⁵

Vincent's prediction for the popularity of the phonograph in theatre was not realized immediately. Even with these electronic developments, many technicians, directors, and producers still considered some mechanically produced sounds superior to recorded ones. Frank

¹⁴ Harley Vincent, "Stage Sounds," *The Strand Magazine* 28 (1904), 418.

¹⁵ *Ibid.*, 422.

Napier, the stage director of the Old Vic from 1931 to 1934, observed the limitations of the use of technology to reproduce sound effects in theatre: First, the recording and reproduction process distorted the quality of sounds, rendering them with a metallic texture. Second, given the recording time limit of a ten-inch, 78-rpm record, the sound effects on each side of the record were very short in duration. In practice, if a sustaining sound effect was required, two or more gramophones had to be used in turn so that the sound could be produced without a break. Finally, in order for the gramophone to deliver enough volume to cover the entire auditorium, a radiogram, which was a device that combines a radio and a record player in a bulky piece of furniture, was required. Even though a radiogram enabled the gramophone to emit great volumes of sound and to fade sound effects in and out with no audible needle-scratch on disc, most theatres with limited financial resources could not afford to install one.¹⁶ Modern electronic sound reproduction only became effective after improvements in electrical recording occurred in the early 1930s, and after developments in high-fidelity and stereophonic sound reproduction of magnetic tape machine took place following World War II. Because reproduction from tape is magnetic rather than mechanical, tape had several advantages over phonograph and gramophone: tape recording provided better sound quality and the record did not deteriorate with use. With the tape recorder, it provided the flexibility to arrange and keep the show in sequence and avoid the possibility of running sounds out of order.

Harold Burris-Meyer and Vincent Mallory studied the dramaturgical function of sound effects and the reproduction technologies in commercial theatre from the 1930s to the 1950s. Their book *Sound in Theatre*, first published in 1959, was the first to document *what* and *how* the electronic devices and pertinent techniques were used to design sound effects in these theatres.

¹⁶ Frank Napier, *Noises Off* (London: Muller, 1936), 15-16.

Their list of the dramaturgical functions of theatre sound effects help to clarify the significance of developments in application of sound reproduction technologies in theatre:

1. To transmit the human voice in speech or song (adequate audibility is always the first requisite).
2. To establish locale (bird songs, traffic noise).
3. To establish atmosphere (wind and rain).
4. To create and sustain mood (combinations of devices used for locale and atmosphere; distortion of speech; soft music).
5. As an independent arbitrary emotional stimulus (music, non-associative sounds).
6. As an actor (the voice of the LIVING NEWSPAPER)
7. To reveal character (the unspoken aside)
8. To advance the plot (sound bridges between scenes or episodes.)¹⁷

While the use of sound to establish locale, establish atmosphere and to advance the plot were among the oldest functions of sound in theatre, Burris-Meyer recognized the importance of employing sound as independent emotional stimuli through manipulation of sound with electronic devices, a practice he described as the “dramatic controlled sound.” In the article “Controlled Sound for Modern Theatres,” published in the *Radio-Craft Magazine* in 1935, Burris-Meyer proposed to use sound reproduction technologies to manipulate the recorded sound to induce physical, psychological reactions on the audience. He wrote: “Theatrical presentations appeal to the audience through the senses of *sight* and *hearing*. What the audience sees is controlled by the lighting; what the audience hears, heretofore has been limited by age-old mediums—the human voice, effect machines, and musical instruments. Now, by proper choice

¹⁷ Harold Burris-Meyer, Vincent Mallory, and Lewis S. Goodfriend, *Sound in the Theatre* (Revised Edition) (New York: Theatre Arts Books, 1979), 2.

of locations for suitable types of reproducers, and by complete control of the audio output, the audio appeal may be made as flexible and complete as the visual appeal.”¹⁸ In “The Sound Show,” a presentation given at the Stevens Theatre, Burriss-Meyer demonstrated how electroacoustic manipulation of sound could gain a more realistic mental picture to fit perfectly into a play. For example, in his presentation of *Hamlet*, the voice of the ghost was created by voice recorded by a specific microphone and processed through filters to cut the unwanted frequencies because no actor’s live voice satisfied the translucent or ethereal quality tone of a disembodied spirit. In so doing, he was able to create the voice of the ghost that had “an utterly unearthly but perfectly understandable quality which was not reminiscent of a radio or phonograph.”¹⁹ As a strong advocate of sound reproduction technologies, Burriss-Meyer believed it was a much more powerful means to focus the audience’s attention to the world of the play. However, in order to reinforce the prevailing naturalist concept of the sound effect, he also warned the reader: “the quality of the sound used in the theatre must be such that the audience shall never be aware of the presence of sound-reproducing apparatus.”²⁰

Prior to the introduction of recorded sound, theatre was living sound drama, and it was unique in that it only existed during the time of the performance and then it disappeared forever. Live sound and recorded sound differ in the ways in which they exist in space and time. When created live, the actor’s voice, footsteps, the music played acoustically by live orchestra and the various sound effects made in the wings were fleeting and evanescent. Recorded sound, on the other hand, comes from a recording made at a different moment in time. Once it was inscribed on a medium, it became transportable and could be manipulated in ways that live sound could

¹⁸ Harold Burriss-Meyer, “Controlled Sound For Modern Theatres” *Radio-Craft* (September 1935), 157.

¹⁹ *Ibid.*, 186.

²⁰ *Ibid.*, 157.

not. Sound reproduction technologies did not instantly revolutionize the sound design practice in theatre, but they triggered a huge debate on the concepts of sound fidelity, authenticity and reproducibility, opening up a fissure in theatre's ontology and aesthetics due to the differences between live and recorded sound. Since the sound of Charlie Parker's record was not Charlie Parker's live performance per se but a mechanical reproduction of one of his performance via the medium of a portable recorder, the juxtaposition of the record itself and the live jazz performance within the record ritual broke the aura of the live event.

In his famous essay on the work of art in the age of mechanical reproduction, Walter Benjamin proposes that the concept of the original, whether in painting or sculpture, has cultivated the authenticity of a work of art, imparting a sense of aura, which he describes as a unique presence of a work of art rooted in time and place. The introduction of new technology such as photography and film eliminated the aura of a work of art through its reproducibility. Comparing stage actor with film actor, stage actor had an aura tied to his unique presence on stage while the film actor did not: "The aura which, on the stage, emanates from Macbeth, cannot be separated for the spectators from that of the actor. However, the singularity of the shot in the studio is that the camera is substituted for the public. Consequently, the aura that envelops an actor vanishes, and which it the aura of the figure he portrays."²¹ Transposed to sound reproduction, by making sound repeatable and depreciating the original presence, the phonograph undermined the authenticity of a live event: "the technique of reproduction detaches the reproduced object from the domain of tradition. By making many reproductions it substitutes a plurality of copies for a unique existence. And in permitting the reproduction to meet the

²¹ Walter Benjamin, *Illuminations* (London: Pimlico, 1999), 223.

beholder or listener in his own particular situation, it reactivates the object reproduced.”²² For Benjamin, the mechanical and electronic reproducibility was superior to aura because the dissociation of a work of art from its aura emancipated art from its subservience to a domain of tradition.

Benjamin’s assessment of the loss of aura caused by the advent of reproduction technology’s reproducibility provided two historical frameworks for the discussion my case studies. On one hand, reproducibility provided artists with aesthetic opportunity, since sound could be moved out of its original context, and therefore could be transformed and manipulated. On the other hand, the loss of aura exemplified what Jean-Marc Larrue called the “mediatic resistance” of theatre, which “exclude, avoid, prevent and/or delay the introduction into a given medium of a new technology, a new media object or a cryptomedium.”²³ It is evident in Broadway theatre’s resistance to the use of microphones for voice amplification in the 1930s. Although the technology at the time was not able to reproduce naturalistic sound, at the core of this resistance was the advocacy of microphone challenged the aura of an actor’s voice, threatening to rip theatre from its very own ephemeral nature. Against this mediatic resistance, Abe Jacob realized that the fundamental element in sound design for Broadway musicals was to make the reinforced sound from the loudspeakers sound like it came from the source, be it the performer on stage or the musician in the orchestra pit.

In the early 90s, America theatre director Peter Sellars observed that sound design in theatre had moved away from the notion of sound effects, defining it as an ontological concept between the acoustic environment and the subject:

²² Ibid., 216.

²³ Jean-Marc Larrue, “Sound Reproduction Techniques in Theatre: A Case of Mediatic Resistance,” in *Theatre Noise: The Sound of Performance*, eds, Lynne Kendrick and David Roesner (Newcastle: Cambridge Scholars Publishing, 2011), 18.

Very late in our day, the technology has become available to allow sound to begin to occupy the place in theatre arts that it occupies in our lives.... We are in a position to completely reorient the relationship between performer and audience, to transform a theatrical space, to create distance or sudden proximity, to create a densely populated zone or an endless arid expanse. We are in a position to evoke simultaneous layers of experience: flashbacks, premonitions, visitations, inner voices, the mind wandering or becoming suddenly, unbearably concentrated. *We are beyond the era of sound "effects."* Sound is no longer an effect, an extra, a *garni* supplied from time to time to mask a scene change or ease a transition. We are beyond the era of door buzzers and thunderclaps. Or rather, door buzzers and thunderclaps are no longer isolated effects, but part of a total program of sound that speaks to theatre as ontology.²⁴

Sellars' observation identified several features that technology has enabled in the contemporary practice of sound design. In the late 1980s and 1990s, the development of the computer, digital sampling and MIDI (musical instrument digital interface) allowed recorded sounds to be played polyphonically, replicating the aural experience of environmental ambience. Just as cinemas acquired surround sound, the sophisticated use of multi-channel playback sound systems also enabled live theatre to create an immersive experience for the audience. By blurring the boundary between the stage and the auditorium, the performer and the audience were placed within a transparent and continuous soundscape within the theatre. While Sellars' observation suggested that it was not until the 1980s, with the advent of digital technology, that theatre sound design moved beyond the era of sound effects, this study revealed that the aesthetic concepts and artistic choices of employing sound beyond the notion of sound effects had taken place in the 70s

²⁴ Peter Sellars, "Foreword," in *Sound and Music for the Theatre: The Art and Technique of Design* (3rd Edition), eds. Deena Kaye and James Lebrecht (New York: Focal Books, 2013), viii-x.

with Abe Jacob's incredibly realistic sound amplification in *Jesus Christ Superstar* (1971), Hans Peter Kuhn's elaborate immersive sound environment for *Death, Destruction, and Detroit* (1979), or Richard Foreman's use of tape loops and recorded voices to add a dense layer to his productions.

Conceptually, I limit my case studies of the experimental theatre to those of Robert Wilson, Richard Foreman, and the Wooster Group, as their work took place within the frame of traditional theatre setting. Even though their works represented the climactic point of American avant-garde movement that extended from The Living Theatre, The Open Theatre or The Performance Group, they rejected the notion of the Happenings or the environmental theatre that moved their performances to the streets even in its height of the 1970s. Even though many Happening and Fluxus artists successfully incorporated sound technology into their work, I intentionally exclude them from this study since they were more closely related to the world of performing art, trying to break the boundary between life and theatre which was considered as the cultural institution charged with the exhibition of plays. Unlike them, the directors and group discussed in my case studies still used theatre as an artistic medium to foreground their innovative use of sound technology while keeping the distance between the audience and the performing area. Wilson preferred to stage his work in a traditional theatre because his dream-like stage images required the distancing effect of the proscenium. Even though Richard Foreman and the Wooster Group aimed to create visceral performances, they created a distance between the stage and the audience by using devices like a glass wall or metal frames. While the frame of theatre architecture enabled them to gain total control over both the image and sound by keeping them within carefully delineated spaces, it also make it easier to clarify the way they

responded to the reproduction technologies that move beyond the notion of sound effects in theatre.

The Sonic Turn

In the preface to *Theatre Noise: The Sound of Performance*, an essay collection published in 2011, Patrice Pavis proclaimed that “at every historical moment—we reach a new phase in the performing arts; an original way of conceiving of theatre, and of theorizing it, is being sketched out.” Based on this statement, Pavis further asked: “Is it sound’s turn?”²⁵ Although artistically and practically, this turn was initiated when sound took center stage with the advancement in sound recording and playback technology and powerful loudspeakers in theatre; academically, it is still slowly being processed. One of the possible reasons for this ignorance is that the discussion of theatre design has primarily focused on the spatial-visual aspect rather than the spatial-aural relationship of the performance. As Arnold Aronson observes, “the word *design*... particularly in the United States, refers to a very specific and limited aspect of the spatiovisual experience of performance.”²⁶ However, in recent years, there have been a growing number of theatre scholarships on sound. In 2010, Ross Brown in *Sound: A Reader in Theatre Practice* provides the first general account of theatre sound, collecting an assortment of dramatic texts, excerpts from practical manuals and journal articles and situating them within the historical and theoretical context. Examining sound from a phenomenological perspective, Brown proposed to view theatre sound as a “scenography of engagement and distraction” rather than the semiological reading of signs: “One cannot stand back from it and see the entire picture; one’s aural attention does not have the equivalent of sightlines; the theatrical mode of listening does

²⁵ Patrice Pavis, “Preface,” in *Theatre Noise: The Sound of Performance*, eds, Lynne Kendrick and David Roesner (Newcastle: Cambridge Scholars Publishing, 2011), x.

²⁶ Arnold Aronson, *Looking into the Abyss: Essays on Scenography*. (Ann Arbor: The University of Michigan Press, 2005), 7.

not gaze uniformly, but is, by nature, a state of continual omnidirectional distraction.”²⁷ Brown’s concern with the dramaturgy and materiality of sound is echoed in Mladen Ovadija’s *Dramaturgy of Sound in the Avant-Garde and Postdramatic Theatre* (2013), in which he brings innovative concepts of sound and the texts of Dada, Futurism, Expressionism, and the Bauhaus into conversation. For Ovadija, the dramaturgy of sound of the historical avant-garde was not based on a syntactical structuring of meanings but was realized through the performativity-generated materiality. As the scholars begin to focus on the dramaturgical possibilities afforded by the use of sound in theatre, Adrian Curtin’s *Avant-Garde Theatre Sound* (2014) also contributes to the sonic turn by examining how modern theatre artists from the late nineteenth century to 1935 incorporated aspects of sonic modernity into their work.

Contributing to the sonic turn in theatre scholarship, the significance of my study lies in the attempt to bridge the theoretical and pragmatic aspects of theatre sound making by focusing not only on the type and variety of sounds made but also the artistic rationale behind the creative process by combining analyses of dramatic texts, production history, newspaper review, interviews and video recording. Even though these new practices of sound in theatre were driven by sound technologies, my study reveals that the artistic rationale behind the creative process played an important role in transforming the technology to meet the needs of the production. In doing so, I also highlight the possible performative roles sound designers play in a production.

That being said, one of the limitations of this study is the lack of discussion on the relationship of sound and the subjectivity of performers. Even though I discuss how the acoustic of theatre architecture and the reproduction process affect their voices, how do sound design and the aurality in theatre affect the performer are left unanswered. Another blind spot of this study

²⁷ Ross Brown, *Sound: A Reader in Theatre Practice* (New York: Palgrave Macmillan, 2010), 132.

is that it does not include a chronology of the development of sound reproduction technology to see when and how various technological innovations became available for theatre technicians and sound designers. Rather, this study only investigates specific sound technologies employed in the case studies within their cultural and historical background. Furthermore, since the technological innovations in radio broadcasting and film paved the way for sound technology to be used in theatrical production, a comparison between how the same technology being used in two different mediums would further elaborate the development of theatre sound design.

This dissertation begins with the early history of sound reinforcement technology on Broadway stage by tracing the early career of Abe Jacob, the godfather of Broadway sound design, from his involvement in *Hair* and *Jesus Christ Superstar* through his breakthrough in designing *A Chorus Line*. While Abe Jacob's contribution to Broadway sound design is uncontested, his significance has been mostly attributed to his introduction of the rock and roll sound system to Broadway and his establishment of a modern sound design practice. By situating Jacob's sound design practice within a structure of listening aroused in the age of electronic reproduction, my aim in the analysis of the confluence of these two events is to introduce Abe Jacob's sound design approaches in creating a naturalistic sound reinforcement for the Broadway stage that is still being practiced today.

While the new technology helped localize sound within the frame of the stage, there were a group of artists who abandon this convention that defines the performance and space. In chapter two, I trace the auditory spaces within Robert Wilson's work in the second half of the 1970s, situating them within the context of contemporary attitudes toward this shift of aural perspective and the reshaping of the auditory space enabled by the mechanical reproduction and electroacoustic manipulation of sound. Within this context, I emphasize the parallels it shares

with the soundscape composition developed by Canadian composer R. Murray Schafer, since these concepts provide methodological tools for analyzing Wilson's use of sound in these productions. The investigation starts with Wilson's *A Letter for Queen Victoria* (1975), in which words are used merely for their sound value and language is completely detached from its semantic context. Along with other types of sounds, Wilson introduced words as autonomous components of the spatial and temporal structure of this performance: vocal sounds were amplified and audible, but merely as sound events within the auditory space. Even though Wilson is mostly known for his scenery and the architectural arrangements in time and space, he collaborated closely with composers such as Alan Lloyd, Igor Demjen, Philip Glass, and especially Hans Peter Kuhn, whose collaboration with Wilson since *Death, Destruction, and Detroit* (1979) started the journey of transforming sound from individual structural components to a tangible spatial event, forming an auditory environment that surrounds the audience. Examining the way Kuhn worked, I argue that the dominant sound design approach that ties the auditory space to the visual space inherently limits the possibilities of what sound design could offer to a theatrical production. To sound out the auditory space is to use sound not as an illustration of an object but a constitutional element of the theatrical space. It denotes a consideration of sound as a tangible spatial element and an exploration of the relationship between the physical space, the dramatic space or the combination of the two.

In the third chapter, I examine how Richard Foreman employed sound technologies in his work in the 70s by moving the craft of mechanical sound making out of the wings and bringing it on stage in the form of tape recorded voices and loops of different layers of sound effects. Just like the forerunners in electronic music, Foreman's sound design focused on the organization of sound effects with their expressive rather than representational meanings and his tape techniques

predated two aspects of the standard sound design practice in the digital age. First, with the flexibility of recording technology, sound was no longer an image to complement the fictional world of the performance but an autonomous object, participating in the dramaturgy of the performance. Second, with the possibility to manipulate sound's timbre and spatial nature in real time, the sound designer was no longer a technician, but a performer and composer who organized and conceptualized a series of sound events that interacted with the actions on stage. I pay specific attention to Pierre Schaeffer's notion of the sound object and Steve Reich's tape composition because they not only directly influence but also provide a framework to discuss Foreman's use of sound in his staging techniques.

Since the technological advances in sound design have opened up a plurality of creative performative practice, traditional sound design discourse concentrates on the process of making sound in theatre, rather than the role of the listener and the act of listening. In chapter four, I investigate different modes of listening as a means to understand how the listener engages with different sounds in theatre, and how sound design plays a significant role in the interplay between listener perspectives and different modes of listening. Based on the three listening modes discussed by the Soundscape studies, I first examine how conventional theatre sound design practices manipulate the audience's auditory attention by syncing different sounds to an image, a narrative, or a context based on the interplay between foreground and background listening perspectives. While these modes of listening provide stability between the listener and the designed auditory environment, they limit the possibilities of theatre sound and turn the listeners to passive receiver. Against this context, I examine the way the Wooster Group disrupts the auditory focus by giving rise to different modes of listening in their production of *To You, The Birdie! (Phèdre)*, thereby reactivating the audience's subjective perception.

I conclude my study with my own sound design for Ping Chong's *Baldwin/Now* (2016), a work that responded to the unjust killing of Trayvon Martin and addressed the current conversation in America about race and the violence perpetuated against African American communities throughout American history. Through a close examination of the arrangement of spoken texts adapted from a 1968 speech by James Baldwin, pre-recorded voiceovers, and the sound effects of pendulum swing and anvil strike, in tandem with movements and projections within the production, I first analyze how the different approaches of sound design discussed in previous chapters are incorporated into my own design of this production. As it reflected in my design, these approaches are not mutually exclusive but used interchangeably in contemporary design practice. Drawing on Tim Ingold's "Against Soundscape," in which he asserts that sound as well as light is not the object but the medium of our engagement with the world, I furthermore challenge the appropriateness of the common design process that reduces visual and sound design to a binary opposition. I conclude by suggesting that the designed sonic elements in this production are not only to be listened to as sound objects in the production of meaning, but also that, when put together with certain movements or projections, these sounds affect our subjective experience of the seen, inviting us to sound out the social injustice in the world of the production.

CHAPTER 1

Sounding Out the Broadway Stage in the Age of Electronic Reproduction

1.1 Broadway's Mediatic Resistance

In 1940, the impresario Earl Carroll returned to Broadway with the eleventh and latest edition of his *Vanities* after the success of his Earl Carroll Theatre-Restaurant and Hollywood revues. Not only did Earl Carroll bring more and more showgirls back to Broadway, but he also imported an electric sound amplification system from Hollywood to this production, making it one of the earliest Broadway productions to use microphones publicly.²⁸ However, this introduction of microphones to the Broadway stage received nothing but negative reviews. Considering the revue “an exceptionally feeble and unimaginative one, lacking in zest, humor and tunefulness,” Richard Watts in the *New York Herald Tribune* complained that it was over amplified:

As a sort of modern touch, Mr. Carroll, who hasn't bothered much about modernizing the rest of his show, has seen to it that his performers sing and talk in awful proximity to a microphone. The unfortunate result is that both music and comedy blare out at you with unrelenting fiendishness, emphasizing more than is necessary the weakness of the new “Vanities” in both fields.²⁹

²⁸ Other productions that used electrical vocal amplification around this time were *DuBarry Was a Lady* (1939) and *The American Way* (1939). Musical historians and practitioners favor different time period as the debut of electrical sound on Broadway. While historians Lehman Engel, Miles Kreuger, Gerald Bordman, and David Collison all favor the late 1930s and early 1940s as the beginning, the veteran sound designer Abe Jacob claims that Earl Carroll had imported a soundman from Hollywood in 1933. For further discussion on this subject, see, Mark N. Grant, *The Rise and Fall of the Broadway Musical* and David Collison, *The Sound of Theatre*.

²⁹ Richard Watts, “The Theaters: Revue from Hollywood Susan Miller.” *New York Herald Tribune*, Jan 15, 1940.

In another review, the *New York Times* critic Brooks Atkinson, who offered a positive review of the evening except for the use of microphones, pointed out, “No revue that frantically hugs the microphone can be much more than a pain in the ear. [...] Whatever songs he has to offer he strangles in the microphone. The music is undistinguished.” To conclude his review, Atkinson even went so far as to sound the death knell for the use of microphones in the performance by claiming that, “The microphones, which very nearly make this ‘Vanities’ a menace, could be yanked out and tossed into the alley, which would not be a bad idea at that.”³⁰

Although the reason behind the use of electrical sound reinforcement in this production was not clear, the two reviews agreed that the use of microphones was unnecessary and only made the music and singing undistinguishable due to the technical limitations. Given the slow progress made in the audio technology development at the time, microphones and loudspeakers were not able to reproduce sound faithfully. Moreover, in order to efficiently capture the actor’s voice, the microphones had to be placed in close proximity to the space of the action, which affected the actor’s gestures and movements. However, as indicated in these reviews, if the menace was posed solely by sound technology’s shortcomings, how do we explain the phenomenal success of recordings, cabarets, radio, and talking films during this period where the same reproduction technologies were being employed?

It is hard to pinpoint the specific year or production that Broadway eventually started to employ electric sound systems for the performances, but most historians favor the late 1950s as the turning point. In *The American Musical Theatre*, Broadway composer and conductor Lehman Engel contended that by the 1950s, “Electric amplification became a necessity even for such ‘vocal’ performers as Ethel Merman and Alfred Drake. Six or seven microphones were spaced

³⁰ Brooks Atkinson, “Earl Carroll’s ‘Vanities’ Comes East From Hollywood With Some of Those Girls.” *New York Times*, Jan 15, 1940.

out evenly in the footlight troughs. Sometimes mikes were also hidden in scenery when singers had to perform at too great a distance from the forestage. For two decades this crude method of amplification sufficed.”³¹ When *West Side Story* opened on Broadway in 1957, foot microphones were placed along the edge of the down stage to amplify the performers’ voices. Brooks Atkinson, who harshly criticized the use of microphones in his review of *The Earl Carroll Vanities* seventeen years previously, made no mention of the use and the quality of microphones in his review of the premiere of *West Side Story*. Why did electric sound reinforcement become a necessity around this time? Did this move to the full incorporation of the electric sound system into Broadway shows suggest that the audio quality of microphones had made significant improvements in reproducing sound with hi fidelity over these years?

As a matter of fact, Broadway’s surrender to vocal amplification systems had little to do with the improved sound quality of microphones and loudspeakers but the stylistic change on Broadway stage. In a Golden Age musical, not only the book writer and composer but also the director, choreographer and designers assumed equal significance within a production. As Richard Rodgers famously put it, “The orchestrations sound the way the costumes look.”³² After *West Side Story*, more literate musical books were written which advanced the plot and revealed character, scores were arranged with large orchestras, and complex stage movements and choreographies were blocked. Since the 1930s, radio and film industry had enticed many experienced performers to leave the stage. In response to this trend, the Golden Age musicals nurtured a new generation of performers who were equipped with the abilities to act, dance and sing.³³

³¹ Lehman Engel, *The American Musical Theatre*, 158.

³² Richard Rogers, *Musical Stages: An Autobiography* (New York: Da Capo Press, 1995), 227.

³³ Kim H. Kowalke, “Theorizing the Golden Age Musical: Genre, Structure, Syntax,” *Gamut* 6/2 (2013), 137.

The coming of this new generation of performers was evident in *West Side Story*, as the entire ensemble contained only singing dancer/actors. As a result of these changes, as Mark N. Grant noted, “singing dancer/actors could find themselves singing while facing toward the wings or even upstage instead of downstage in the style of early golden-age musicals. The obsolescence of choruses exclusively made up of trained singers (common in the 1940s and earlier) also reduced the sheer volume of group singing that had obviated amplification.”³⁴ Since the performers’ voices were hard to hear, the foot microphones, also known as shotgun microphones, were placed along the downstage front edge to help project their voices. Ever since *West Side Story*, foot microphones have become a standard vocal amplification practice in Broadway musicals. Since acting became an equally importance aesthetic concern as singing in musicals, the advent of vocal amplification also enabled producers to cast actors from film and television who had no training in singing to be cast in leading roles.

Even though the eclectic sound reinforcement system became the norm on Broadway stage in the late 1950s, the public outcry against it continued. John Chapman, in his *New York Daily News* review for Jerry Herman’s 1961 musical *Milk and Honey*, wrote: “...why the annoyingly artificial aid of mikes and giant loudspeakers was necessary, given that the principals Robert Weede and Mimi Benzell were top-notch New York Metropolitan Opera singers.”³⁵ In 1962, the director George Abbott refused to use electrical amplification for Stephen Sondheim’s *A Funny Thing Happened on the Way to the Forum* because of the inferior sound quality of the microphones and loudspeakers. However, nothing could be heard during its tryouts in New Haven. So when they moved to Broadway, the show was miked.³⁶ Based on veteran sound

³⁴ Mark N. Grant, *The Rise and Fall of the Broadway Musical*, 195.

³⁵ Dan Dietz, *The Complete Book of 1960s Broadway Musicals* (Lanham, MD: Rowman & Littlefield, 2014), 93.

³⁶ David Collison, *The Sound of Theatre*, 117.

designer and historian David Collison's observation, "many producers had acknowledged the need for sound reinforcement by the 1960s and although it was not a natural sound, people were able to hear the performers more easily, so they accepted it."³⁷ Just like the Renaissance theatre artists who acquired the knowledge of spatial perspective and geometric patterns in order to transform a three-dimensional physical reality into a two-dimensional canvas with great accuracy, the Broadway theatres in the age of electronic reproduction were equipped with microphones and loudspeakers; pre-recorded sound effect on discs and tapes, and record players to sound out the world of the musical. However, whereas the adoption of the proscenium arch and perspective scenery (along with the subsequent development of modern stage design and the innovation of Edison's incandescent bulb) illuminated the illusionistic world of the play, into which the audience could easily project itself, sound reproduction technologies in the theatre were considered dissonant intruders that corrupted theatre's audiences and agents.³⁸ Until the advent of radio, records, and films, theatre had been the historical site for an acting body and live voice to be recognized. The introduction of sound reproduction technologies fragmented the unity of age-old presence by splitting the voice and the body. Therefore, while pointing out sound technology's shortcomings and constraints, the theatre critics' rampages about the microphones also reflected a kind of resistance to the new medium that would risk stripping away the actor's unique presence and making theatre the site of inauthentic performance.

Defining the effect of the mediatic resistance as "to exclude, avoid, prevent and/or delay the introduction into a given medium of a new technology," Jean-Marc Larrue contended that theatre's mediatic resistance to sound technology was not only caused by the technology's

³⁷ Ibid.

³⁸ While Western theatre adopted the innovations that electricity brought to lighting systems by replacing the use of gaslight with Edison's incandescent bulb (invented in 1879), within ten years of its invention, it waited almost sixty years—until the 1950s—before bringing the electric sound system to the stage.

shortcomings but also the social and cultural milieu's resistance to any change that would threaten to affect its conventional use of the medium and taint its perception. For this reason, Larrue suggested that the incorporation of sound reproduction technology into theatre building and practice would only happen when it ceased to be perceived as an intruder to theatre's fundamental nature.³⁹ Broadway's turn to the electric sound amplification system seemed to cause more problems than it solved, since the resistance to this new technology generated a debate on the concepts of sound's authenticity and reproducibility. In the late 1960s and early 1970s, since *Hair*, *Jesus Christ Superstar* and subsequent rock operas introduced rock music to Broadway, electrical sound reinforcement became an essential design discipline for all Broadway productions. However, in an era where a performer's presence is superseded by mechanical and electronic reproducibility, the debate of whether sound technology enhances the live performance or makes it more artificial has never ended. An important question that emerged from Atkinson's review of *The Earl Carroll Vanities* remained unresolved: If the microphones were a "menace" to the live performance, and therefore created an abyss in the perception of live performance's ontology and aesthetics, how did mechanical and electronic reproductions manage to fill this void?

In this chapter, I explore the early history of sound reproduction technology's incorporation on the Broadway stage by tracing the godfather of Broadway sound design Abe Jacob's early career from his involvement in *Hair* and *Jesus Christ Superstar* to his later breakthrough in designing *A Chorus Line*. While Abe Jacob's contribution to Broadway sound design is uncontested, his significance in the history of theatre sound has been mostly attributed to his introduction of the rock and roll sound system to Broadway and his establishment of a modern sound design practice in theatre. By situating Jacob's sound design practice within

³⁹ Larrue, 19.

theatre's mediatic resistance to new sound technology and the prevailing naturalist concept of the sound effect, I contend that Jacob's contribution to Broadway sound design was not simply a result of his use of the most advanced sound technologies, but also through his pioneering sound design techniques that made sound an integral part of the scenography, thereby excluding the use of sound technologies in a production from the audience's mental representation. Exploring different sound reproduction processes, Jacob inverts the older approach of starting with a priori definition of natural sound that is used to measure reproducibility. As is shown in Jacob's design approaches, the so called naturalistic sound effects and transparent sound systems are a perceived phenomenon achieved through the intelligibility of the sound reproduced from the stage and the alignment between the sound source and the focal point.

1.2 Broadway's Turn to Sound Amplification

While recording and electronics liberated sound from the moment of performance and opened up the possibility of manipulating sound in many different ways, it also created an unsettled effect on the ontology of live performance. By making sound repeatable, it challenged the live performance that embraced the immediate and ephemeral nature. By splitting sound and its source and therefore creating a mode of perception that was attuned to disjunctions and separations, it questioned the foundation of live performance which was based on the unities of action, space, and time. In recording or voice amplification, the electric transduction process destroyed the organic quality of human voice since it amputated the voice from the body and gave the sound of voice a life of its own. As a consequence, sound in the age of electronic reproduction undermined the traditional notion of the "authenticity" of a live performance and the unique presence of the actors. This concept of authenticity is closely related to the idea of "aura" which was described by Walter Benjamin as the unique presence of a work of art in time

and space. Benjamin lamented the loss of the aura in the age of mechanical reproduction: “the technique of reproduction detaches the reproduced object from the domain of tradition. By making many reproductions it substitutes a plurality of copies for a unique existence. And in permitting the reproduction to meet the beholder or listener in his own particular situation, it reactivates the object reproduced.”⁴⁰ For Benjamin, even the most meticulously crafted reproduction of a work of art lacked authenticity. The loss of aura was not just a question of reproduction failing to faithfully reproduce the original; it was more a question of the original work of art losing its singular authority in the process of reproduction and further distribution.

In the age of sound reproduction, the very suggestion of using microphones for vocal amplification threatened the presence of the actors who were traditionally trained to project their voices in order to be heard by the audience. When they entered a theatre for the first time, they would go on stage to check where their voices had the strongest resonance. Howard Whitfield (1914-2001), actor and stage manager, explained how this process worked:

When you went on the road, you’d go out the stage and check your voice in the house to know just how much you needed to fill that house, allowing for an audience. Knowing that the audience would deaden the sound, you’d just say a few words of the play and listen to see how your voice would fit in that house. For instance, each time we changed houses on the road tour with *The Country Wife*, Julie Harris would ask me, “Howard, go up into the balcony and tell me if I’m all right.” Most theaters then were built for you to be heard, and the actor was taught to be heard. No one wore a microphone. They just said their words and were heard. They sang their numbers and were heard. Probably *Mr.*

President (1962) was the last musical show that was not amplified at all. We did not have

⁴⁰ Walter Benjamin, *Illuminations*, ed. Hannah Arendt and trans. Harry Zohn (New York: Schocken, 1968), 221.

mikes in the footlights. The performers did not wear body mikes. Everybody knew how to speak. Of course, I know how things have now changed. I've seen it and cringed.⁴¹

With the use of microphones, the actors' voices were mechanically amputated and given a life of their own, played back through the loudspeakers. It was often assumed that microphones produced a faithful sound record. However, microphones were not only incapable of faithfully capturing sound due to their various frequency responses and directional characteristics, but many of them produced unwanted noises of various types. If a microphone with poor transmission quality made the music in *The Earl Carroll Vanities* undistinguishable to Atkinson's ears, the presence of the microphone that deprived the singer's aura became a bigger threat to the age-old practice of conventional theatre. Atkinson's discontent with microphones resonated in Vincent Canby's New York Times article, written fifty years later, titled "Look Who's Talking: Microphones," in which he expressed his concern that sound technology has ruined theatre's realism and rendered the live performance more artificial. Based on the assumption that "theatre is an old-fashioned place where image and sound are one. The performance is live, not live on tape or live via sound boosters," Canby argued that vocal amplification systems destroyed the spatial relationships between the performers and the audience since the microphones made the volumes of the performers upstage sound the same as the performers downstage. Moreover, with the use of microphones, the audience's entry into the world of the musical was not only controlled by the actors but also the sound mixer whose job was to balance the actors' volumes along with the production's other auditory elements.⁴² In the age of sound reproduction, the actor's "authentic" voice was modified not only by the choice of

⁴¹ Grant, 190.

⁴² Vincent Canby, "Look Who's Talking: Microphones." *New York Times*, January 22, 1995.

microphones, but also shaped by the sound mixer, which could amplify it, adjust the levels of various inputs, and shape the sound in response to the theatre's acoustics.

Not only did the technological development in sound threaten the unique presence of the actor, it also undermined the authenticity of theatre that emphasized the essence of the singular live performance when the live musical started to replicate recorded sound in the early 70s with the production of *Jesus Christ Superstar*. "Sound is of extreme importance in 'Superstar'." Mel Gussow made this opening statement in his preview of the musical *Jesus Christ Superstar* (1971) in the *New York Times*. What Gussow referred to as "sound" in this production was not simply the sound effects or the vocal amplification system, but the original soundtracks that the musical was based on. As he continued, "So many people have heard the record, seen a concert version or read The Book that are bound to have preconceived notions."⁴³ Unlike its contemporaries, *Jesus Christ Superstar* was not born on Broadway but as a recorded album and only after the success of the album was it presented to Broadway. According to the director, Tom O'Horgan, the rationale of the adaptation of an album for the stage was twofold: on one hand, a well-known rock album would draw more young audience members to the theatre; on the other hand, the fact that the music has proven commercially successful could only add to a musical's potential for increasing gross profit.⁴⁴ However, the sound that was of extreme importance to *Superstar* was a double-edge sword. While the popularity of the album appealed to the audience and generated a million-dollar advance sale for the show, it raised the audience's expectation of the perfect execution of sound reproduced on stage. Moreover, adapting a rock record to a live performance illuminated a paradox between the two mediums: In theatre, live performance had ontological

⁴³ Mel Gussow, "'Superstar' a Hit Before Opening." *New York Times*, 12 October 1971, p.48.

⁴⁴ Elizabeth L. Wollman, *The Theatre Will Rock: A History of the Rock Musical from Hair to Hedwig* (Ann Arbor: The University of Michigan Press 2006), 89.

priority over the recording, but rock music placed a premium on the recording process while live performance became, often times, a simulation of the record.

Before the arrival of rock musicals, the original cast recording that came from a live musical was considered more a means to preserve theatre music than a way to generate revenue since the record companies did not believe that theatregoers would be interested in purchasing a physical record. However, rock music, as an arrangement of the recorded sounds, did not originate through live performance but the recording studio. In *Rhythm and Noise: An Aesthetics of Rock*, Theodore Gracyk argues that rock music is not a live performing art but an aesthetic form of the recording:

The vast majority of the time, the audience for rock music listens to speakers delivering *recordings*. Exploring the limitations and possibilities of the recording process, crafting music in those terms, rock's primary materials are often the available recording and playback equipment. ... Consequently, rock music is not essentially a performing art, no matter how much time rock musicians spend practicing on their instruments or playing live. And while I do not say that it is essentially a recording art, I do contend that recording is the most characteristic medium of rock.⁴⁵

With *Jesus Christ Superstar* already presold to the public as a hit album, the theatre had to rebuild the musical on the rock music model, and the sound design had to replicate the recorded sound of the album in order to draw the new generation of theatregoers. However, the practice of adapting recorded sound to live stage posed great challenges in terms of execution and reception. While most productions simply adapt rock albums for stage by recreating the recording studio with the same audio equipment installed, they failed to recognize, as Gracyk's argument

⁴⁵ Theodore Gracyk, *Rhythm and Noise: An Aesthetics of Rock* (Durham: Duke University Press, 1997), 74-5.

indicated, that rock albums were intended for private, repeated listening. In theatre, the designer has to deal with more than one of the senses, and the visual element on stage must be taken into account.

By splitting the sound from its source, modern sound reproduction technologies have proposed the idea that the audio and visual dimensions of a performance could be separated as distinguishable tracks. However, the act of listening has always been multimodal, conditioned by the cooperation of the audio and visual senses since the human brain always tries to build the causal links between a heard sound and a visible source.⁴⁶ The way vision influences the perception of sound is evident in the iconic Memorex commercial campaign that ran through the 1970s.⁴⁷ In what follows, John Mowitt provides a reconstruction of one of the Memorex commercials featuring flugelhorn player Chuck Mangione and Ella Fitzgerald that illustrates the role vision plays in the perception of sound:

The scene is a recording studio. The television audience arrives upon the scene just as the final cadence of Mangione's "hit" fades. Two acoustic spaces are joined: the space of the recording and the space of the commercial. A cinematically fostered structure of identification situates us in the control room of the studio along with Fitzgerald who is watching and listening to the session. The juncture of acoustic spaces means that both Fitzgerald and the television audience are listening to Mangione's piece through the playback monitors in the control room. A voiceover narrator gives us the details of a test that is going to be conducted to establish the quality of the Memorex product. Fitzgerald

⁴⁶ Michael Schutz, "Seeing Music? What Musicians Need to Know About Vision," *Empirical Musicology Review* 3, no. 3 (2008), 85.

⁴⁷ To showcase the fidelity of the sound recorded on a Memorex tape, in one of its early commercials, the company has Ella Fitzgerald sing a high note in a live performance until it shatters a wine glass while a Memorex tape recorded her voice. When they played back the tape, the recorded voice also shattered the wine glass. By the end of the commercial, they would challenge the consumer to see if they can tell the difference between Fitzgerald's live or recorded voice by asking them: "Is it Live or is it Memorex?"

is to turn her back on the control room window and, simply by listening once again to the monitors, determine whether the music is listening to is ‘live’ or Memorex, that is, electronically reproduced.... The melodic ‘hook’ of Mangione’s piece returns on the audio track, Fitzgerald indicates uncertainty, and Mangione and his group resolve her dilemma by screaming to her from within the studio, ‘It’s Memorex!’⁴⁸

Even though the main purpose for the commercial was to showcase how faithfully the Memorex tape reproduced a recorded sound, it nevertheless illuminated the importance that visual information plays in shaping the listening experience. In the commercial, even an experienced singer like Fitzgerald had to remember what the live performance sounded like with visual cues in order to distinguish whether she was listening to a live or recorded performance. Following this instance, Mowitt argued that, “we resort to listening with our eyes and reducing the qualitative significance of musical expression to the technical perfection of its reproduction. Put more emphatically, the baffle that protects us from having to acknowledge our ‘loss of hearing’ becomes a concrete visual supplement to listening. As such, the scandal of contemporary hi-fidelity is not that one cannot actually hear it, but that we persist in regarding the perfection of listening as essentially beyond all forms of social determination.”⁴⁹ Mowitt’s argument certainly applies to the perception of sound in theatre. What seems to be crucial in the adapting of recorded sound to stage is not reliant on the faithful reproduction of the recorded sound. As reflected in Abe Jacob’s sound design for the rock operas in the years that follow, to recreate sound naturally for the theatre audience, the trick was to synchronize the sound event and the visual event on stage when they occur at the same time. Since the audience’s perception of the

⁴⁸ John Mowitt, “Sound of Music in Era of Electronic Reproduction.” *The Sound Studies Reader*, ed. Jonathan Sterne (New York: Routledge, 2012), 214.

⁴⁹ *Ibid.*, 215.

location of a visual object on the stage is not the perception of the sound, but the source of the sound, this synchronization is responsible for making the audience localize the sound to the same apparent acoustic perspective as the visual the sound is reinforcing.

1.3 *Hair* and *Jesus Christ Superstar*

By the late 1960s and early 1970s, Broadway saw one disappointing musical after another and failed to attract new generation of audiences. As Scott Warfield observed: “Beginning with a strike in 1960 that raised labour costs significantly, Broadway experienced a series of disastrous seasons that reached its nadir in 1967 with the fewest new shows produced in Broadway’s recorded history.”⁵⁰ It was under this historical context that *Hair* arrived on Broadway in 1968. Exploring the hippie themes of anti-war, sexual repression, racism, and drugs, director Tom O’Horgan’s primary emphasis is placed not on story but “tableaux, bold-anti-illusionistic devices, frantic light effects, amplified music and sound, and gimmickry of various sorts.”⁵¹ Even though Broadway had a long history of fighting sound reproduction technology, it finally gave in with the arrival of *Hair*. With a heavily amplified onstage band and eight large loudspeakers, *Hair*’s decibel level was considerably louder than the gentler book musicals of the same period such as *Fiddler on the Roof* or *Man of La Mancha*. However, the heavily amplified sound system not only made more noise in the theatre but also caused the problem of lyrics being drowned out by the instrumental din. Since foot microphones picked up sounds from the band as well as the actors on stage, they muffled the lyrics when the mix was played back from the loudspeakers. As a result, director Tom O’Horgan decided to abandon the

⁵⁰ Scott Warfield, “From Hair to Rent: Is ‘Rock’ a Four-Letter Word on Broadway?” in *The Cambridge Companion to the Musical 2nd Edition*, ed. William A. Everett and Paul R. Laird (Cambridge: Cambridge University Press, 2008), 236.

⁵¹ Barbara Lee Horn, *The Age of Hair: Evolution and Impact of Broadway’s First Rock Musical* (Westport, CT: Greenwood Press, 1991), 52.

foot microphones in favor of hand-held microphones because they picked up the sound source directly from actor's mouth.⁵² Contradicting the common practice of hiding sound reinforcement equipment behind the scenes, O'Horgan would eventually choreograph the microphone cables into the show, making it a stylistic device. Although *Hair* immediately became a commercial success, producer Michael Butler was not satisfied with the sound quality of the show. "We were very unhappy in the beginning," Butler recalled. "When we opened on Broadway, the electrician's union gave us somebody who was tone-deaf to run the sound system."⁵³ Richard Thomas observed that, "What *Hair* really required was the type of sound system that Jacob had pioneered for rock and roll."⁵⁴ The cause of poor sound quality in *Hair* was not just a problem of hiring a tone-deaf sound mixer but also a problem of employing the wrong type of sound system for the show. This situation paved the way for Abe Jacob to enter the Broadway stage.

Before coming to Broadway, Jacob was a sound engineer for touring rock artists such as The Mamas and the Papas, Jimi Hendrix, and Peter, Paul, and Mary. Because of his expertise in rock music, Butler hired Jacob to help with *Hair*'s touring production in Boston. From then on, Jacob designed the sound for the rest of the touring production and redesigned the original Broadway production in 1971. With his knowledge in sound engineering and rock and roll sound systems, he immediately improved the sound quality for the show.⁵⁵ *Hair*'s multiple touring productions provided Jacob an opportunity to develop and translate his experiences in rock concert sound engineering to theatre sound design. Two of his approaches to fix sound stood out

⁵²Ibid., 63.

⁵³ Richard K. Thomas, *The Design of Abe Jacob* (Syracuse, NY: United States Institute for Theatre Technology, 2008), 27.

⁵⁴ Ibid., 28.

⁵⁵ Jules Fisher, the lighting designer for *Hair*, recalled that Abe Jacob brought a lot of never-before used sound techniques to the production: "Abe... came in and said, hey, we can add better speakers, we can put microphones behind the borders upstage, behind the legs upstage, so as actors moved upstage there could be other microphones that could pick up what they were singing or saying. Jacob brought a lot of that to the theatre." See Thomas, 28.

and became the fundamental sound design technique in theatre today. First, he individually miked the instruments of the band on stage, so that each instrument was clearly defined when played back through the loudspeakers in the mix. To reinforce the theatricality of the show, Jacob also brought back the use of foot microphones. He simply turned them off the foot microphones when they were not being used to reinforce the actors on stage. Second, Jacob was able to further secure the intelligibility of the actor's voice by delivering the amplified sound to the remote seating areas in the mezzanine and balcony. Traditionally, theatre built orchestra seating directly under the balcony overhang to maximize the number of seats in the auditorium. However, the balcony overhang often blocked the sound coming from the loudspeakers stacked on the stage. To provide clear amplified sound for the audience under the balcony, Jacob hung small speakers along the underside of the balcony and delayed the amplified sound playback through these speakers so that it would arrive at the under-balcony seats at the same time as the sound from the stage.⁵⁶

For Abe Jacob's biographer Richard K. Thomas, the changes that Jacob made for *Hair* were "an early indication of an aesthetic choice Jacob made to design sound that imitated life, i.e., that seemed natural to the listener."⁵⁷ In his discussion of different modes of sound reproduction process, film scholar James Lastra divided sound reproduction technologies into two general models: the phonographic (perceptual fidelity) model and telephonic (intelligibility) model. As he wrote: "the former sets as its goal the perfectly faithful reproduction of a

⁵⁶ During the show, the sound from the under-balcony speaker system would arrive to the audience in that seating area before the sound from the stage and the proscenium loudspeakers, created unwanted echo. In order to make it seem like the sound came from the stage, Jacob delayed the sound signals for the under-balcony speakers so they arrived at the audience at the same time, thereby securing the relationship between the stage image and the sound reinforced. In so doing, Jacob also solved the unbalanced sound pressure levels in the auditorium when amplified sound was first introduced to theatre. Early amplified sound in theatre depended upon the proscenium loudspeaker system to reach the remote seating areas. In order to do so, the proscenium loudspeakers would have to be turned up to certain pressure levels that would have been too loud for the front orchestra seating. This technical problem resulted in sound designers giving up on the intelligibility of sound perceived in the remote seating areas.

⁵⁷ Thomas, 31.

spatiotemporally specific musical performance (as if heard from the best seat in the house); the latter, like writing, intelligibility or legibility at the expense of material specificity, if necessary.”⁵⁸ An example of the differences between these two models is a recording of an orchestra and a telephone. While a recording of an orchestra faithfully captures the reverberant space within which the music is performed, a telephone is designed to eliminate the acoustic specificity in order to render speech clearly. While a recording assumes that all aspects of the sound event are inherently significant, Jacob’s approach to design sound in theatre renders some aspects essential and others not. As Jacob’s sound design for *Hair* and *Jesus Christ Superstar* shows, what he sought is not so much acoustical fidelity to the original timbre, but the guarantee of effortless intelligibility of every individual made from the stage. In order to make the amplified sound sounded natural to the audience in theatre, Jacob recognized that sound reproduction not only had to be understood through its production but also its perception.

Right after Andrew Lloyd Webber and Tim Rice attended *Hair* at the Biltmore theatre on Broadway, they immediately decided to write a rock musical.⁵⁹ However, they were unable to find a producer in London who would invest on a rock musical based on a story that deals with the relationship between Jesus and Judas in the last days of Christ on Earth. In order to promote their project, they began to make their ideas into a concept album. The record label MCA-Decca released the concept album on October 1970 and it “quickly went gold, and spent sixty-five weeks on the Billboard album charts, including three weeks at number 1.”⁶⁰ Due to the commercial success of the record, the young British producer Robert Stigwood invested millions to finance the stage version of the rock opera. Having sold two and a half million copies in the

⁵⁸ James Lastra, “Fidelity versus Intelligibility,” in *The Sound Studies Reader*, ed., Jonathan Sterne, (New York: Routledge, 2012): 248.

⁵⁹ Horn, 130.

⁶⁰ Wollman, 93.

United States, the show unprecedentedly started touring in the country with two official concert versions before the stage production was made. In the interview with the *New York Times*, Stigwood predicted a five-year run for the Broadway production and a \$20 million gross in the first 12 months.⁶¹

During the technical rehearsals, the task of transferring the electric instrumental sounds, wide-ranging singing voices and the familiarity of the concept album to the live stage production posed a challenge for the production team. Director Tom O’Horgan said in his interview with Mel Gussow that “There’s a new sound system every night.”⁶² Since the show was orchestrated for electric instruments, it tended to overshadow the singing voices. The other problem stemmed from the attempt to recreate studio quality sound: “One of Mr. O’Horgan’s original notions was to seal the orchestra under a plastic bubble and turn the pit into a recording studio, but there was a difficulty in miking the actors.”⁶³ In Ellis Nassour’s first-hand documentary on the creation of *Jesus Christ Superstar*, he recorded that, on September 27, 1971,

“the cordless ‘police radio’ microphones (small transmitters belted to the waist of performers), that had been made especially for the show, were picking up every sound except the sounds they were supposed to; the mixing of the singers’ voices with that of the orchestra and rock group was way off base.... If it had been another show, perhaps the problem would not have been of such top priority, but here was the first musical in theater history to be based on a recording—a recording that had become a household word with sales of over three million albums and tapes in the United States alone.”⁶⁴

⁶¹ Gussow.

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Ellis Nassour and Richard Broderick, *Rock Opera: The Creation of Jesus Christ Superstar from Record Album to Broadway Show and Motion Picture* (New York: Hawthorn Books, 1973), 122.

As a consequence of these technical difficulties in sound, Stigwood had to let the stereo sound design Taplin Productions go in the second preview and call off the third preview.

It was under this turmoil that, again, Jacob was brought to redesign the entire sound system for *Jesus Christ Superstar*. Since the underlying design aesthetic was to recreate the sound of the concept album as faithfully as possible, sound technologies were inseparable from the production of the “original” sound. However, by merely employing the same reproduction technologies used to create the album for a live event, the original sound design failed to take different models of sound reproduction into consideration. After sitting in the rehearsal with the director, Jacob noticed that the wireless microphones were not able to amplify the actors so that they could be heard over the musical accompaniment. For this production, Stigwood had imported wireless microphones supplied by the English company Audio Limited. However, the technology of wireless transmission was in its early stage and they had problems with frequency and stability. Having worked with wireless microphones in *Hair*, Jacob was familiar with these technical issues. Therefore, he suggested a radical solution to the director: “Get rid of the wireless microphones because you’re not going to get them to work, and you’re just going to spend all your time dealing with them, and have bad sound.”⁶⁵ As a result, hand-held microphones with long cables were put to good use in *Jesus Christ Superstar*, and like what he once did in *Hair*, O’Horgan changed his choreography and scenic design to work with the use of microphones on stage. While the result was still unsatisfactory, Jacob’s change allowed them to perform the fourth preview.

Solving the microphone problem was only the first step for Jacob. The biggest mistake made by the previous sound designer was to install a sound system that attempted to reproduce

⁶⁵ Thomas, 33.

the studio recording sound. The matter here was not which sound sounded better but an understanding of a studio album and a live performance as fundamentally different mediums. What makes a studio recorded album sound good does not necessarily translate well in theatre since the spaces and the related acoustics are very different. David Collison, the sound designer for the London production of *Jesus Christ Superstar*, recalls that Jacob told him “the original designer had a background in concert sound and was engaged because the producer, Robert Stigwood, thought he would be right for his rock ‘n’ roll style production. The problem was that he had no experience in theatre.”⁶⁶ Since the aim was to reproduce the sound of the concept album, the production team decided to use the hi-fi stereo sound system made by JBL called Ranger Paragon, but according to Jacob, “it was a great sounding speaker if you were in a living room. If you’re trying to fill up a theatre, it left a lot to be desired.”⁶⁷ The Ranger Paragon speakers were about the size of a large sofa. Two of them were mounted at the sides of the proscenium with a third hung centrally over the arch of the proscenium. The sound quality was top notch, but the theatre was built long before the age of amplified sound, and the audience was not able to hear anything fifteen feet away from the speakers. To replace them, Jacob had to put in a special order for different pairs of loudspeakers developed by John Meyer called JM3, which became the precursor of the world famous Meyer line of speakers. In Jacob’s redesign of the loudspeaker system, two of them were mounted at the sides of the proscenium and the other two were put on each side of the down stage to help recreate the spatial image to the plane of the performers. These speakers provided the dynamic range as well as the sound quality required by this show.

⁶⁶ Collison, 210.

⁶⁷ Thomas, 33.

The last problem that Jacob encountered was the orchestra pit. As reported in Mel Gussow's review, in order to recreate studio quality sound, the orchestra pit was completely covered by a plastic dome to imitate the soundproofed closed space of a recording studio. The first time the cover was installed, the musicians could not play because of the heat and lack of air, so they had to cut holes in the plastic dome. In such a restricted place and with sound leaking from the holes in the dome, the amplified sound was not studio quality sound at all. The problem with the enclosed pits, as Jacob indicated, was that "you had no space around any of the instruments, or the microphones; and so the sound of a trumpet doesn't sound like a trumpet when the mike is right in the bell of the instrument. They were mostly dynamic microphones, and (they had) leakage in there (that) they tried to separate by some partitions."⁶⁸ After the several discussions and negotiations, Jacob was able to convince the director and the producer that the only solution to this situation was to remove the plastic dome. Once the dome was removed, Jacob was satisfied with the resulting sound; as he put it, "I still had some rock and roll sound because I still had the rhythm section, the electric guitar; we had some great musicians, and it kind of worked."⁶⁹

Jacob not only brought a rock and roll system but also an understanding of how different sound reproduction models worked. Ellis Nassour acknowledged the change that Jacob made for *Jesus Christ Superstar*:

The turnabout that this O'Horgan-Stigwood version of the rock opera brought is interesting. In the late 1950s when stereophonic sound was being touted, the pitch by record companies was that stereo brought the listener into the middle of the music as in a live performance. Now, here was a live performance opting for recorded sound.

⁶⁸ Ibid.

⁶⁹ Ibid.

O'Horgan, famous for his innovations (nudity and rock on Broadway in *Hair*) certainly did not introduce microphones to the stage; the art of voice projection in musical theater died long ago. The traditional opera house is the last holdout for unamplified sound. Born of the electronic age, *Superstar* flaunts the use of sophisticated sound equipment in attempting to create the feel and the tricks of recorded sound for the theater.⁷⁰

While Nassour believed that the use of microphones on stage was nothing new to Broadway and complimented Jacob for his sound design, other critics hold different opinions. Describing *Jesus Christ Superstar* as a “pseudo musical,” Dick Brukenfield from *The Village Voice* condemned the sound system, writing, “Sitting mid-orchestra at Mark Hellinger, I missed half the words, partly due to the theatre’s sound system, partly due to my own. Little inspired me to listen.”⁷¹ Aside from Brunkenfield, other critics made no mention of sound quality of the system. It was the visual impact of the microphone being used on stage that drew their attention. *New York Times* critic Clive Barnes wrote, “It is unfortunate that the sound equipment—which sounded rather blurred, incidentally—involved the use of hand-mikes, which, while dressed up as pieces of rope, and occasionally handed around from actor to actor like holy chalices, remained unmistakably mikes—not least when Jesus jumps up dramatically to seize one, in the approved TV spectacular manner.”⁷² A week later, Walter Kerr, another critic from *New York Times*, also reacted against the choreography with the handheld microphones: “Microphones are used throughout, which means that the company seem to be trailing umbilical cords wherever they go

⁷⁰ Nassour, 130.

⁷¹ Dick Brukenfield, “From the Archives...The Voice Reviews Jesus Christ Superstar, 1971,” *The Village Voice*, 8 Sept. 2009, <https://www.villagevoice.com/2009/09/08/from-the-archives-the-voice-reviews-jesus-christ-superstar-1971/>

⁷² Clive Barnes, “Theater: Christ’s Passion Transported to the Stage in Guise of Serious Pop,” *New York Times*, 13 October 1971, p. 40.

and when Christ asks if his cup may not be taken away from him one imagines he is referring to that omnipresent nuisance he's got in his hands."⁷³

In his review titled "The Mike is Mightier than the Word," John Kane, who covered the New York production for London's *Sunday Times*, spent almost the entire review rampaging about the use of the microphone:

I suppose that by now we have come to accept them (microphones) as one of the conventions that attend such extravaganzas. But someone connected with *Jesus Christ Superstar*, presumably Tom O'Horgan, decided that hand mikes would be incongruous in AD 33, so they are disguised as hand-mirrors, scepters, fans... Judas has his disguised as a length of rope, and for the first half of the show I looked forward to the moment in the second half when, I hoped, Judas would hang himself with his own mike cord.... When a number is over, the hand mike is passed to the next singer either by sleight of hand or under the guise of a mimed exchange of dialogue, where the actor without crosses to the actor with, lays a hand on his shoulder and mouths silent pleas. In response, the actor with shakes his head in an agonized manner, passes the mike to the actor without and moves sorrowfully away. In the more complicated transactions, the stage assumes the aspect of a solemn relay race. This angers me, an actor myself, for it diminishes the performances on stage.⁷⁴

For these critics, certainly unaware of the technical issues caused by the initial use of wireless microphones, the use of hand-held microphones did not work for a musical set during biblical times. Based on their reviews, it was not really the sound quality of the amplified voices but the

⁷³ Walter Kerr, "A Critic Likes the Opera, Loathes the Production: Kerr on 'Superstar'," *New York Times*, 24 October 1971, p. D1.

⁷⁴ John Kane, "The Mike is Mightier than the Word," *Sunday Times*, 6 February 1972.

horrendous presence of the hand-held microphones that they found annoying. By comparing theatre with television, Barnes assumed that microphones only made live performance more artificial. For Kerr and Kane, musical theatre is a place where the performer sings live, not live on tape or microphones. The problem was not whether the sound system could reproduce the actor's voice faithfully or not, but that the presence of these technologies diminished the authority and the unique presence of the live performance. While the use of microphones in *Jesus Christ Superstar* forced the performers to compromise their movements, the amplified sound also jeopardized the audience expectation of viewing theatre as a conventional art form where image and sound are one. Even though Abe Jacob successfully secured the amplified sound in this production, the anxiety caused by the use of new technology and reflected in the reviews summarized Jacob's next challenge: How to sound out the performance without the audience being conscious of the reproduction technologies?

With the success of *Jesus Christ Superstar*, Jacob began his career as a full time sound designer for Broadway. In the years that followed, he would keep recreating the recorded sound from albums for the stage as the rock opera became the hot commodity on Broadway. While he introduced Broadway to the latest sound reproduction technologies in order to pursue a higher quality sound reinforcement, these new technologies were by no means what he used to measure reproducibility or the fidelity of sound.⁷⁵ Jacob understood that to reproduce naturalistic sound on Broadway took more than adopting the most advanced technologies and hiding them in front the audience so that they were unconscious of the reproduction process. If the unique presence of live performers is the presumptively primary or authentic practice of theatre, then the visual

⁷⁵ In his design for *Sgt. Pepper's Lonely Hearts Club Band on the Road* (1974), Jacob introduced the Broadway audience to a quadraphonic sound system developed by the English company AES Entertainment Services for Pink's Floyd's live performance of their 1973 album *Dark Side of the Moon*. The lighting designer Jules Fisher recalled: "What made the sound in *Sgt. Pepper's* so interesting was that the production team was interested in totally immersing the audience in sound as if they were on an acid trip or something." See Thomas, 39.

aspect plays an important role in the perception of sound and how the sound is evaluated. In his review of *Beatlemania* (1977), Patrick Maloney pointed out the core of Jacob's sound design aesthetic:

It all has to do with focus. When you listen to a record at home you are basically dealing with one dimension—sound. This sound is created for the ears, not the eyes, and is mixed accordingly. At a live concert however, you have an artist on stage who is now a visual focal point and the mix should reflect and support this. For this reason, trying to make a group sound “exactly like the record” on-stage can often have an unsettling effect of the audience and result in an unsatisfactory show for all concerned—especially the engineer! ... The problem is that we're dealing with more than one dimension now and the additional visual element must be taken into account. Good television sound mixers have known this all along. *Beatlemania* is a prime example of this concept being used correctly and the effect is very powerful and authentic. The brass, strings, and keyboard parts are mixed in with the sound of the group on-stage at a slightly lower level than on the original record, so as to not take focus away from the group. The resultant effect—applause and cheers from the audience at the beginning and, more importantly, at the end of each of the twenty-nine tunes in the show—speaks for itself.⁷⁶

In *Beatlemania*, Jacob painstakingly recreated the songs from Beatle's albums note by note by introducing the most advanced equipment, such as the Fairchild spring reverb, the Hammond organ reverb, the Eventide Harmonizer, the earliest sampling instrument called the Mellotron to trigger tape loops, and loudspeakers custom made by John Meyer. Nevertheless, for Jacob the most significant breakthrough in *Beatlemania* was to reconfigure the relationship between the

⁷⁶ Patrick Maloney, “Beatlemania: A Live Performance Audio Experience.” *Recording Engineer Producer*, 10:2 (April, 1979), 95-96.

amplified sound and its visible source. With the help of sound reproduction technologies, Jacob was able to create a visual focus for each sound being reproduced and played back from the speakers. By integrating sights and sounds, he gave rise to the act of listening that best aligned with the visual presentation on stage.

1.4 *A Chorus Line*

A Chorus Line first opened at the Shubert Theatre on Broadway July 25, 1975. When it closed in 1990, it had not only become the longest running show in Broadway history, but also marked an important historical break in employing the latest technology in its theatrical design. Under the influence of the minimalist movement in art, Robin Wagner's scenic design for the show consisted entirely of a bare stage with white line painted on the floor downstage; on the upstage wall are tall lightweight mylar mirrors on each side of the eight three-sided revolving panels only seen during the finale. Arnold Aronson contends, "The white line was not only a barrier to be crossed by would-be chorus members but a threshold of a new technological era."⁷⁷ For Aronson, theatre in this new era is one that embodied technology rather than merely presented it. One of the many aspects of the success of *A Chorus Line*, arguably, was the integration of lighting and sound design into the world of the musical without audience being aware of their use.

In terms of the lighting for the show, designer Tharon Musser used the Electronics Diversified LS-8 which is a computer console that could control 120 channels and had two sets of playback faders. This console allowed her to recall complicated lighting cues in rapid transitions. In Broadway history, *A Chorus Line* was the first to use a computerized lighting console. The carefully placed and timed light cueing and the flexibility of the computer control

⁷⁷ Arnold Aronson, "Theatre Technology and the Shifting Aesthetic." *New England Theatre Journal* 8 (1997), 4.

console provided a realistic recreation of the audition room in a Broadway theatre in which the dancers were interviewed. Professional lighting designer Linda Essig recalled her first encounter with the lighting design in the show: “I was at a theatrical performance, but rather that I was part of a theatrical community. Tharon Musser’s renowned lighting design supported that sense of community and connection with the audience, particularly through the clarity of light on the dancers on the line and the use of ‘thought lights’ that help to create the empathy we all felt for each of the individuals that make up the chorus.”⁷⁸ With the arrival of new lighting technology in *A Chorus Line*, Essig further declared that 1975 is “immortalized forever in lighting history.”⁷⁹ Despite this innovation, one must question to what extent the scenography—the spatial translation of the world of the script—offered Essig the experience of being in a community rather than in a theatrical performance. *A Chorus Line*’s ability to foster a sense of being in a community within the world of play lays not only in its use of scenography and lighting, but also in Abe Jacob’s localization of amplified voice and the design of “the absence of sound.”

While the Broadway theatre became louder and more extravagant with the coming of the rock operas, *A Chorus Line* arrived quietly and simply. According to Jacob, the design concept of *A Chorus Line* was very different from the typical Broadway musical:

Michael Bennett wanted to do a musical that was as simple as possible: a black box, some mirrors and rehearsal clothes. He didn’t want a lot of microphones. He wanted area miking. The innovation of *A Chorus Line* was just being real. We’d come from the times of *Hair* and *Jesus Christ Superstar*, which brought sound to the forefront. *A Chorus Line* went back to being sort of a very natural, realistic show that had moments of

⁷⁸ Linda Essig, “A Chorus Line Revisited: Legacies of Computerized Lighting Control.” *Theatre Design & Technology* 34:1 (1997): 12-16.

⁷⁹ Essig, *Speed of Light* (Portsmouth, NH: Heinemann, 2002), 5.

exaggeration. There were no sound effects, no pre-recorded effects. Just singers in a booth.⁸⁰

Like what he did for the rock musicals, the first step Jacob took toward a naturalistic sound reinforcement was to install loudspeakers that would ensure the intelligibility of the actor's voice. For *A Chorus Line*, Jacob employed one of the earliest active loudspeakers featuring bi-amplification, the Altec 9846, as the proscenium loudspeakers, which resulted in a much cleaner and less distorted sound.⁸¹ Arriving at a naturalistic sound also meant amplifying the performance without the audience being conscious of the microphones and any sound amplification. This took an enormous amount of work at the time, since the audio signals from loudspeakers travel much faster than natural airborne sound on stage or within the auditorium. Without proper treatment, the loudspeaker creates a disturbing echo effect, making the sound image appear to come from the loudspeakers rather than from the singer's mouth. To solve this problem, Jacob employed the latest audio processing technologies, which enabled him to break free from the restrictions of the existing theatre sound system. For the first time on Broadway stage, Abe Jacob employed an EMT plate reverb to enhance the reverberation of the actor's amplified voice and the Delta T-101 Digital Delay to provide delays to the Electro Voice Sentry IIA loudspeakers and for the small loudspeakers installed in the first mezzanine and the upper balcony.⁸²

⁸⁰ Abe Jacob. Interview in Gary Stevens and Alan George, *The Longest Line* (New York: Applause, 1995), 75.

⁸¹ Bi-amplification uses two separate amplifiers: one for the high frequencies, and another for low frequencies. By covering a broader frequency range, this practice improves the performance of the loudspeakers.

⁸² In audio engineering, both reverb and delay refer to methods of signal processing. A delay simply refers to the repetition of a sound signal or a process whereby separate echoes...echoes...echoes are each audible. In general terms, reverb refers to the acoustic signature of a room when a sound is produced in an enclosed space causing a large of reverberation of sound to build up.

In recording sessions, a microphone is placed in front of either an instrument or a voice in a space to capture the resulting sound. What you hear is not only the recorded sound but also recorded reverb as an audible byproduct of the physical distance between the sound source and the microphone. By the forties, sound technicians were able to supplement the reverberations of these natural spaces with the invention of new technologies such as echo chambers or tape delay systems. At the time, these reverb units were largely employed in the radio drama to locate characters in different virtual spaces and in pop music as sound-shaping tools. In 1957, German Company EMT (Elektronmesstechnik) released the first plate reverb—the EMT 140 Reverberation Unit. Even though it weighed in at over 550 pounds, it was still considered a more “portable” unit than most reverb units back then. With its portability, Jacob was able to build this plate into a large box which was permanently installed into a wall in the basement of the Shubert Theatre; it later also became the wall of the men’s quick-change room downstairs.

While the artificial reverb added complexity and depth to actors’ voices by providing their singing with warm, natural, and open qualities, the use of digital time delay secured the localization of sound by maintaining the illusion of their voices coming from center stage at the same time. When Jacob was first brought from rock and roll touring to Broadway in 1970 to design a sound system for the Boston production of *Hair*, one of the first of many experiments he did to improve sound in the auditorium was to hang loudspeakers on the underside of the balcony to enhance sound for those seats under the acoustic shadow of the balcony. For Jacob, the concept of this practice was to render the sound as natural as possible by assuring sound localization. By providing supplemental speakers to the under balcony areas, the proscenium speakers wouldn’t need to be turned up to a high level to reach the rear of the auditorium. However, this speaker placement was hardly devoid of problems: without delaying the audio

signal to the balcony speakers, the electrical signals of the loudspeakers within the auditorium arrived at the audience before the proscenium loudspeakers. This problem not only created a disturbing pre-echo for the actor's amplified voice but also made the sound to appear to come from the balcony speakers rather than from stage. In *Hair*, Jacob made some early attempts to use a continuous loop of tape to adjust the time interval and get a maximum delay time of fifteen milliseconds, but the amount of delay would not be enough to solve this problem. Since sound travels at one foot per millisecond, fifteen milliseconds would not be nearly enough to delay the speakers in the auditorium that were more than fifteen feet away from the stage. This basic problem was finally solved in *A Chorus Line* when Jacob employed a digital delay processor from Gotham Audio that provided a hundred-millisecond delay time.⁸³ With this new digital delay, Jacob was able to distribute sound evenly to all seats of the auditorium and to further secure the illusion of the localization of the sound—even though the sound was played back by the loudspeakers, it sounded like it was coming from the source. Thus, it aligned the audience's listening experience with the singing of the performers on stage. For the first time, the audience who sat under the balcony and might not see every action on stage, could hear it as if they were sitting at fifth row center. It is obvious that the integration of the newly designed loudspeakers and audio processors was not the typical sort of nod toward modern technology in theatre. Rather, these new audio technologies created a new form of theatre by altering the perception of the audience. By redefining what a naturalistic sound sounded like, *A Chorus Line* also changed the way the audience listens to sound in the theatre. Otts Munderloh, the original sound mixer of

⁸³ The digital time delay processor used in the original production of *A Chorus Line* was the Delta T-101. It was based on a digital delay unit for heartbeat monitoring first developed by Dr. Francis Lee at MIT. A teaching assistant, Barry Blesser, suggested that they run audio signals through the unit, and it resulted in a 100-millisecond delay time. Once Steve Temmer from Gotham Audio heard about the result, he ordered 50 units to apply to live sound systems in New York. See "1971 Lexicon/Gotham Delta T-101 Digital Delay." *Mixonline*. Accessed September 30, 2016. <http://www.mixonline.com/news/news-products/1971-lexicongotham-delta-t-101-digital-delay/383601>

the show, recalled how a producer complained that the auditorium in-fill loudspeakers were not on because he did not detect any disturbing echo effect. Munderloh then told him that the loudspeakers were on, but the digital time delay was applied so that they sounded like natural reflections. The producer replied, “I have paid for the loudspeakers and I want to hear them.” To satisfy the producer’s request, Munderloh came up with a ploy to install speakers at the back of the auditorium pointing behind the seat where the producer sat during the previews. Of course, these extra speakers were removed once the show opened.⁸⁴

In an age of Broadway theatre that’s filled with a greater number of loudspeakers and microphones than the total number of actors and orchestral players combined, John A. Leonard, the sound designer for the Royal Shakespeare Company offered this reminiscence in 2001:

The creative technicians who came before us initially had no access to stored sound, and only much later to disc and tape replay. There were no hidden microphones, no miniature transmitters, no artificial echo and reverberation devices, no compressors, no limiters, no digital delay lines and far more basic microphones, amplifiers and loudspeakers, so why should we consider how they achieve their results? [...] Tempting as it is to fill our studios and theatres with all the latest kit, and our productions with continuous sound effects and music, very often less is more.⁸⁵

While Jacob introduced the latest audio technologies to the show, it was also his intelligent and imaginative choices in the use of sound that turn sound design into an integral part of the scenography. Making sure the audience could hear every single lyric in a 1400-seat Shubert Theatre involved sound amplification and audio processing. But sometimes, it can be as simple

⁸⁴ David Collison, *The Sound of Theatre* (Eastbourne, UK: PLASA, 2008), 219-220.

⁸⁵ John A. Leonard, *Theatre Sound* (New York: Routledge, 2001), 8-9.

as just getting rid of unwanted sound. The design of “the absence of sound” in *A Chorus Line*, to this day, was still Jacob’s favorite story about the fundamental principles of sound design to tell, which is worth quote in length here:

The Paul monologue, which is the long speech about the Puerto Rican Boy who ended up in the drag reviews (is) the first thing that happens after the big Cassie dance; and so Paul does his monologue, and it’s a quiet, introspective piece. And this is summertime at the Shubert, and the background noise, the residual noise in the room from the air conditioning and everything, was pretty high, and Michael Bennett couldn’t hear Paul. And he said, “let’s put a mike on him.” And I said, “Yeah, well OK, it’s just going to make all the background noise louder too. What if we got rid of the background noise?” And he said, “What do you mean?” And I said, “Well, during “Music in the Mirror,” there’s a lot of applause; we’ll get the building engineer to turn off the HVAC—the compressor and all the fans; and they won’t hear the motors shutting down because of the loud music and all the applause. And when Paul starts his monologue, it will be quiet, and they’ll hear it. And then right after Paul’s monologue is over is the tap number. And so, when they start tapping, we can have the engineer turn it back on again.” [...] And so, the first time we tried it, it went off during the applause, and the room was almost dead quiet, with the occasional traffic sounds coming through the door; and it worked! Not only did this cut the noise, so you could hear the character, but it also made it a little bit uncomfortable in the house. But Michael said, “That’s what we want them to feel—the same uncomfortableness that Paul is feeling onstage.”(And so) they had a guy who was cued to go over to the Booth Theatre (where the controls for the air conditioner were located), and shut the air conditioning off. So the sound designer in that case was

designing the absence of sound. It was one of those things that you could do today by just turning up the microphone, but I don't know if it would have had the same impact.⁸⁶

While Jacob's intention with "the absence of sound" was to simply eliminate the background noise so that the audience could hear Paul's monologue clearly, it nevertheless predated a contemporary sound design practice to draw the audience's attention to certain sound object in the performance. Sound designer Gareth Fry has described this approach as creating "false sound beds":

I often use playback air-con to create a false sound bed. We're sub-consciously aware it's there but we don't notice it, it's only when there's a change in background sound that our attention is drawn to it [...] So, I'll scratch out these air-conditioning sounds at a significant moment in the plot; for instance, when a gun goes off. Because the gun shot is dramatically significant, it draws our attention away from the fact that this sound that we have been actively filtering out has dropped away [...] the audience suddenly becomes aware that there's been some big shift in the world.⁸⁷

Fry's example of creating a false sound bed can be understood as a simulation of the psychoacoustic listening process known as the *cocktail party effect*: Since one perceives sound selectively, one is able, at a party, to focus attention on a specific speaker while filtering out the surrounding continuous background noises. In this context, what seems to be fundamental in terms of listening in real life is one's capacity to localize within the noise by having the freedom to choose what to hear from among different sound sources and to distribute his attention span accordingly. Background noise, by its nature, is only perceived when there are sudden changes

⁸⁶ Abe Jacob. Quoted in Richard K. Thomas, *The Design of Abe Jacob* (Syracuse, NY: United States Institute for Theatre Technology, 2008), 55.

⁸⁷ Gareth Fry. Quoted in George Home-Cook, *Theatre and Aural Attention: Stretching Ourselves* (New York: Palgrave Macmillan, 2015), 76.

of timbre or dynamics. Especially if this sound is part of a continuum within the sound place, we tend to forget that it exists altogether. Since the audience tends to ignore the existence of background noise, by sneaking in a recording of air-conditioning noise as the ambient sounds of the performing space and cutting it out at the moment the gun goes off, this sudden drop in intensity of the background sound foregrounds the importance of the gunshot. In Jacob's case, it was the act of switching off the "false" ambient noise of the air conditioner compressors and fans that, on one hand, solidified the intelligibility of Paul's monologue, and, on the other hand, integrated the visual and auditory senses by creating a visual focus for the stage action.

From a psychological and a physiological point of view, when a sound is suddenly cut out, psychological adaptation is not immediate. This effect explains the uncomfortableness in the house created by "absence of the sound." Once the audience adapted to the silence that follows the removal of the background noises, a better reception and stronger attention to Paul's monologue were created. However, "the absence of sound" not only reactivated the audience's attention, but also played an important role in the audience's perception of the articulation between spaces. The stage of *A Chorus Line* was not illusionistic; the identity of space was established through a white line, upstage mirrors, and the use lights in different colors rather than explicit scenery. This notion was evident in Cassie's dance solo "The Music and the Mirror" before Paul's monologue. In the beginning of this number, Cassie stood in a light box behind the white line, auditioning for a role in the chorus. Immediately after she started her solo dance, Robin Wagner's seemingly modern minimalist scenery that consisted of only a white line and a backdrop of mirrors came into life, sculpting by comprehensive programming of sidelights and footlights combined with the upstage mirrors set at different angles which multiplied Cassie's reflection. With this level of consistency in the unity of all the visual elements, the audience

could easily project themselves into the dramatic frame of reference of the play that was different from where it sat in the auditorium. The silent soundscape of Paul's monologue that followed the cut out assumes great importance since it moved the source of the background noise from the compressors and fans within the theatre to a prolonged silence with occasional traffic noise outside of the theatre. Since the simulation of reality is created through the separation of speech and noise and one's capacity to discern between the different sound sources in the environment, the identity of a new space was framed by the audience's capacity to distinguish Paul's monologue as the foreground sound and the prolonged silence as the new background sound. Thus, the design of "absence of sound" not only eliminated the compressor noises from the previous scene, but also created a silent soundscape as a new background sound. In this new soundscape, the dramatic frame of reference and the physical frame of reference of the theatre space itself became one, and the audience was invited to join the director Zach in Paul's audition for the chorus.

From *Hair* to *A Chorus Line*, Abe Jacob's design aesthetic slowly evolved from pure amplification and reinforcement to embrace a much more transparent sound system in general. In his 2001 Eddy Awards speech, Jacob reflected on his past work:

I have now come to the conclusion after all these years that the best sound design in theater must be invisible and transparent. The audience must not think about the sound of the show. If you can add vocal and orchestral energy and effects and mood into the production in a way that is natural, clean, distinct and exciting without anyone knowing or noticing, then you've done your job perfectly.⁸⁸

⁸⁸ Thomas, 83.

Since traditional Broadway theatre assumed the face-to-face interpersonal interaction as the authentic mode of performance, sound reproduction technologies' entrance was doomed to be considered inauthentic and disorienting no matter how faithfully the reproduction represented. Instead of simply employing the most advanced technologies, Jacob's design focused on the reception of sound. If the authenticity of the sound cannot be evaluated by the technologies that reproduced it, it was the audience that could effect such an evaluation from the perceptible relationship between seeing and hearing. By designing sound in sync with the live performers and make sure it always sounded like it was coming from the source, Jacob was able to bring the Broadway audience back to illusionistic world created by Renaissance theatre artists with the installation of the proscenium arch and perspective scenery.

CHAPTER 2

Sounding Out the Auditory Space

2.1 Investigation Sound in Space

How do we experience the space of a performance? Is looking at the scenery enough to help us identify the locale that a performance establishes? In her *What is Scenography?*, Pamela Howard encourages theatre designers to “embrace sound as a visual element when evaluating the quality of a potential performing space. Not just for audibility, but for the ability to create a soundscape that can give the spectators contextual information that does not need to be repeated visually.”⁸⁹ By considering sound as a visual element, Howard speaks of a sound effect’s ability to provide the audience with context information about the play by representing the locale or invisible stage objects. Howard further explains that sound, “human or engineered, is mobile and springs across spaces, guiding the direction of the spectators’ focus to the next event in the story of scene changes, fluently and elegantly moving it from being an accompanying illustrative sound score to becoming part of the architecture itself.”⁹⁰ Sound carries a strong affective potential, but, as Howard reminds us, it also imparts a sense of space. Although we normally think of a soundscape as a collection of sound events, it also indicates the auditory space within the theatre architecture. Therefore, theatre is both a visual and an aural space. The experience of space is not just tied to the visual sense, but is created by aural experience as well. As a matter of fact, sound and space are inextricably intertwined. Sound does not exist in a vacuum. Space is the medium in which sound can happen and have meaning. The dimensions and the objects

⁸⁹ Pamela Howard, *What is Scenography? 2nd Edition* (New York: Routledge, 2009), 16.

⁹⁰ Ibid.

present in a space affect its acoustic quality through reverberation and reflection, and, in turn, these characteristics contribute to the experience of the materiality of a space.

Space determines how a sound sounds. Listening to a sound in a performance thus is the perception of a sound with its spatial qualities as well as the perception of performance through sound. Bruce R. Smith, in his studies of the soundscapes of the public theatres in the early modern England, makes an analogy between the acoustic field of the Elizabethan theatre and the way this acoustic space is being experienced:

We can ‘see’ the acoustic field by imagining the Prologue [of *Henry V*] standing at the front edge of the stage, near the geometric centre of The Globe. As he projects his voice in all directions, he defines a circle. Beyond the reach of his voice stretches a horizon of silence. Along with the speaker, the auditors stand well within the circle defined by that horizon. Actor and audience share that same field of sound. If the actor stands at the centre of that shared acoustic space, each individual auditor stands nonetheless at the center of his or her own field of hearing—a field that includes the actor’s voice but is not limited by it. The radius of sounds each auditor can hear is defined by its own encircling horizon of silence. For the space of the play, each individual auditor’s radius of hearing is narrowed. As each of the “gentles all” focuses his or her attention on the speakers on stage, sounds outside the acoustic field of the play become, quite literally, peripheral. The result is, or can be, a totalizing experience of sound that surrounds each hearer completely, penetrating his or her body through the ears, immersing him or her in the playful patterning of speech.⁹¹

⁹¹ Bruce R. Smith, *The Acoustic World of Early Modern England* (Chicago: The University of Chicago Press, 1999), 271.

Unlike the visual space of a play which has physical boundaries, the auditory space is defined by intangible, virtual boundaries perceived by the radial compass of listening. In Smith's account, the radial compass of auditory space within The Globe Theatre can be further divided into acoustic horizon and acoustic arena. From the listener's perspective, the acoustic horizon is the longest distance between the listener and the source of a sound. Any sound event beyond this horizon is too weak to be audible or intelligible. The circle that surrounds the sound source (the speaker) is defined as an acoustic arena where the speakers and the listeners who are part of this arena share an ability to hear the same sonic event. Outside of this arena, the sonic event is too weak to be audible. As an experiential concept, auditory space is demarcated by background noises. In a noisy environment, the listeners only hear the sounds that are above the background noise. Therefore, the auditory space is defined not by the cubic dimension of its containment, but the audibility and intelligibility of sound. According to Smith, since the public theatres at the time were built as "instruments" for producing, shaping, and propagating the verbal text and music score of Elizabethan drama,⁹² the sounds of the performance have sufficient loudness to overcome the unwanted street noises outside the auditory space.

The relationship between sound and space evolves through time, as does auditory space. One of the greatest theatrical designs in shaping the auditory place prior to the advent of new technologies was created not through any technology but by a new cultural trend that restrained the audience from making any unwelcome noise during the show. As Smith's research shows, listening to the auditory space within the Elizabethan public theatre was a much more immersive sensorial experience, since the sounds within the acoustic arena came not only from the voices and music on stage but also the audience's participatory noise such as chatting, laughing, or

⁹² Ibid., 208-217.

sobbing from every direction. According to Erika Fischer-Lichte, theatre professionals were aware of the loud noises caused by the audience and started taking action against it in the eighteenth century. For instance, Reichard, the editor of the Gotha *Theater-Kalender*, once wrote, “For attentive listeners and spectators it is an unspeakable torment when others make so much noise with their mouths, feet, or sticks so that often one cannot hear what the actor is saying.” He even went so far as to suggest putting a warning on the programs that “anyone disrupting the other spectators through noise and misbehavior will be expelled from the theatre.”⁹³ The policing of the auditorium silence was slowly implemented, finally reaching its height in the late nineteenth century as is evident in Wagner’s observation of how an audience member behaved in his opera house in Bayreuth theatre:

His seat once taken, he finds himself in an actual “theatron,” that is, a room made for no purpose other than his looking in, and that for looking straight in front of him. Between him and the picture to be looked at there is nothing plainly visible, merely a floating atmosphere of distance, resulting from the architectural adjustment of the two proscenia; whereby the scene is removed as it were to the unapproachable world of dreams, while the spectral music sounding from the “mystic gulf,” like vapors rising from the womb of Gaia beneath the Pythia’s tripod, inspires him with that clairvoyance in which the scenic picture melts into the truest effigy of life itself.⁹⁴

In Wagner’s account, this audience member was disciplined enough to sit still in his seat with his undivided attention directed at the performance on stage, listening to the opera. By the 1900s, audiences who attended classical concerts were no longer allowed to shout, eat, or move during a

⁹³ Erika Fischer-Lichte, *The Transformative Power of Performance*, trans. Saskya Iris Jain (New York: Routledge, 2008), 122.

⁹⁴ Richard Wagner, *Wagner on Music and Drama: A Compendium of Richard Wagner’s Prose Works*, ed. Albert Goldman and Evert Sprinchorn (New York: E.P. Dutton, 1964), 366.

performance, and they had adapted to these demands that they refrain from making any unwelcome noises.⁹⁵ As an immediate result, this exclusionary policy on audience manner not only affected how the composition of orchestral music but also how a theatrical production was produced and perceived.⁹⁶ In the Bayreuth theatre, the visual focus as well as auditory focus on stage was drastically reinforced by the gradual silencing of the audience. Wagner's other staging techniques included plunging the audience in the dark, hiding the orchestra in a sunken pit, and enhancing the *mise-en-scène* through the use of the mystic gulf. In terms of shaping the auditory space, the silencing of the audience divided the one raucous Elizabethan auditory space into the dramatic auditory space (the auditory space designed by the production) and the physical acoustics of the theatre (auditorium), separated by the proscenium. Whereas the resonant auditory space in Elizabethan public theatre immersed and surrounded the audience, Wagner's theatre in Bayreuth reshaped the auditory space to a stage oriented one, favoring a directed and distanced listening experience.

Although new technology in the age of mechanical reproduction has greatly enhanced the possibilities for shaping the auditory space, a stage oriented auditory space behind the fourth wall still dominates most theatre productions and concerts. Abe Jacob's groundbreaking sound design for Broadway musical theatre in the 70s shows how he carefully aligns the visual space with the auditory space of the musical. In order to create a naturalistic sound reinforcement for the audience, he localizes the sound to the same apparent acoustic perspective as the visual the sound is reinforcing. Every sound that is not properly localized within the stage picture is at risk of distracting the audience, since its primary dramaturgical function is to represent a stage object. If the sound is outside of the stage picture, there is no meaning attached to it. By localizing sound

⁹⁵ Alex Ross, "Why So Serious?," *The New Yorker*, September 8, 2008.

⁹⁶ An immediate change in music composition due the silencing of the audience is that music could have more dynamics. More quiet and harmonically complex passages could be written.

within the auditory space defined by the stage picture, Jacob further secures the socially engaged listening experience.

While the new technology helped the localization of sound within the frame of stage, there was a group of artists who abandoned this conventional norm which defined the performance and space. These artists resisted reducing sound to a representation; instead, they paid attention to the temporal and spatial dimension of sound itself. Writing in relation to the immersive quality of sound, the social semiotician Theo Van Leeuwen pointed out a shift in how sound is experienced:

Just as visual perspective has been challenged since the beginning of the twentieth century, first by new forms of modern art such as cubism and the collage, later by mass media forms such as magazine layout and television graphics, so aural perspective, too, has been challenged, by avant-garde composers like Xenakis, but, above all, by new forms and technologies of listening which aim at immersion and participation, rather than at concentrated listening and imaginary identification.”⁹⁷

Like their visual counterparts, sound artists and composers worked within this radically changed visual perspective, but they would have to wait until the mid-twentieth-century before acquiring the electroacoustic tools to manipulate the auditory space and change the aural perspective. On one side of this shift of aural perspective, there were composers such as Tristan Murail or Iannis Xenakis who transformed their compositional process to test the limits of technological possibilities. On the other, there were works such as Karlheinz Stockhausen’s scenic music or Dieter Schnebel’s visual music which reshaped the auditory space by positing a new relationship between the musicians and the listeners. While a directed and focus aural perspective is secured

⁹⁷ Theo Van Leeuwen, *Speech, Music, Sound* (Basingstoke: Palgrave Macmillan, 1999), 29.

by the proscenium that demarcates the musician from the listeners, these artists aimed at creating a total auditory environment that immerses the listener in the concert hall. Underlying this attention to the spatiality of sound is not just a focus on how sound is created through technological means, but also how sound is experienced around, through and in the subjective listener through its diffusion in the performance space, the acoustics of theatre architecture, its resonances and movements, and its affective potential to the listeners.

In this chapter, I trace the auditory spaces within Robert Wilson's work in the second half of the 1970s, situating them within the context of contemporary attitudes toward this shift of aural perspective and reshaping of the auditory space enabled by the mechanical reproduction and electroacoustic manipulation of sound. Within this context, I emphasize the parallels it shares with Gertrude Stein's landscape aesthetics and soundscape composition developed by the Canadian composer R. Murray Schafer, since these concepts provide methodological tools for analyzing Wilson's use of sound in these productions. The investigation starts with *A Letter for Queen Victoria* (1975), in which words are used merely for their sound value and language is completely detached from their semantic context. Along with other types of sounds, Wilson introduced these words as autonomous components of the spatial and temporal structure of this performance. In this production, vocal sounds were amplified and audible but merely as sound events within the auditory space. Even though Wilson is mostly known for his scenery and the architectural arrangements in time and space, he has collaborated closely with composers such as Alan Lloyd, Igor Demjen, Philip Glass, and especially Hans Peter Kuhn, whose collaboration with Wilson since *Death, Destruction, and Detroit* (1979) started the journey of transforming sound from individual structural components to a tangible spatial event, forming an auditory environment surround the audience. Examining the way Kuhn worked, I argue that the dominant

sound design approach that ties the auditory space to the visual space inherently limits the possibilities of what sound design could offer to a theatrical production. To sound out the auditory space is to use sound not as an illustration of an object but a constitutional element of the theatrical space. It denotes a consideration of sound as a tangible spatial elements and explorations of the relationship between the physical space, the dramatic space or the combination of the two.

2.2 Spatial Sound Composition

In his novel *The New Atlantis* published around 1627, Francis Bacon created the “sound houses” in his utopian college, describing in lengthy detail the various transformations and procedures that the music technologies and techniques of his utopia allow for changing sounds and arranging them across space:

We have also sound-houses, where we practice and demonstrate all sounds and their generation. We have harmonies, which you have not, or quarter-sounds and lesser slides of sounds.... We represent and imitate all articulate sounds and letters, and the voices and notes of beasts and birds. We have certain helps which set to the ear to further the hearing greatly. We have also diverse strange and artificial echoes, reflecting the voice many times, and, as it were, tossing it; and some that give back the voice louder than it came, some shriller and deeper; yea, some rendering the voice, differing in letters or articulation from that they receive. We have means to convey sounds in trunks and pipes, in strange lines and distances.⁹⁸

⁹⁸ Francis Bacon, *Sylva Sylvarum: or A Naturall Historie in Ten Centuries*. Edited by William Rawley (London: William Lee, 1627).

Not only did Bacon's sound houses predict the coming of new music technology like tape recorder, synthesizer, or computer music in the mid-twentieth century, he also emphasized the use of spatiality of sound with his description of artificial echoes of voices bouncing around the space, prophesying an all-around auditory space that is abstract and imaginary. With the advent of new audio technologies in the 1950s, the possibilities for the electroacoustic manipulation of sound and space have increased. Bacon's idea on sound houses is no longer a footnote to seventeenth-century history since the spatiality of sound has become a key concept in different fields of artistic practice.

German composer Karlheinz Stockhausen was among one of the great visionaries of contemporary music who focused on the spatial projection of his composition both on his recordings and in the performance space. In his *Gesang der Jünglinge* (*Song of the Youths*, 1956), a composition that blended the recording of a youth choir with electronically generated tones and timbers, Stockhausen attempted for the first time to form the direction and movement of sound in space, and to make them a new dimension for listening experience. *Gesang der Jünglinge* was composed of five tracks. During the first performance, which took place in the main broadcasting studio at Cologne Radio Station, five loudspeakers were placed around the audience. This arrangement resulted in the listener sitting in the center of an acoustic arena with the beautiful sweeping tones and voices emanating from every side and moving in various directions. Two years later, Stockhausen took his electronic spatial music one step further and composed *Kontakte* (1958). During the recording, he mounted a loudspeaker on a rotating table and set up four microphones around it. By playing sound through the loudspeakers while rotating the table, whatever sound came from the loudspeaker was then recorded onto the four tape tracks one after the other one. In performance, with a speaker for each track positioned in the four

corners of a square space, it creates the effect of sound spinning around the listener at various speeds. As innovative as Stockhausen's spatial music was, most theatres and musical halls were not designed to carry this kind of music or loudspeaker placement. In response to this, Stockhausen also described his version of the "sound house":

My idea would be to have a spherical chamber, fitted all round with loudspeakers. In the middle of this spherical chamber, a platform, transparent to both light and sound, would be hung for the listeners. They could hear music, composed for such adapted halls, coming from above, from below and from all directions. The platform could be reached by a gangway.⁹⁹

Although there was not a performance space equipped to accommodate his need, Stockhausen would go on to experiment with the spatial arrangement of sound on stereo recording that would eventually influenced rock bands such as The Beatles, Pink Floyd and Grateful Dead.

Stockhausen's spatial music is historically important not only for the innovative recording techniques he employed in the process of his composition but also for the new way of experiencing music he created. Moreover, he shows that spatiality is not the arbitrary property of sound but can be shaped by the composer and made available as a new dimension in a musical experience. As a result of spatial music, the mandate that requires musicians to perform on stage and listeners in predefined seats in the auditorium is broken, so is the fourth wall.

Like his contemporaries in Europe, John Cage also employs the spatiality of sound as one of the compositional elements of his music piece. Cage's conception of the spatiality of sound stems from his interest in reproduction technologies. In the essay "Experimental Music," Cage estimates that a "total sound-space" could be created with a minimal setting of two tape

⁹⁹ Karlheinz Stockhausen, "Music in Space," *Die Reihe*, 5, (1959), .69.

recorders and a dis recorder for these devices allow for the possibility of not only reproducing sound but, through means of electroacoustic manipulation, producing every sound in the environment:

This cautious stepping [of traditional musical habits] is not characteristic of the possibilities of magnetic tape, which is revealing to us that musical action or existence can occur at any point or along any line or curve or what have you in total sound-space; that we are, in fact, technically equipped to transform our contemporary awareness of nature's manner of operation into art.¹⁰⁰

In Cage's total sound-space, sound is fundamentally spatial; it designates and creates the space, yet this spatiality, like in Stockhausen's spatial music, can be manipulated through electroacoustic means. However, this total sound-space is in no way technologically determined; as Cage points out, the advantages of using magnetic tapes to create a total sound-space can only be taken if "one is willing to change one's musical habits. That is, one may take advantage of the appearance of images without visible transition in distant places, which is a way of saying 'television,' if one is willing to stay at home instead of going to a theatre."¹⁰¹ The desire to extend the electroacoustic auditory space from the stage into the auditorium is therefore not only a musical one but also a cultural one, requiring the listener to accept the spatiality of sound as it manifests itself in the environment. To better explore Cage's idea on space, we need to return to his famous silent piece entitled *4'33"* in which he introduced the environmental sound in the performance space as his musical composition.

The premiere of *4'33"* (*Four Minutes and Thirty-three Seconds*, or "Four Thirty-Three" as Cage tended to call it) took place in Maverick Concert Hall in Woodstock, New York, on

¹⁰⁰ John Cage, *Silence: Lectures and Writings*, (Middletown, Conn.: Wesleyan University Press, 1961), 9.

¹⁰¹ *Ibid.*

April 29, 1952. Built like a small barn, the Maverick Hall is a semi-open theatre with four doors that opened in the back of the audience seating. Outside these doors were rows of wooden benches surrounded by oak trees. *4'33''* consisted of three movements: the first was 30'' in length, the second 2'23'', and the third 1'40'', adding up to 4 minutes and 33 seconds. The first movement started with the pianist David Tudor entering the small raised wooden stage and sitting down at the piano. He closed the lid, looked at the stopwatch and began the performance, during which he did not play a note. After 30 seconds of silence, he reset the stopwatch and raised the lid. After another 2 minutes and 23 seconds, he lowered it and reopened it. After another 1 minute and 40 seconds, he closed the lid for a third time. Then he opened the lid for last time and rose to take his bows. The piece was over. Never playing a note, the only sounds Tudor contributed to auditory space of the performance were his footsteps, the tiny noise created by closing the piano lid and sounds of turning pages of blank sheet music.

Since Tudor did not play a note during the recital, the audience assumed they heard nothing but silence. However, what they heard was not literal silence because there were all kinds of accidental sounds within the auditory space. Later, Cage provided his own observation of the sounds heard during the performance:

They missed the point. There's no such thing as silence. What they thought was silence [in *4'33''*], because they didn't know how to listen, was full of accidental noises. You could hear the wind stirring outside during the first movement [in the premiere]. During the second, raindrops began pattering the roof, and during the third the people themselves made all kinds of interesting sounds as they talked or walked out.¹⁰²

¹⁰² Richard Kostelanetz, *Conversing with Cage* (New York: Routledge, 2003), 70.

Because of theatre decorum, audience members refrained from making any noises during the performance; they also learned to bracket out the randomly produced noises and focus their attention on stage. In *4'33"*, the composition was not created intentionally by Cage but largely by sounds from outside of the Maverick Concert Hall and from the audience itself. Eventually, it was this environmental and unintended sound and a new approach to listening that Cage intended to present to the audience: "I wanted my work to be free of my own likes and dislikes, because I think music should be free of the feelings and ideas of the composer. I have felt and hoped to have led other people to feel that the sounds of their environment constitute a music which is more interesting than the music which they would hear if they went into a concert hall."¹⁰³ By freeing his work from his own likes and dislikes, Cage also introduced the concept of *chance operations* as a way to compose music for which the final product was not preconceived—composition that was indeterminate of its performance. In *4'33"*, the indeterminacy was reflected in the unforeseeable actions of the pianist, the audience's unpredictable reactions and the sounds created by the natural environment. By inviting the listeners to attend to the auditory space framed by the environmental sounds, Cage also effectively transformed the auditory space of *4'33"* into a conceptual total sound-space by dissolving the boundary that traditionally separate the musicians from the audience. Yet, like the technologically mediated total sound-place, the experience of an auditory space of *4'33"* could only happen if the listeners changed their habitual way of listening.

In the late 1960s and the early 1970s, there was a return to Cage's radical listening to the environmental sounds. In order to draw attention to the acoustic ecology through a course of noise pollution, Canadian composer R. Murray Schafer established The World Soundscape

¹⁰³ Jeff Goldberg, "John Cage Interview," *Soho Weekly News*, September 12, 1974.

Project (WSP) at Simon Fraser University, which was among the first attempts to formally study the sonic environment. The project's primary goal was to analyze the contemporary sonic environment through sound recordings, and then use these recordings to communicate environmental concerns such as the danger of noise pollution and to encourage the listeners to participate in the design of viable soundscapes. Unlike Stockhausen or Cage, who liberated sound and listening through electroacoustic manipulation as a musical style, WSP prohibited soundscape composition from the manipulation of sound sources, requesting that all composers keep the link between source and recording transparent; the location recorded had to remain recognizable to the listener. By fixing environmental sound to the recording, soundscape composition preserved the environmental context of a particular place and time, rendering an acoustic event repeatable, reproducible, and therefore analyzable. Emerging from the World Soundscape Project is Schafer's pioneering text on sound studies *The Tuning of the World* (1977) in which he coined the term "soundscape."¹⁰⁴ Schafer first defined a soundscape as "any acoustic field of study," then, he added, "We may speak of a musical composition as a soundscape, or a radio program as a soundscape or an acoustic environment as a soundscape."¹⁰⁵ Despite this broad definition, its later development revealed that what Schafer meant by soundscape was more a social and cultural concept to describe the field of sounds, either in a particular place or an entire culture. Schafer's soundscape was not merely a neutral field of aural investigation; rather, it was deeply informed by Schafer's own preferences for harmonious sounds of nature over the cacophonies of modern life.

¹⁰⁴ Soundscape is an overused term in sound design today. As a vocabulary of theatre sound design, designers usually associate the idea of creating a soundscape with a certain kind of immersive, all-encompassing experience. However, there was no such tendency to employ the term this way when Schafer first employed it. For an interrogation of the use and misuse of the term, see Ari Y. Kelman, "Rethinking the Soundscape: A Critical Genealogy of a Key Term in Sound Studies," *The Senses & Society*, vol.5, no.2 (2010): 212-234.

¹⁰⁵ Schafer, R. Murray, *The Tuning of the World* (New York: Alfred A. Knopf, 1977), 7.

Given Schafer's bias toward certain soundscapes, his studies provide an alternative methodological tool for analyzing theatre sound design. While the understanding and interpretation of a conventional theatre sound is based on a rigid cultural codification, Schafer's research indicates that there is no objective meaning of a sound; rather, the meaning of sound only occurs in its original context. In order to observe and analyze different soundscapes, Schafer associated acoustic ecology with activities like evaluating sound environments for their high or low fidelity and cataloging natural and mechanical sounds. Schafer argued that the aesthetic function and meaning of sounds depend on their interaction within their contexts:

Most sounds of the environment are produced by known objects and one of the most useful ways of cataloguing them is according to their referential aspects. But the system used to organize such a vast number of designations will be arbitrary, for no sound has objective meaning, and the observer will have specific cultural attitudes toward the subject.¹⁰⁶

For Schafer, there is no objective meaning of a sound because even an identical sound may produce different meanings and affect listeners in different ways. Take J.S. Bach's flute music as an example. Although the physical character of the music remains the same, the aesthetic responses to it could be quite different based on the listener's specific cultural and social attitude toward it. With the advent of audio reproduction technology, it is even more important to analyze recorded sounds within their contexts. Schafer mentions the sounds of a kettle boiling and a snake hissing. When listening to the recordings of both sounds, it is very hard to differentiate between the two in perception because both sounds have almost the same register of physical characteristics and frequencies. It is when the listener situates them within their contexts that

¹⁰⁶ Ibid., 137.

they understand the different meanings of both sounds. Schafer used the term “sound event” to stress the necessity to analyze sound in its original spatial and temporal context:

When we focus on individual sounds in order to consider their associative meanings as signals, symbols, keynotes or soundmarks, I propose to call them sound events, to avoid confusion of sound objects, which are laboratory specimens. This is in line with the dictionary definition of event as “something that occurs in a certain place during a particular interval of time”—in other words, a context is implied. Thus the same sound, say a church bell, could be considered as a sound object if recorded and analyzed in the laboratory, or as a sound event if identified and studied in the community.¹⁰⁷

In contrast with the concept of sound object that is devoid of context, the concept of sound event examines sound in its complete relationship to the environment. Examining theatre sound as an event, the meaning of sound is not fixed but determined by the context that created it. In this case, a church bell chime in a play is more than an illustrative object that tells the audience the place and time of a certain scene; it also registers a spatial awareness that help orientate the audience within the auditory space. In what follows, I propose to examine sound in Wilson’s two productions with Schafer’s event-oriented aesthetic, arguing that the significance of Wilson’s use of sound lies in how different kinds of sound can be interlinked, and how they can interact with theatrical components beyond any predefined hierarchy. Since each production of a sound signifies an event taking place in time and space, by examining sound as event, the limitation of a semiotic approach to sound is expanded, with increased sensitivity to sound’s three-dimensional materiality.

¹⁰⁷ Ibid., 131.

2.3 The Spatial Signatures of Voice in *A Letter for Queen Victoria*

While *A Chorus Line* started its journey toward becoming one of the longest running productions in Broadway history¹⁰⁸, a performance under the title of *A Letter for Queen Victoria* quietly opened at the A.N.T.A. Theatre on Broadway on March 22, 1975. Written and directed by Robert Wilson, *A Letter for Queen Victoria* was first performed on June 15, 1974 in Spoleto, Italy at the Festival of Two Worlds. After touring in Europe for a year with enthusiastic reviews, Robert Wilson decided to self-produce the show on Broadway, seeking a larger audience in his native soil and gaining mainstream exposure.¹⁰⁹ Despite the popularity of his works in Europe, Wilson remained unknown to most theatregoers in the New York City.¹¹⁰ “*A Letter for Queen Victoria* is Wilson’s seventh major production to date, but the first to be seen in a Broadway theater.” John Gruen from the *New York Times* wrote; “Its success or failure will depend on whether people agree with Jerome Robbins, who has said that 31-year-old Wilson is ‘one of the most extraordinary creative artists of our time,’ or with those who have stated that to be in the presence of a theater piece by Robert Wilson is to know boredom at its most excruciating.”¹¹¹ As it turned out, Wilson’s experimentation with the images and sounds of words did not pay off. *A Letter for Queen Victoria* closed after two weeks, on April 6, 1975, running for only a total of 18 performances.

¹⁰⁸ *A Chorus Line* opened at the Shubert Theatre on July 25, 1975 and closed on April 28, 1990. The original production ran for 6137 performances. As of today, it remains the sixth longest running original Broadway musical.

¹⁰⁹ In the contrary to the sponsorship he received in Europe, Wilson had a hard time finding financial support for his work in the United States in the 70s and the 80s due to the large scale of his works. Other than *A Letter to Queen Victoria*, he also self-produced *The Life and Times of Joseph Stalin* (1973), *The \$ Value of Man* (1975) and the revival of *Einstein on the Beach* (1984) at the opera house of the Brooklyn Academic of Music, to name a few.

¹¹⁰ After seeing the performance of Robert Wilson’s *Deafman Glance* in France, Louis Aragon, one of the co-founders of the surrealist movement, named Wilson “the future that we predicted” in his “Open Letter to André Breton” published in *Les Lettres Françaises*, June 2-8 1971.

¹¹¹ John Gruen, “Is It a Play? An Opera? No, It’s a Wilson,” *New York Times*, March 16, 1975.

A Letter for Queen Victoria has four acts, with an introduction and two entr'actes, lasting for a three-hour running time. Each act begins with a tableau; gradually, more performers are added. The dialogue among the performers follows rhythmic repetitions with no discernible pattern. With a different stage picture in the backdrop for each act, stage objects (including, a water tank, a rock, lettuce, a crocodile...etc.) and sound effects (gunshots, bomb blasts, train whistles, etc.) appear randomly from time to time, serving no connection to the stage events. Along with these stage objects, there is a string quartet, composed and arranged by Alan Lloyd, which plays throughout the entire performance while two dancers spin continuously for hours on downstage ramp areas. The first act features two female performers exchanging non-sequential dialogue with references to disparate topics as house chores, the Civil War and the mining in the Far West. By the end of the act, they take off the cover of their cloth with the white performer wearing black and the black performer white. The second act begins with a tableau of four performers wearing pilot jumpsuits and white helmets. While exchanging the meaningless dialogue, they change their tableaux with different light cues. The third act opens with five couples seated at café tables with a backdrop covered by the words "chitter chatter" written one hundred times. The couples chitter chatter throughout the entire scene while the sound of a wine glass shattering and gunshots are heard occasionally. The final act is a camp about a criminal conflict that erupts into robbery and murder. The performance touches on several themes as they are manifested in each act, but it seems like Wilson is more interested in the formal experimentation than making a socio-political statement.

Despite the lack of arias, recitatives and a discernible plot, Wilson called *A Letter for Queen Victoria* "an opera in four acts":

I call them operas because their construction is musical. By that, I mean there's an architectural arrangement of sounds and words and movements. In a sense, they are also like the ballet, in that they're constructed architecturally. I'm concerned with stage space—where people appear or not, where scenery is or is not. Themes appear and reappear, like themes in music. I am not interested so much in literary story-telling as in stories that are being told through themes.¹¹²

Theatre critics often found Wilson's definition of opera problematic since his work did not resemble opera in any conventional sense. However, for theatre critic John Rockwell, it was Wilson's interest in aural collage and musical composition that drove him to label his work as opera.¹¹³ As an opera, *A Letter for Queen Victoria* marked the first time that various sounds, especially the sounds of words (speech as pure sound value) played an important role in Wilson's work. Unlike his earlier plays which were dominated mostly by visual elements, *A Letter for Queen Victoria* was the first production in which Wilson turned his interest to sound and speech and assigned them the equal significance with visual elements: "I never liked theatre... Later I added words, but words weren't used to tell a story. They were used more architecturally: for the length of the word of the sentence, for the sound. They were constructed like music."¹¹⁴ Wilson's long-term collaborator Stefan Brecht saw Wilson's attempt to incorporate various sounds in this production as a sign of the decline of Wilson's theatre of visions. While Wilson's piece was still based on images rather than dramatic texts, Brecht suggested that it had "became adventitious to other concerns, more occasions, and their visual

¹¹² Gruen.

¹¹³ John Rockwell, "Robert Wilson Presents An 'Aural Collage'," *New York Times*, June 22, 1980. From a practical standpoint, only the opera houses of the time could be equipped to mount the massive scenery and scale of Wilson's work.

¹¹⁴ Robert Wilson, "A Letter For Queen Victoria: An Opera (1974)." UbuWeb, Accessed 12 March 2018. http://www.ubu.com/ubu/wilson_opera.html.

development no longer governed structure, an extrinsic arithmetic of repetitions did.”¹¹⁵ Whether Wilson’s experiment with the pure sound values of language was a sign of the decline of theatre of visions or not, his attention to sound effectively provided a point of departure for the exploration of his sound design aesthetics.

Wilson’s definition of opera was a key to understanding his aesthetics as it epitomized his approach to theatre at that time. Because of his background in painting, sculpture and architecture, Wilson prioritized images over the linear narrative and the arrangement of stage objects over the individual actor in his work. As a result of this aesthetic, he created dense operatic spectacles of disparate imageries, figures and objects and encouraged the audience to freely switch focus from stage objects to moving images to music scores, then to associate their own meaning of the performance based on the spatial relationships among these elements in the *mise-en-scène*. In this regard, Wilson’s work bore a similarity to Gertrude Stein’s idea on the link between theatre and landscape:¹¹⁶

The landscape has its formation and as after all a play has to have formation and be in relation one thing to the other thing and as the story is not the thing as any one is always telling something then the landscape not moving but always being in relation. The trees to the hills the hills to the fields the trees to each other any piece of it to any sky and then any detail to any other detail, the story is only of importance if you like to tell or like to hear a story but the relation is there anyway. And of that relation I wanted to make a play and I did, a great number of plays.”¹¹⁷

¹¹⁵ Stefan Brecht, *The Theatre of Visions: Robert Wilson* (Frankfurt am Main: Suhrkamp, 1978), 267.

¹¹⁶ The affinity between Wilson’s theatre and Gertrude Stein’s notion on “landscape” is evident. As Hans-Thies Lehmann has pointed out, Wilson read a passage of Gertrude Stein’s *The Making of Americans* in Heiner Müller’s funeral, remarking that it was after reading Stein’s book that he knew he could make theatre. see Hans-Thies Lehmann, *Postdramatic Theatre*. Translated by Karen Jürs-Munby. (New York: Routledge, 2006), 81.

¹¹⁷ Gertrude Stein, “Plays,” in *Lectures in America*, (Boston: Beacon, 1935), 125.

In an earlier review of Wilson's *The Life and Times of Sigmund Freud* (1969), Richard Foreman confirmed Wilson's landscape aesthetics. Foreman described Wilson's landscape as "a non-manipulative aesthetic which would see art create a 'field' situation within which the spectator can examine himself in relation to the 'discoveries' the artist has made within his medium."¹¹⁸

On one hand, the notion of landscape revealed Wilson's directorial effort to transform a theatrical piece from dramatic actions that followed a narrative structure into a landscape where various found and invented stage objects happened at once, functioning as elements of equal spatial significance. On the other hand, it established a vocabulary for discussing the spatialization of sound in Wilson work. Since Wilson employed various sounds as independent spatial elements beyond their illustrative dramatic roles, the auditory space within Wilson's work could be considered as an aural landscape where the meaning and function of these sounds resided in the dynamic relationship among them: "There were certain moods in the landscapes that helped in deciding what songs to use but the songs are not meant to illustrate the background. The background is like a picture book that makes sense on its own.... It's very difficult to see and hear at the same time and mostly we do one or the other. What I try to do in all my work is make a balance between what you hear and what you see, so that perhaps you can do both at the same time."¹¹⁹ Like a landscape, Wilson's aural landscape did not tell a story; instead it was an arrangement of sounds within the auditory space and a way of perceiving that environment.

¹¹⁸ Richard Foreman, "The Life and Times of Sigmund Freud," *Village Voice*, January 1, 1970.

¹¹⁹ Robert Stearns, ed., *Robert Wilson: The Theater of Images 2nd Edition* (Cincinnati, Ohio: The Contemporary Arts Center, 1980), 100-101.

Like most of Wilson's early works, *A Letter for Queen Victoria* was based on a historical figure.¹²⁰ Nevertheless, the concept did not evolve from Queen Victoria but from Wilson's interest in the words that were used to compose language in the nineteenth-century. Thus, the main character was the language, or to be more specific, the deconstruction of language. Wilson showed his interest in using words as autonomous objects beyond a carrier of linguistic meaning early in his career. In a "press conference" he gave in Yugoslavia in 1971, he repeated the word "dinosaur" again and again while cutting an onion simultaneously for twelve hours. To explain the idea behind the performance, Wilson said, "Students and other people would come up and ask why I kept saying 'dinosaur,' and I'd keep saying 'Dinosaur Dinosaur Dinosaur,' and after a while I'd feel as though I had answered their question. I suppose the idea is that we already know the answers to most of our questions. I wasn't sure whether or not I was actually saying other words, but I knew I was hearing other words, like 'disaster' and 'soaring.' It's very curious."¹²¹ When Wilson first started developing this piece, he received a re-written script of an original letter someone sent to Queen Victoria from Stefan Brecht. An excerpt of the script read as follow:

*ALBEIT IN NO WAY POSSESSED OF THE HONOR OF AN INTRODUCTION, AND INDEED INFINITELY REMOVED FROM THE DESERVING OF IT, YEA, SINGULARLY UNFIT FOR EXPOSURE TO THE BRILLIANCE OF YOUR SUN...A CONDITION SO ABJECT...THE SCARCELY FORGIVABLE PRESUMPTION...DEPRIVED OF THE LEAST TALENT FOR THE EXERCISE OF THE ARTS OF ADDRESS...TO WIT, A DEPRIVATION OF MERIT SO ABSOLUTE AS MUST, BY ITS MATHEMATICAL ABSURDITY...*¹²²

¹²⁰ A glimpse of the titles of Wilson's early works reveals his attempt to draw inspiration and base his work on historical figures: *The King Philip of Spain* (1969), *The Life and Times of Sigmund Freud* (1969), *The Life and Times of Joseph Stalin* (1973), and *Einstein on the Beach* (1976).

¹²¹ Robert Stearns, ed., *Robert Wilson: The Theater of Images 2nd Edition* (Cincinnati, Ohio: The Contemporary Arts Center, 1980), 92-3.

¹²² Robert Wilson, "The Letter" in Bonnie Marranca, ed. *The Theatre of Images* (New York: Drama Book Specialists, 1977), 46.

Wilson never saw the original letter and had no idea what changes Brecht had made to it. What drew Wilson's attention to the letter was not the text—as a matter of fact, he even admitted that he did not understand anything from the letter since it was all one sentence—but how language had considerably changed in just a century. After Brecht added a few more lines, Wilson decided to have four characters read this letter as the introduction of the performance. It is important to note that Wilson did not try to capture the essence of how the nineteenth-century language was used; rather, when language was used in the performance, it is non-sequential, non-referential, and mostly nonsense.

On one hand, Wilson's experiments with the sound of words and dissociation of language from its syntax epitomize the trend in postmodern theatre that disregards the importance of text, stripping the speech of its communicative agency; on the other hand, it shares the same spirit with avant-garde sound poetry that focuses pure sounds of words, favoring sensory presence over mimetic illusion or delivering message. However, Wilson does not really situate his approaches to the fragmentation of words and language within a theoretical or conceptual context. Most of the text in *A Letter for Queen Victoria* is in fact derived from Wilson's collaboration with Christopher Knowles, a teenager who was diagnosed as autistic, during the rehearsal process. Based on Wilson's observation, Knowles has a unique speech pattern in that he would take ordinary words and destroy them. In the early rehearsal process, Wilson asked his performers to imitate and communicate with Knowles in order to learn how to disassociate the meanings from words when they spoke.¹²³ During the rehearsal, Knowles and Wilson also engaged in meaningless speech practices that ended up being the two entr'actes in the performance. An excerpt of the first entr'acte is scripted as follows:

¹²³ Brecht, 271.

ENTR'ACTE #1

(CHRIS ON STAGE RIGHT AND BOB ON STAGE LEFT, EACH CLAPPING TWO WOODEN BLOCKS IN THEIR HANDS. SHOW CURTAIN IS BEHIND THEM)

1 HAP HATH HAT HAP
HAP HATH HAT HAP
HAP HATH HAT HAP
HAP HATH HAT HAP
HAP HATH HAT HAP
HAP HATH HAT HAP
HAP HATH HAT HAP
HAP HATH HAT HAP

2 (AT THE SAME TIME AS 1)

THE RED BED PIECE
THE RED BED PIECE
THE RED BED PIECE
THE RED BED PIECE
THE RED BED PIECE
THE RED BED PIECE
THE RED BED PIECE
THE RED BED PIECE

[...]

2 COSABI NHJGT BNHG VFCD CVFESW XCVF BGH NMKJI MNHJUYGTHFRD VBNH
BG V B BBNHJ BGV PER GLOS O CHOCOLATE
1 WHAT

[...]

2 THERE ARE THESE AN ELECTRO WHE WHE WHE WHE WHE WHE WHE WHE
WHEELS

1 THERE ARE THESE ELECTRO WHE WHE WHE WHE WHE WHE WHE WHE WHEELS WHE
WHEEL WHEELS SO THAT WE CAN HEAR

[...] ¹²⁴

¹²⁴ Marranca, 70-72. Wilson designates the characters not by name but by number.

The entr'acte begins with Wilson and Knowles building rhythms by clapping wooden blocks while shouting clusters of letters. Although they seem to be communicating with each other with what sounds like fragments of everyday conversation, none of the speech carries any coherent narrative. However, by removing language from its temporal and semantic contexts and by collapsing into what Arthur Holmberg describes as “sonic debris,”¹²⁵ this entr'acte summarizes Wilson's approach to drawing attention to the word's phenomenological aspect, and thus returns to Wilson's notion of constructing words as music. In her review, Bonnie Marranca pays attention to the musical aspect of this entr'acte: “Grounded in the dynamics of the personal relationship that Wilson and Knowles share, these ‘musical’ duets are completely naturalistic and open, and though they are not improvisational, they often appear so because of their exuberance.”¹²⁶ By privileging the signifier over signified, Wilson also transforms words into sound objects, and through their juxtapositions to other theatrical elements, he creates various sound events within the soundscape of the performance. As Wilson puts it, “You don't have to listen to words, because the words don't mean anything. You just enjoy the scenery, the architectural arrangements in time and space, the music, the feelings they all evoke. Listen to the pictures.”¹²⁷

The sound designs for *A Chorus Line* and *A Letter for Queen Victoria*, then, represented the extremes of theatre soundscape: At the one end was Abe Jacob's sound design which properly reinforced the dramatic actions on stage; at the other was Wilson's use of sound which evaded its traditional dramaturgical function and risked distracting the audience from focusing on the dramatic events on stage. These extremes can be best described as what Canadian

¹²⁵ Arthur Holmberg. *The Theatre of Robert Wilson*. (New York: Cambridge University Press, 1996), 46.

¹²⁶ Marranca, 43-44.

¹²⁷ Robert Wilson, quoted in Robert Brustein's introduction to Laurence Shyer, *Robert Wilson and His Collaborators* (New York: Theatre Communications Group, 1989), xv.

composer R. Murray Schafer refers to as *hifi* and *lofi* soundscapes.¹²⁸ In his studies, *Hifi* soundscapes allow you to hear all the discrete sounds from a distance due to the low ambient noise level. An example of a *hifi* soundscape is the quiet country night where you can clearly hear wind blowing through the trees while bullfrogs call in the pond with occasional car sounds in the distance. On the other hand, in *lofi* soundscapes, sound signals are blurred and obscured in a dense population of other sounds. It is as if standing in a busy street corner of the city, you are overwhelmed by sounds coming from all directions and cannot tell what the causes of these sounds are. In such soundscapes, perspective is lost. In order for certain sounds to be heard, amplification is necessary. Even though the distinction between *hifi* and *lofi* soundscapes provides a tool to describe the physical characteristics of a soundscape in terms of its signal-to-noise ratio, it is important to note that the concept of soundscape should not be reduced to merely quantitative acoustic valuation. The primary concern of soundscape is the study of the interaction of sounds in their given contexts.

In *A Chorus Line*, Abe Jacob, with the help of electroacoustic technology, made the sound seem natural and clear to the listener by localizing each sound to the same apparent acoustic perspective as the visual source. In so doing, the sound image projected through the loudspeakers remained properly located within the scene. Also, by hanging the loudspeakers over the center of the proscenium, Jacob successfully made the reinforced voice appear to emanate from the performer's mouth, securing the clarity and intelligibility of the musical text. In contrast to Jacob's sound design, words were mostly non-sequential, non-referential, and mostly nonsense, dominated by movement and gesture in *A Letter for Queen Victoria*. Whereas in conventional theatre words were used to communicate ideas and thoughts, Wilson reduced them to pure sounds by stripping away their syntactic and semantic logic and introduced them as

¹²⁸ Schafer, R. Murray, *The Tuning of the World* (New York: Alfred A. Knopf, 1977), 43.

autonomous components of the spatial and temporal structure of this performance. Along with these word sounds, Wilson also presents an aural collage consisting of layers of music scores, non-verbal vocal sounds like scream, grunts, and shrieks, and pre-recorded sound effects such as gunshots, bomb blasts, horses hooves and train whistles. In Wilson's aural collage, there was no clear localization of sounds; there was only presence of dense layers of different kind of sounds. In order for some dialogue to be heard as sound within this *lofi* soundscape, Wilson had to amplify the almost whispered dialogue so the characters could be heard without unnecessary effort.

Observing Wilson's juxtaposition of these different types of sounds in this production, Bonnie Marranca concludes: "Just as Queen Victoria is founded on movement minus time and character minus personality, sound has no meaning."¹²⁹ Among theatre scholars and critics, Marranca was not the only one who found Wilson's use of sound perplexing. Patrice Pavis felt the same way when reviewing Wilson's play *The Golden Windows* (1982) as he admitted: "it simply comprises vocal and rhythmic material to be used as a plastic element without any claim to semantic referentiality—so it would be quite fruitless to launch oneself into scholarly exegesis."¹³⁰ Finding Wilson's sound meaningless and impossible to analyze, their anxieties reflected the limit of an approach to theatre sound borrowed from a semiotic model. Within this model, each sound perceived by the audience can be seen as a sign through which information about the performance is communicated. In order to create meaning for the audience through this communication, a sound design based on semiotics associates each sound with an illusional

¹²⁹ Bonnie Marranca, ed. *The Theatre of Images* (New York: Drama Book Specialists, 1977), 41.

¹³⁰ Patrice Pavis, *Analyzing Performance*, trans. David Williams (Ann Arbor: University of Michigan Press, 2003), 207.

intent, concerning the arbitrary meaning of signs.¹³¹ For instance, in order to establish locale, sound effects generally complement scenery and lighting by providing background sounds to indicate the environment in which the action occurs. These sound effects, such as a doorbell ring, a chorus of birds chirping, or distant traffic noises, are usually reduced to individual signs. For a sound to have meaning, it has to serve a certain dramaturgical function within a wider system of visual signs so that the audience can understand the message or concept of a production. Since most of the sound in Wilson's work is neither a representation of an invisible stage object nor the expression of an idea, how does his use of sound fit into the traditional understanding of sound's role in theatre?

Although the performance of *A Letter for Queen Victoria* was not equipped with the dense technologically enhanced sound environment that is typical to Wilson's later work, his deconstruction of language can be considered his first step toward creating an immersive auditory space. Our ears are culturally trained. Just as those listeners in Cage's *4'33"* who tried to look for silence instead of paying attention to the environmental sounds, listening to the voices and sounds in theatre, the audience tends to automatically associate words with their meaning and sounds with their sources. However, Wilson's approach to sound forces the audience to accept his work on pure terms, removed from any cultural conditioning. By deconstructing language, Wilson is able to bring life to verbal text that does not have the function of telling a story or communicating a meaning. In perception, words make their appearance to be listened to like environmental sound or to be seen as a stage object, as if the atmospheric elements had been gathered together in the room. In his review, theatre critic Edwin Wilson provided his "earwitness" account: "To hear the same nonsense dialog repeated over and over again would

¹³¹ A quick survey of the dramaturgical functions of sound in most theatre sound design textbooks and practices reveals that this approach still dominates the design of sound for theatre today.

appear to be the most boring exercise imaginable. But if you simply accept it, putting aside anger and a frantic search for meaning, quite possibly the third time around certain ideas and emotions or a long-buried memory will present themselves to you. It will be your own private vision and can fill you with wonder and amazement.”¹³² In order to maintain the autonomy of sound and image, Wilson insists on preserving the affective and perceptual distance between his stage imageries and audience. While his landscape can be comparatively static framed by the stage, his soundscape is always dynamic, immersing the audience a spatial and musical disposition. After his collaboration with German sound designer Hans Peter Kuhn, this already dynamic soundscape has been further enriched by Kuhn’s reshaping of the auditory space in theatre.

2.4 The Multi-Channel Sound System in *Death, Destruction & Detroit*

Death, Destruction & Detroit was created with the support of German director Peter Stein and it premiered on February 12, 1979 at the Schaubühne am halleschen Ufer, Berlin, Germany. It was a play in two acts and 16 scenes in which scene 1 mirrored scene 9, scene 2 mirrored scene 10, and so on. The original *DD&D* started with a photograph that Wilson found in the flea market. He did not know what it depicted, but he was attracted to the photograph that showed three prisoners using a minesweeper behind a wall. Later, he found out it was a photo of Rudolf Hess in Berlin’s Spandau Prison. Since Wilson always based on his work on significant historical figures, upon the discovery of story behind the photo, he decided to tell a story about Hess. Wilson’s dramaturgy for *DD&D* was described thus:

The “central” character in *DD&D* was Rudolf Hess, a fact kept carefully masked in Berlin for fear of misinterpretations intruding on a proper appreciation of the play... the

¹³² Edwin Wilson, “Theatergoing as an Adventure or An Ordeal,” *New York Times*, March 28, 1975.

action [is] a series of more or less direct reflections on the figure, his impact and his resonances through his time to ours... The final scene of *DD&D*, for instance, found an old woman standing outside a wall and, in essence, lamenting her personal loss. But she did so in a broken recitative full of memories of Hess's private idiosyncrasies. It was intensely moving—especially if you knew the woman was Mrs. Hess and the wall was a replica of Spandau Prison where Hess is incarcerated.¹³³

According to Wilson, there was a tradition for European theatregoers who expected to look for political messages within a play. Even though Wilson's stage images referenced Hess and the Spandau wall, most of his assemblage of found objects and images, particularly the backdrops, drew heavily on American pop culture references.¹³⁴ Once again, Wilson defied the audience expectation on finding message as he structured the text like music, claiming, "I am not trying to tell a story, I'm just trying to make an architectural arrangement of these musical verbal elements."¹³⁵

The production of *DD&D* also marked several "firsts" for Wilson. It was the first time Wilson worked with a group of trained professional actors. Among them, most critics considered Otto Sander, who played the central character Hess, to be the key player in bringing Wilson's flat and meaningless monologues to life. It was also the first time Wilson worked with a professional dramaturg. At the Schaubühne, he worked with Peter Krumme, who was an intellectual and artistic director for the house. Since Wilson's background was in art and architecture rather than history and theatre, this collaboration immediately expanded the possibilities of what Wilson could do with his work. In terms of the scenography, while Wilson still framed his stagecraft in

¹³³ John Rockwell, "Robert Wilson's Stage Works: Originality and Influence," in Stearns, 27.

¹³⁴ For a brief summary on each scene, see. Katherine Arens, "Robert Wilson: Is Postmodern Performance Possible?," *Theatre Journal*, Vol. 43 No. 1 (March, 1991), 34-35.

¹³⁵ Robert Wilson, "Death Destruction & Detroit: Robert Wilson's Tale of Two Cities," *Performance Art Magazine*, Issue 1 (1979), 7.

the proscenium tradition by rebuilding the performing in space in Schaubühne to make a proscenium, it was the first time Wilson had the luxury of experimenting with lighting. For *DD&D*, Wilson had three and a half weeks of lighting rehearsals. Whereas the lighting rehearsal was done at night without the actors, Wilson had all the actors there with their makeups and costumes on the whole time for three and a half weeks to set up every cue carefully. This effort resulted in some very detailed lighting design such as projecting a white line on the actor's hand, and then lighted one side with warm color and the other cool. Finally, it was the first time Wilson worked with a professional sound designer who had an audio engineering background. At the Schaubühne, Wilson met sound engineer Hans Peter Kuhn who had overseen the sound designs of several major productions such as Peter Stein's *As You Like It* and Klaus-Michael Grüber's *Die Winterreise*. Prior to working with Wilson, Kuhn's sound design followed a literary tradition that merely used sound as incidental to the action or as underscore to cover the noise of the scene change. In *DD&D*, Wilson provided a chance for Kuhn to rethink the role sound plays in theatre, and Kuhn pioneered a sound design in theatre that focused on building environmental sound into a complete layer of acoustics, transforming the auditory space into an immersive soundscape.

While many theatres today have surround speakers installed, it was an approach unheard of when Kuhn started hanging loudspeakers in the auditorium for *DD&D*. The earliest attempt at creating an auditorium surround sound system for a theatrical production could date back to English director George Devine's *The Tempest* in 1940:

[Devine] also used optional amplification, so that at some moments the isle could be full of sweet sounds, and at others the auditorium could be flooded with musical tumult. The opening scene presented a ship based on a medieval painting which also pitched the characters about in the storm, while out front Goldschmidt's orchestration of Mozart's C

minor Piano Fantasy was coming at the audience from all directions over loudspeakers. This kind of environmental treatment was ahead of its time, and when it reached the public there were those (like Harcourt Williams) who felt that poetry was being displaced by stage management.¹³⁶

Even though this approach to auditorium sound was ahead of its time, it did not receive a positive reception. On one hand, as Harcourt Williams suggested, this mediated sound system made the theatre artifice too obvious. On the other hand, having sound coming from all directions put the audience's expectation for a direct and focused listening experience at risk. As a general rule, most sound effects and underscores occurring within a production tend to be localized within the area defined by the stage picture because our perception of the location of an object is not the perception of the sound, but of the source that creates the sound. Therefore, sounds whose sources need to be perceived by the audience as part of the dramatic action must have their speakers located within the scenery to create visual images that do not distract from the rest of the performance. Just because the audience's ears are culturally trained and they are accustomed to not making any noises in the auditorium, Devin's audience back in the 1940 might have totally ignored the sound coming from the auditorium during the performance, just as Cage's audience in *4'33''* ignored the environmental sounds and considered the performance a silent piece. To create a sound environment is not just to fill the auditorium with sound coming from all directions; it also invites the audience to listen to the space in a different way.

Since Wilson's sound design aesthetic is based on keeping the image and sound separate entities and one does not need to illustrate the other, he does not concern himself with this approach to the localization of sound within the stage picture. In their first meeting in 1979 for

¹³⁶ Irving Wardle, *The Theatres of George Devine* (London: Cape, 1978), 86.

the production of *DD&D*, Wilson made two initial requests to Kuhn: “the principal performers should all wear body mikes and their voices should seem to come from somewhere other than their own mouth.”¹³⁷ Having just finished a design for Klaus-Michael Grüber’s *Die Winterreise* in Berlin’s enormous Olympic Stadium, where he meticulously miked the centered character and amplified his voice and breath over the entire stadium as he ran around the performing space, Kuhn made a quick comparison: “It [*Die Winterreise*] was a beautiful atmosphere. Usually what we try to do is make high fidelity. Here it was the opposite, we had low fidelity.”¹³⁸ Although Wilson’s request confused Kuhn at first, he was able to follow Wilson’s direction and further develop it: “Just separating the voice from the performer is not very interesting. It’s like having a TV with the speakers on the side, after a while you hear the sound coming from the images anyway. It’s an acoustical-psychological phenomenon, your brain switches it over. So I said why don’t we make something more complicated, something that makes a complete other space.”¹³⁹ What made Kuhn’s idea unique was his attention to creating an auditory environment that was separated from the stage rather than imitating the kind of surround sound system in film industry.

A comparison between the two acoustic fields revealed that the main difference between a surround sound system and Kuhn’s auditory environment was the directional and perspective requirement. The film surround sound system as developed by Dolby Laboratories in the mid-1970s was a surround system in which sound was localized to the screen with additional surround loudspeakers as channels to provide additional effect and spatiality. In other words, sound might appear to come from all directions within the auditorium, but the audience should be able to track the movements of the sounds through space as they maintained a direct focus to

¹³⁷ Laurence Shyer, *Robert Wilson and His Collaborators* (New York: Theatre Communications Group, 1989), 235.

¹³⁸ *Ibid.*, 234.

¹³⁹ *Ibid.*, 235.

the screen. Whereas the function of the surround sound was to reinforce the localized sound within the screen, Kuhn's auditory environment was an omnidirectional acoustic field in which sound might or might not appear to come from the stage but somehow immersed the audience. In nature, Kuhn's approach to reshaping theatre's auditory space through the specialization of sound was closer to Cage's "total sound-space" made possible by two magnetic tape recorders and a disc player.

As a result of his attempt to create an isolated auditory environment, Kuhn hung loudspeakers not only on stage but also in the auditorium for *DD&D*:

We had a line of 10 little speakers grouped around the sides and back of the auditorium. There were nine separate spots in the house, four for voices and five for taped sound effects. We also had speakers in the ceiling, the proscenium and backstage. So you were completely covered by sound.... There are lots of speakers around the house putting out the same signal rather than one big speaker so you don't have a situation where one person hears something faintly and another gets blasted.¹⁴⁰

Based on his description, Kuhn's auditory environment is based on a multi-channel and multi-speaker installation. This type of aural representation is particularly effective for creating an immersive soundscape because the audience was surrounded by arrays of loudspeakers. The multi-channel auditory environment also made sound diffusion—the spread of sound in space—easy to achieve. By having a sound coming from a particular speaker within the theatre, it created the illusion that the speaker location was the momentary source of the sound. By having a sound traveling from one speaker to the other one, it created movement of sound in its own dramatic space. Compared to the film surround sound, Kuhn's multi-channel approach was more

¹⁴⁰ Ibid.

flexible since he could treat the individual loudspeaker as a point of sound source, and avoided the illusion of phantom images that could be created between any two loudspeakers.¹⁴¹ When some of the loudspeakers received a similar level of reverberation or other sound cue, they would connect to form a sense of acoustic space. By sending different sound effects, underscores, and voices to different groups of loudspeakers simultaneously, there was a possibility of creating multiple acoustic spaces within the theatre.

With this sound system installed and individual actor miked, Kuhn was able to animate the stationary acoustic environments by moving the actors' amplified voices around the theatre. While Abe Jacob painstakingly created the phantom image of the Broadway singers' amplified voices to make them sound as if they emanated from the singers' mouths, Kuhn dispersed actors' voices, making them occupy different areas and bounce around in the theatre. As Andrzej Wirth' review indicated, Kuhn's approach created a disorienting spatial disposition of sound: "the speaker is accompanied by, but never identical with his voice. His statements are produced by him; they belong to the space...Separated from the actor, language and speech are elements of a spatial, not written, text."¹⁴² Within a theatre soundscape, it is usually the background sound events that typify a space while the foreground sonic events, in most case the actor's voice, provide specific information that the listeners know how to interpret. In *DD&D*, the interpretation of the actor's voice was beside the point since Kuhn moved the foreground sound events to the background as spatial signatures. In addition to dispersing voices, Kuhn created a dense layer of pre-recorded speech, music and sound effects on different tapes. For each performance, along with the dispersed live amplified voices, there were as many as a dozen

¹⁴¹ For instance, in a left and right speaker setup, it is possible to create a convincing phantom center image through sound. However, the disadvantage with the creating a phantom image is that this illusion collapses easily when the listener is not placed exactly between the left and right speaker.

¹⁴² *Ibid.*, 236.

different tapes of sound running simultaneously. In Laurence Shyer's review, he stated that to sit in the auditorium was "to be adrift on an ocean of sound, which like deep water can turn suddenly from calm to turbulent, lulling us one moment and buffeting us the next."¹⁴³ While the auditory environment Kuhn created was atmospheric and peaceful at this moment, in the next scene, it could turn into a sensory overload in which different tracks of sound effects of explosion, machine gun shot, shattering of glass or overlapping processed speech were played simultaneously. Be it atmospheric or chaotic, the underlying principle for creating this auditory environment was the same as elsewhere in Wilson's work: visual image and aural image were separated and disconnected. Since the visual had one story to tell and the aural had another, the audience experienced a world that had two parallel realities. It was Wilson's hope to employ the designed auditory environment to sound out the auditory space of theatre, but also to bring the visual to light.

Whether it is Kuhn's technologically constructed auditory environment for *DD&D* or Wilson's deconstruction of language in *A Letter for Queen Victoria* that speaks to the creative rather than technical aspect of sound design, they not only break but also blur the boundaries in theatre, as they immerse both the stage into the auditorium, and the auditorium into the stage. Examining the sound design in these two productions within the context of the spatiality of sound, this chapter concludes that sounding out the auditory space is to create an auditory environment in which the arrangement of different kind of sounds is as important as the perception of this acoustic space. Theatre sound is no longer considered to be merely representation of the locale, but has become a medium of perception that brings us to the auditory space of the world of theatre.

¹⁴³ Ibid., 233.

CHAPTER 3

Sounding Out the Electronic Sculpting of Sound

3.1 Introduction

In 1913, Luigi Russolo, at the time the youngest member of the Italian futurist movement, wrote a letter to his friend the composer Francesco Balilla Pratella, explaining his desire to create a new music based on the Futurists' obsession with the innovations of the machine age. This letter was later published as his now famous "The Art of Noises" manifesto in which he proposed to approach music as "noise-sound" and to include the sounds of a modern industrial society, the sounds that were mechanically produced and the sounds of nature in the new Futurist music. Russolo wrote: "Ancient life was all silence. In the 19th Century, with the invention of machines, Noise was born. Today, Noise is triumphant and reigns sovereign over the sensibility of men."¹⁴⁴ For him, the progress of music was intimately intertwined with the development of the machine instead of the development of harmony and chords:

This evolution of music is comparable to the multiplication of machines, which everywhere collaborate with man. Not only in the noisy atmosphere of the great cities, but even in the country, which until yesterday was normally silent. Today, the machine has created such a variety and contention of noises that pure sound in its slightness and monotony no longer provokes emotion.... Beethoven and Wagner have stirred our nerves and hearts for many years. Now we have had enough of them, and we delight much more

¹⁴⁴ Luigi Russolo, *The Art of Noises*, trans. Barclay Brown (New York: Pendragon, 1986), 23.

in combining in our thoughts the noises of trains, of automobile engines, of carriages and brawling crowds.¹⁴⁵

Since the Industrial Revolution, the acoustic environment of the city and the countryside had undergone a dramatic change. People became accustomed to the honking of car horns, the rumbling of trains, the clamor of factory works. In Russolo's belief, the tonality and harmonics in the conventional music robbed it of its capacity to reflect everyday life, and it was these noises of the environment that aroused the true emotions of the listeners.

Unsatisfied with the traditional orchestra's limited range of instruments, Russolo proposed an art of noises based on a mechanical futurist orchestra with the six families of noises ranging from roars, whistling, whispers, screeching, noises produced by beating on metals, and voices of animals and people. To produce these effects, Russolo enlisted the percussionist Uno Piatti to help him build noise-generating machines called *intonarumori*. These devices consisted of megaphone horns attached to wooden boxes with handles. Based on the noises these instruments produced, they were categorized into twelve types, including the howler, the roarer, the crackler, the rubber, the hummer, the gurgler, the hisser, the whistler, the burster (1), the burster (2), the croaker, and the rustler.¹⁴⁶ In April 1914, Russolo unveiled these machines in a Futurist concert. Along with Filippo Marinetti, he performed three compositions or "networks of noises," as he called it, under the titles of "The Awakening of a City," "Dining on the Hotel Terrace," and "The Meeting of Automobiles and Airplanes." According to a review, the rustling and detonating noises annoyed the audience, and after few bars of the first piece, a riot broke out.¹⁴⁷ Although viewed in his time as an eccentric, Russolo's notion of "noise-sound" and his

¹⁴⁵ Ibid., 24-25.

¹⁴⁶ Barclay Brown, "The Noise Instruments of Luigi Russolo," *Perspectives of New Music* 20, no. ½ (Autumn 1981-Summer 1982): 43.

¹⁴⁷ Russolo, 34.

attention to the technological progress of his time inspired a wave of sonic explorations by electronic composers in the 1950s. As Steve Connor asserts: “Perhaps the great initiator of this tradition [the liberation and autonomization of noise from the formalizations of musical sound] which runs through the work of Edgard Varèse, Pierre Schaeffer, Pierre Boulez and John Cage, was the Italian futurist Luigi Russolo, who called...for an art of noise which would liberate the musical possibilities of noise in general.”¹⁴⁸

With *The Art of Noises*, Russolo’s new musical aesthetic anticipated two changes in music in the twentieth century. First, music was deconstructed and new musical vocabulary was introduced. Captivated by his attack on harmonies and scales, composers like John Cage developed chance operations as a way to compose music. Like Russolo, Cage was interested in opening music to the environmental sounds, both pitched and non-pitched. In his 1938 composition *Bacchanale*, Cage experimented with placing different objects such as pieces of rubber, screws and bolts, and weather-stripping under and between the piano strings, attempting to alter the timbre of piano and disrupt the consistency of the scales. In so doing, Cage introduced new sounds to prepared piano composition and transformed the piano into a new percussive instrument. Second, inspired by Russolo’s passion for technology, the very way music was generated changed with the rise of recording technology and the coming of electronic instruments. While Russolo’s futurist orchestra aimed at reproducing the sounds of the industrial age, Edgard Varèse’s *organized sound* or Pierre Schaeffer’s *musique concrète* seized on electronic equipment and tape recorders as new mediums of musical expression.¹⁴⁹ As opposed

¹⁴⁸ Steven Connor, “Feel the Noise: Excess, Affect and the Acoustic” in *Emotion in Postmodernism*, edited by Gerhard Hoffman and Alfred Hornung (Heidelberg:Universitätsverlag C. Winter, 1997), 156.

¹⁴⁹ French-born composer Edgard Varèse (1883-1965) coined the term “organized sound” in reference to his electronic musical composition. Redefining music as “organized sound,” Varèse blurred the conventional distinction between music and noise. In his work, he focused on the materiality of sound—timbre, texture, and the space. Varèse’s two compositions in the 1950s, “Déserts” (1950-54) and “Poème Électronique” (1957-58), were

to sound reproduction, new qualities of sound were created through technical possibilities and the production of music was no longer limited to traditional acoustic instruments. At the first New Music America Festival sponsored by The Kitchen in 1979, British musician and producer Brian Eno gave a lecture under the title of “The Studio as Compositional Tool” in which he introduced the effects of recording technology on composing music.¹⁵⁰ He argued that the transition from recording on disc to recording on tape had transformed the recording studio into an instrument with its own means of reproduction. While recording was traditionally regarded as a medium that preserved and transmitted a certain performance to an unknown listener, the mutability provided by more advanced recording technology like the tape recorder and, later, the digital computer, has enabled musicians to transcend time and space, and in the process has created new sounds and performances.

Just as the growth of music is affected by the technological progress which parallels it, the possibilities of making of theatre sound in the twentieth century are also intertwined with the effective integration of sound reproduction technology into production practice as an equal significant part of the scenography. Even though theatre has never had the resources to invest in the development in audio technologies, it is always adept at adapting the latest technological innovations either from the film industry or radio broadcasting. Founded in 1935 in New York, Masque Sound was the first company to provide sound rental services, which included pre-

considered early examples of electronic music and his ideas of “organized sound.” “Musique Concrete” was a compositional practice developed by French composer Pierre Schaeffer in the 1940s. The name of this new practice derived from Schaeffer’s concrete use of sounds in the environment. Schaeffer transformed recorded material into new sound objects by tape composition methods and created new structure of music. Schaeffer’s approach to music opened up the new sonic possibilities of electronics and ushered in an era of studio-based composition.

¹⁵⁰ See Brian Eno, “The Studio as Compositional Tool” in *Audio Culture: Reading in Modern Music*, edited by Christoph Cox and Daniel Warner (New York: Continuum, 2004), 127-130.

recorded sound effects and loudspeakers, to the professional theatres.¹⁵¹ Founder John Shearing invented a playback machine called the “spotter and dropper” which was a 78 r.p.m. record player incorporating a device to ensure that the pick-up arm would be drop into the right groove when a sound effect was cued in performance.¹⁵² In the early 1960s, sound effects libraries became commercially available and tape machines replaced turntables for playback in theatre. The coming of tape recording equipment provided a more efficient tool in the control and cueing of sound effects in theatre.¹⁵³ While the tape recorder changed acoustic creation and music composition in other field, how did it open up the dramatic possibilities of sound when adopted by the theatre? Did the new audio technology and creation process reshape the perception of the nature of the performance, shifting the auditorium from a passive place of listening to a participatory zone of improvisation between the machine and its operator?

This chapter addresses these questions and challenges the notion that sound reproduction technology was not effectively integrated into production practice in theatre until the coming of digital audio technologies in the 1980s. It also examines how recording technology, especially the transition from the disc recorder to tape recorder since the late 1940s, has influenced Richard Foreman’s tape technique in his early works in the 70s. Granted, digital audio and computers have enabled sound designers infinite possibilities for creating virtual sound by sampling and

¹⁵¹ From around 1935 to 1955, Masque Sound used RCA equipment from the movie industry. They switched to Altec A4 “Voice of the Theatre” loudspeaker after it was introduced in 1941. See Collison, *The Sound of Theatre*, 114.

¹⁵² Collison, *The Sound of Theatre*, 115.

¹⁵³ The efficiency of cueing sound with a tape machine was debatable. As stated in Harold Burris-Meyer’s theatre sound design textbook *Sound in the Theatre* (1959), he believed that cueing with tape machine was more efficient since there was no chance of groove skipping or playing discs out of order or wrong side up. However, David Collison held a different view towards tape. In his own sound design of the West End production of *Cat on a Hot Tin Roof* (directed by Peter Hall) in 1957, he recalled that when the tapes were played in the vastly different acoustic of the theatre, the mix was always wrong and the timings were off. It got worse when the director wished to hear a sound effect recorded in a different part of the tape; he had to wait for a long time while the technician tried to locate it by going backwards and forwards with the tape. As a result, some of the sound effects ended up being cut by the impatient the director in the rehearsal. See Collison, *The Sound of Theatre*, 159-160.

editing sound from various sources in theatre; yet, the aesthetic concepts and artistic choices of these practices were invented by artists using tape composition techniques. Compared to the sound reproduction system that was efficiently incorporated to the production practice in the 70s such as Abe Jacob's incredibly realistic sound amplification in *Jesus Christ Superstar* (1971) or Hans Peter Kuhn's elaborate immersive sound environment for *Death, Destruction, and Detroit* (1979), the making of sound effects in theatre was either based on the conventional mechanical devices or pulling from effects libraries on discs.¹⁵⁴ It was Richard Foreman's affiliation with minimalist composers like Steve Reich and La Monte Young, and his subsequent use of tape loops and microphone technique with the actors in the works of his Ontological-Hysteric Theater, that caused the experience of sound – from both an acoustic and perceptual perspective – to transcend the causal and semantic stricture of the traditional sound dramaturgy, suggesting a new approach to designing sound in theatre.

In this chapter, I examine how Richard Foreman employed sound technologies in his work in the 70s by moving the craft of mechanical sound making out from the wings and bringing into stage in the form of tape recording voices and loops of different layers of sound effects. Just as the forerunners in electronic music, Foreman's sound design focused on the organization of sound effects with their expressive rather than representational meanings and his tape techniques predated two aspects of the standard sound design practice in the digital age. First, with the flexibility of recording technology, sound was no longer an image in compliment to the fictional world of the performance but an autonomous object, participating in the

¹⁵⁴ In the extended version of *Sound in the Theatre* published in 1979, Burris-Meyer provided a list of sound effects that were better created through conventional mechanical devices. Given the flexibility possible with electronic sources and equipment, there was a tendency to depend on such gear when it comes to make sound effects. However, Burris-Meyer argued that sound effects such as clash of glass, weapon or explosion were better created through mechanical means off stage to better reinforce the realistic illusion of a performance. See, Burris-Meyer, *Sound in the Theatre*, 20-24.

dramaturgy of the performance. Second, with the possibility to manipulate sound's timbre and spatial nature in real time, the sound designer was no longer a technician, but a performer and composer who organized and conceptualized a series of sound events that interacted with the actions on stage. In what follows, I return to my point of departure and contextual framework: a brief history of the transition from the phonograph to tape recorder, and the roots of aesthetic choices, effects and techniques that were descended from the early days of the applications of these recording technologies to musical composition. I pay specific attention to Pierre Schaeffer's notion of sound object and Steve Reich's tape composition because they not only directly influence but also provide a framework to discuss Foreman's use of sound in his staging techniques.

3.2 Recording technology's influence on musical composition

Sound recording began with Edouard-Léon Scott de Martinville's invention of phonograph in 1857. It was a device that attached a stylus to a membrane, causing the membrane to vibrate with a sound allowing it to engrave its track on a glass cylinder covered by a thin stratum of lampblack. While Scott's phonograph transformed the transient sound into "writing," a visible medium that would allow sound to be seen and studied, he did not intend for this device to play back sound. It wasn't until Thomas Edison mechanically constructed a prototype of the phonograph in 1878 that the wax cylinder became a recording device as well as a reproduction device. By liberating sound from the space in which it was performed and from the performers themselves, the phonograph rendered sound repeatable. Still, it did not mean that copies of these early recordings could be made easily. Since the early phonograph could only produce the same number of recordings as the cylinders were running, to mass-produce a

recording, the performer had to play the same tune again and again. In 1887, Emile Berliner replaced cylinders with flat discs and developed a method of mass producing records by pressing copies from a single master recording. The arrival of radio broadcasting in 1921 began to affect the sale of records, and the mass reproducible disc, which was only a reproductive medium, was soon adopted by record companies due to the growing consumer market for records. Initially, disc's reproductive quality was inferior to cylinder, but the disc was less expensive and more accessible. In the late 1920s, with the electrification of the recording process and the launch of the first electric record player by the Brunswick Company, recording techniques and sound reproduction quality was largely improved. Moreover, electric recording allowed engineers to “design” sound for the first time by controlling the volume and adjusting frequencies.

In his 1930 essay “The Composer in the Machine Age,” American composer George Gershwin outlined the many changes in musical composition's forms and tonalities that had arisen in response to recording technology. Gershwin's assessments on the machine expressed an ambivalent relationship between the composers and the repeatability of recording. On one hand, Gershwin believed that it helped the documentation and distribution of music: “The composer, in my estimation, has been helped a great deal by the mechanical reproduction of music. Music is written to be heard, and any instrument that tends to help it to be heard more frequently and by greater numbers is advantageous to the person who writes it.”¹⁵⁵ On the other hand, he showed a concern, shared by other composers, that new music machines would substitute the human beings and distort the taste in music.¹⁵⁶ Gershwin wrote: “[N]o matter how much the world

¹⁵⁵ George Gershwin, “The Composer in the Machine Age” in *The George Gershwin Reader*, edited by Robert Wyatt and John Andrew Johnson (New York: Oxford University Press, 2004), 122.

¹⁵⁶ Gershwin was certainly not the first one who expressed recording technology's negative influences on composers. John Philip Sousa, American composer and conductor of the late Romantic era, voiced his concern about recorded music in a 1906 essay entitled “The Menace of Mechanical Music.” He wrote, “I foresee a marked deterioration in American music and musical taste...in this twentieth century come these talking and playing

becomes a Machine Age, music will have to be created in the same old way. The Machine Age can affect music only in its distribution. Composers must compose in the same way the old composers did. No one has found a new method in which to write music. We still use the old signatures, the old symbols. The composer has to do every bit of his work himself.”¹⁵⁷ By assuming the performance’s ontological priority over recording, Gershwin’s reminder espoused an age-old aesthetic of recording realism and the documentary value of recording.¹⁵⁸ For instance, based on composer Mark N. Grant’s observation, the pre-1920 original studio cast records of Broadway musicals were powerful documents of the live performance and musical practices of the time because the technology for editing had not yet developed.¹⁵⁹ While the recording technologies were designed for documentation and reproduction, the insistence on the transparency of recording failed to recognize that recorded sound was mediated sound. This mediation has affected more than the ways in which composer’s works were circulated; it has led composers to adapt their musical practices and opened up the possibilities of how music is composed and perceived.

Among the few composers who had explored the musical possibilities of recording technologies since the 1930s, recording was regarded as a device for transmitting and preserving

machines that offer to reduce the expression of music to a mathematical system of megaphones, wheels, cogs, discs, cylinders and all manner of revolving things.” See, John Philip Sousa, “The Menace of Mechanical Music” *Appleton’s Magazine* 8 (1906): 278.

¹⁵⁷ Gershwin, 122.

¹⁵⁸ Even though recording is far from an objective acoustic mirror given the technical aspects of the recording process and the stylistic demand of technician. For instance, the different placements of microphones during a recording session could result in different perceptions of the dynamic of a recorded instrument. By placing a microphone right up against the instrument and another one for the rest of the orchestra, the engineer can manually make the instrument louder than the rest of the orchestra in a recording session. However, record companies have implemented the idea of recorded sound as a transparent representation of sonic as a marketing strategy since the turn of the twentieth century. In order to sell records, they would use terms such as “lifelike,” “a true mirror of sound,” “natural,” and “the real thing” to describe the sound quality of a record. See, Mark Katz, *Capturing Sound: How Technology Has Changed Music* (Berkeley: University of California Press, 2010), 2.

¹⁵⁹ Grant, *The Rise and Fall of The Broadway Musical*, 203.

a performance.¹⁶⁰ It was French radio engineer Pierre Schaeffer's experiments with the broadcasting equipment in Radiodiffusion Françaises (RF) that transformed the recording device from a reproduction to a production medium, opening up the sonic possibilities of musical composition. Schaeffer's exploration of recording technologies started when he served as an engineer and broadcaster in RF in 1942, where he had access to the station's equipment including phonograph turntables, mixers, microphones, a disc-cutting lathe, a library of sound effects, and later, tape recorders. As a result of his experimentations in RF, Schaeffer pioneered the construction of music by using recording tools to manipulate and deform recorded sounds into a completely different musical structure. In the traditional compositional process, music was first conceived by the composer and then interpreted by performer. However, Schaeffer's compositional process began with concrete sound rather than an abstract score as he started from the manipulation of concrete sounds before editing them into the abstract musical structures. He referred this compositional practice as *musique concrète*, for his "concrete" use of recorded sounds from an existing collection:

Composers of *musique concrète* begin by recording various sounds (either musical sounds or noises of indeterminate pitch) and then, by speeding them up, slowing them down, filtering or inverting them, metamorphose these sounds into "sound objects" (*objets sonores*) whose origin it is not always possible to distinguish.¹⁶¹

¹⁶⁰ In the 1930s, a few composers, among them Paul Hindemith, Ernst Toch and John Cage, had experimented with recording medium as an instrument. Hindemith and Toch employed the gramophone as an instrument rather than a recording device in 1930 at the Neue Musik festival of contemporary music in Berlin. Cage's interest in nonmusical sound was reflected in his first live work of electronic music *Imaginary Landscape no. 1* (1939), in which he employed a small percussion ensemble and turntables playing electronic test tones.

¹⁶¹ André Hodeir, *Since Debussy: A View of Contemporary Music* (New York: Grove Press, 1961), 140.

On October 5, 1948, Schaeffer broadcasted his completed works *musique concrète* in a program called *Cinq études de bruits* (*Five Studies of Noises*) with assistance from the classically trained composer Pierre Henry and the audio engineer Jacques Poullin. The five pieces were:

1. *Étude aux chemins de fer* (a montage of locomotive sounds recorded at a train depot).
2. *Étude aux tourniquets* (for xylophone, bells, and whistling toy tops called tourniquets or whirligigs).
3. 4. *Étude au piano I et II* (both using piano material recorded for Schaeffer by Pierre Boulez).
5. *Étude aux casseroles* (using the sounds of spinning saucepan lids, boats, human voices, and other instruments).¹⁶²

Historically, *Cinq études de bruits* marked several conceptual and technical breakthroughs in electronic music and sound art. First, these pieces were created entirely through audio technology.¹⁶³ Since the tape recorder was not yet commercially available, in order to edit different sounds in sequence, Schaeffer had to manipulate sounds in real time during the recording by playing back them and re-recording them directly onto disc masters repeatedly. Second, the sound sources of these pieces were derived from pre-recorded sounds that were not musical. For Schaeffer, music notes were too abstract in the sense that they were not sounds but dots and circles and could only be performed on traditional instruments. Since the recording of musical instruments carried intrinsic musical contexts, Schaeffer introduced in these pieces the recording of natural sounds, sounds of locomotives at the Batingnelles train depot, human voices

¹⁶² Holmes, *Electronic and Experimental Music*, 53.

¹⁶³ Schaeffer composed these pieces using only the equipment in RF, including four turntables, a disc-cutting lathe, a four-channel mixer, microphones, audio filters, a reverberation chamber, a portable recording unit, and sound effects from the radio station library and his own field recordings.

as well as sounds of spinning saucepan lids.¹⁶⁴ Last but not least, since these pieces were composed entirely with phonograph turntables and were played through turntables as finished pieces, the performances did not require any musicians.

With the birth of *musique concrète* as a compositional practice, Schaeffer did not merely offer a montage of recorded sounds taken randomly. He first modified the recorded sounds as musical resources and then proceeded to arrange them rhythmically and sonically. However, since the sounds within these pieces were composed in sequence, the listeners tended to associate these sounds with their sources, a habitual way of listening that focused on the structure meaning behind a sound rather than the sound itself. In the first study, *Étude aux chemins de fer*, Schaeffer presented a collage of sounds recorded at a train depot. Despite the process of manipulation with recording tools, he found that the locomotives were too intelligible. As such, for Schaeffer, it was just a soundtrack illustrating the rhythmic pattern of a train yard instead of a real concrete use of sound that studied its intrinsic dimensions.

In order to better conceal the source of these sounds, some techniques were emerged from Schaeffer's *musique concrète*. First, Schaeffer considered each individual sound source within his composition a **sound object**. To create a sound object, Schaeffer would isolate a sound from its context, manipulating it through audio technologies until its source was not traceable. The idea of sound object was crucial to Schaeffer's development of *musique concrète* because freeing sound from the confines of abstract music notes allowed him study the traits that make up the composition of a sound. For Schaeffer, the idea of sound object was more than a way of manipulating sound but also a way of listening. He called this way of listening "reduced listening," which required the listener to ignore the implications of sources and meanings that a

¹⁶⁴ As a compositional practice, the term *musique concrète* has been commonly misunderstood as a practice that is limited to music produced by combining various recorded "natural" sounds. However, it could be any sound that has been recorded onto a medium for playback.

sound might create and to focus on the intrinsic qualities of a sound. In *Guide to Sound Objects*, Schaeffer's disciple Michel Chion explained the relation between a sound object and reduced listening:

The name of sound object refers to every sound phenomenon and event perceived as a whole, a coherent entity and heard by means of *reduced listening*, which targets it for itself, independently of its origin or its meaning.... It is a sound unit perceived in its material, its particular texture, its own qualities and perceptual dimensions. On the other hand, it is a perception of a totality which remains identical through different hearings; an organized unit which can be compared to a "gestalt" in the psychology of form.¹⁶⁵

The other techniques that Schaeffer invented to modify a sound object were the **close groove** and the **cut bell**. The close groove was a looping technique that Schaeffer invented by cutting into a circular groove on a disc so it could play a continuous loop. By repeating part of a continuous sound, Schaeffer not only modified the sound but also brought awareness to the reduced listening. The close groove technique predated tape splicing. With the advent of the tape recorder, this technique was replaced by the tape loop, which was created by connecting the ends of a recorded magnetic tape. The experiment of the cut bell was a way that Schaeffer employed to distort a sound by using volume control to manipulate its intensity and envelopment. Schaeffer found that by erasing the initial attack of a bell sound and applying the close groove technique to loop the ensuing resonance of it, he could transform the sound of a bell to a sound similar to a flute. By introducing the sound objects to the compositional process, Schaeffer not only expanded the music vocabulary for the electronic music, but also transformed the recording tools into instruments, pushing the concept of a studio-based composition.

¹⁶⁵ Michel Chion, *Guide to Sound Objects*, trans. John Dack. (2009),32. Accessed 15 April 2018. (https://monoskop.org/images/0/01/Chion_Michel_Guide_To_Sound_Objects_Pierre_Schaeffer_and_Musical_Research.pdf)

Although the German company AEG had given the first public demonstration of a precursor to the tape recorder called “Magnetophon” at the Berlin Radio Fair in 1935, the tape recorder was not in general use due to the commercial success and some initial advantages of phonographic discs. Since the gramophone was an acoustic instrument, as opposed to the magnetic recorder, which was electric, it was easier to amplify and to mass-produce. During World War II, the Germans improved the recording and playback quality of the tape recorder so it could be used to pre-record propagandistic radio speeches and serve as a surveillance technology for recording phone calls. It wasn’t until the end of the war when the U.S. military captured the German tape technology that they found out the Germans had developed paper and plastic magnetic tape which had a superior quality over all other forms of recording. By the early 1950s, tape had become standard in all professional recording applications. In *Sound in the Theatre* (1959), sound engineer Harold Burris-Meyer and Vincent Mallory pronounced: “Any direct source of recorded sound other than magnetic tape is now obsolete for theatrical use. By getting rid of disc records, the production is ensured against deterioration of the recorded signal. Cueing is no longer a problem and there is no chance of groove skipping, or of playing discs out of order or wrong side up.”¹⁶⁶

Based on A. C. Shaney’s tape manual published in 1950, as a recording medium, tape had several distinct advantages over discs.¹⁶⁷ To name a few, tape could record longer programs – up to eight hours – while discs had a shorter recording time. The sound quality of any disc diminished after multiple playbacks since every record wore with each playing. Tape, on the other hand, did not have the same problem of diminished sound fidelity even after many thousands of playbacks. The most notable difference between the two recording mediums was

¹⁶⁶ Burris-Meyer, 75.

¹⁶⁷ A. C. Shaney, *Elements of Single and Dual Track Magnetic Tape Recording and 1001 Applications* (New York: Amplifier Corp. of America, 1950): 9-13.

that tape could be spliced to join together passages recorded at different times. While Schaeffer in *Étude aux chemins de fer* had to re-record sounds over and over in real time to put them in sequence on a disc, it could have been done with tape splicing in one recording session. The transition from disc to tape has had a significant effect on the way music is made because as soon as sounds were recorded on tape, it became a raw material that could be cut and spliced in ways that discs were not. This editing technique meant that a recording did not necessarily represent a single performance. For example, the beginning of a song could be from one take and the end from another take recorded hours later. The recording of a performance no longer had to be rooted in contiguous time and space. Allen Weiss has provided an extensive list of the new compositional techniques due to the introduction of tape recording:

Super-position of sounds; stereo and multi-track recording and mixing; distribution of sound through loudspeakers; canon or phasing consisting of two identical recordings played successively; new and complicated phrase lengths permitted by cutting and splicing; precise regulation of frequency and dynamics, and the consequent extension of such extreme dynamic and frequency ranges; rhythm patterns created by calculating duration by tape length; extreme speed changes; retrograde forms; loops; use of empty tape and white noise; transient noise, thanks to the precise and extremely brief switch-on and switch-off time of electroacoustic equipment; fading used to produce timbre transitions; sound filtering and ring modulation ultimately creating novel sounds.¹⁶⁸

In 1964, Glenn Gould, the leading classic pianist who had been touring with the world's greatest orchestras, suddenly announced his retirement from public concert recitals, retreating to the recording studio. For Gould, the perfect performance could only be produced in the recording

¹⁶⁸ Allen S Weiss, *Phantasmic Radio* (Durham: Duke University Press, 1995), 44.

studio; spliced and pieced together from multiple takes. In his most-cited 1966 essay “The Prospect of Recording,” Gould outlined the influence of electronic equipment—especially microphone and tape recorder—on the musical composition, which includes “the reiterated note pattern, with measured crescendo and diminuendo; the dynamic comparison between close-up and far-distant statements of the same configuration; the quasimechanical ritard or accelerando; above all, the possibility of a controlled release and attack of sound.”¹⁶⁹ While Gershwin assumed that once the musical composition become machine driven, it would cease to be an art, Gould believed that the work itself was more important than the performer’s virtuosity. In the quest for perfection, composers had to compromise with their limitations and assumed more of an editorial role in the process of composition by taking advantage of recording and post-recording manipulation. Gould’s idea of a recording as a more definitive version of a piece of music than live performance was also evident in jazz. While jazz was often praised for its virtuosic improvisation in live performance, the most influential and acclaimed jazz musician Miles Davis also embraced the tape recorder as a compositional tool as he would record extended improvisations and edit and reassemble them for a finished piece. For instance, in *A Silent Way* (1969), each track was pieced together by Davis and his producer Teo Macero from segments of a long improvisation session and edited into a new whole.¹⁷⁰

While tape recorders had considerable influence on classic, jazz, rock and pop music, they also played an important role in minimalism, a branch of modern classic based on the musical activities led by a group of classically trained musicians in the New York downtown

¹⁶⁹ Glenn Gould, “The Prospects of Recording” in *The Glenn Gould Reader*, ed. Tim Page (New York: Alfred A. Knopf, 1984), 345.

¹⁷⁰ The live performance of *A Silent Way* was recorded in a single day in February of 1969. The musicians who played on the album were among the best jazz musicians at the time: Wayne Shorter (Soprano sax), John McLaughlin (electric guitar), Dave Holland (bass), Tony Williams (drum), Chick Corea (electric piano), Herbie Hancock (electric piano), and Joe Zawinul (organ).

scene in the late 1960s.¹⁷¹ Among these composers, Steve Reich's early minimalist compositions were entirely based on tape loops and phase shifting. Phase shifting was a process in which two identical tape loops were played on two separated tape recorders and then were allowed to go out of phase as the speed of one of the tape recorders was slightly increased or decreased. As the sounds went in and out of sync with one another, Reich could create new combinations of timbres, rhythms, and harmonics. "My interest then was to have some good tape recorders and work with tape loops and tape-loop feedback. The electronics were opening up new ideas in music for me."¹⁷² In *It's Gonna Rain* (1965), Reich's first tape work using the recording of the voice of a Pentecostal street preacher he had recorded in San Francisco in 1964, two identical loops of the preacher's voice "it's gonna rain" began in unison, moved completely out of phase with one another as one recorder was faster passing in speed than the other, resulting in "its gonna... its gonna... rain... rain...", and finally came back together in unison. By applying phase shifting to his composition, Reich was able to magnify the expression of the voice musically with repetition and rhythmical pulse. While Reich's approach to composition was influenced by Schaeffer's *musique concrète*, his treatment of human voice as a sound object was different from Schaeffer's:

I was interested in real sounds, what was called *musique concrète* in those days, but I wasn't really interested in the pieces that had been done. I thought that they were boring,

¹⁷¹ As a style of music, Minimalism involves stripping down music to a pure sound event by constructing compositions that employed simple harmonic principles, techniques of repetition and combination of both acoustic instruments with new electronic ones. This group of composers includes La Monte Young, Terry Riley, Steve Reich, Philip Glass, and Michael Nyman, to name a few.

¹⁷² William Duckworth, *Talking Music: Conversations with John Cage, Philip Glass, Laurie Anderson and Five Generations of American Experimental Composers* (New York: Da Capo Press, 1999), 277.

partly because the composers had tried to mask the real sounds. I was interested in using understandable sounds, so that the documentary aspect would be a part of the piece.¹⁷³

In *musique concrète*, Schaeffer insisted that the sounds being used for composition must be concrete (modified) and refused to let a natural sound stand on its own within the context of music. However, Reich believed that natural sounds had some kind of emotional resonance. By incorporating them into the composition, they could bring in some kind of emotional and theatrical expression. When Reich recorded the voice of the Pentecostal street preacher's sermon about Noah in 1964, it was not something abstract to him; instead, the voice was closely related to the Cuban Missile Crisis and people thinking they could be turned into radioactive ash at any given time. Reich's tape composition not only marked a departure from the norm of the electronic music of the time but also heavily influenced Richard Foreman's use of sound in the works of his Ontological-Hysterical Theatre. It was exactly Reich's use of tape loops and human voice as a source material that inspired Foreman's use of recorded dialogue, which typified much of his works in the 70s.

3.3 Richard Foreman and the Ontological-Hysterical Theatre

In 1968, Richard Foreman and his Ontological-Hysterical Theatre presented its first play *Angelface* at the Film-Makers' Cinematheque.¹⁷⁴ For Foreman, Cinematheque was not just a performing space but also a turning point for his theatre career. While studying playwriting at Yale University with John Gassner, Foreman had become more and more discontent with the

¹⁷³ Ibid., 296.

¹⁷⁴ The Film-Makers' Cinematheque was founded by Jonas Mekas. In its early days, the Cinematheque often changed location and sometimes the venues used were advertised under different names. In 1964, Mekas built the first permanent Cinematheque at 80 Wooster Street in Soho. After the fire department closed it as a film theatre because it didn't have a film-screening license, Mekas offered the ground floor loft space for Foreman to produce his theatre work in 1968.

structure and narrative of conventional theatre. In his last year at Yale, he happened upon one of the earliest screenings of the New American Cinema in Jonas Mekas's Cinematheque.

Immediately, the raw elements of the creative process of these underground films impressed Foreman and liberated him from the shackles of conventional theatre: "Gassner taught us to write and rewrite, whereas all these young Americans were into the post-Kerouac thing of using what gets on the page, or in this case what gets on the screen, as evidence of where you're coming from. So their films are very raw. Lots of time you'd see the splices, you'd see the dots when the reel runs out....They were glorifying this kind of home made, hand made, cottage industry style art. Up till then I'd only thought, no, it's got to be slick, professional. I thought I was going to be a Broadway playwright, writing plays for big audiences. These films just reoriented me totally. I realize that I had to be honest about where I was, where I was coming from, and what I was trying to do."¹⁷⁵ While these films introduced Foreman to a different set of creative and performative vocabulary, what impressed him the most was the way these filmmakers reoriented the audience's perception through various filming and editing techniques. Reviewing the filmmaker and performing artist Jack Smith,¹⁷⁶ Foreman observed:

That extended slowness, combined with the continual (and somewhat calculated) going wrong of every performance, brought the audience into *a state of present attention* that is precisely what other theater avoided in order to affect (i.e., manipulate) its audience. The theater generally hypnotizes; it pulls one into a dream that imitates a place in which the spectator would like to be. (Even Wilson falls into this habit.) The theater of Smith, along

¹⁷⁵ Richard Foreman, "Interview with Ken Jordan, 1990," last accessed April 20, 2018. <http://www.ontological.com/Interviews/InterviewWithKenJordan1990.html>

¹⁷⁶ Jack Smith (1932-1989) was an American filmmaker and performance artist. He was best known for his controversial film *Flaming Creatures* (1962). Because of the scenes of nudity, orgies, masturbation, and homoeroticism, the authorities confiscated the copies of the movie at the premiere and banned its subsequent screenings. As an actor, Smith presented live performances from the 60s to the 80s as well as performing in the early works of Robert Wilson and the Ridiculous Theatrical Company.

with other manifestations that took place in those days of Cinematheque performance, avoided that through building into performance various ‘confounding’ devices’—in Smith’s case the great slowness informed by a feeling that ‘everything was going wrong,’ which made it hard for the audience to remember what was happening at the same time that it was fascinated by what was, indeed, happening in a time rhythm that both spectator and performer were experiencing in sync.¹⁷⁷

With the “confounding” devices such as obscure camera movement, the scratch of the film stock, and the repetitive shots, it drew attention to the medium itself and the process of watching the film rather than the traditional elements that composed the narrative of the content. For Foreman, watching these films allowed him to sit back, detached, and observe what he was watching. Since Foreman’s affinity for the traditional theatre that manipulates and appeals to the audience on an emotional level had grown over the years he was at Yale, this stylization and distancing opened a new door for the development of his own theatre aesthetics. Hence, one of Foreman’s goals in his production of the Ontological-Hysteric Theatre was to disrupt the habitual way of seeing and to challenge the preconceptions of the audience with his text and staging. As he proclaimed in one of his early manifestos: “Character, empathy, narrative—these are all straitjackets imposed on the impulse so it can be dressed up in a fashion that is familiar, comforting, and reassuring for the spectator. But I want a theatre that frustrates our habitual way of seeing, and by so doing, frees the impulse from the objects in our culture to which it is invariably linked.”¹⁷⁸ In Foreman’s theatre, he wanted to make the audience aware not only of the performance as a finished product but also of the process of making the performance . By

¹⁷⁷ Richard Foreman, “During the Second Half of the Sixties,” in *Jack Smith: Flaming Creature His Amazing Life and Time*, ed. Edward G Leffingwell, Carole Kismaric, and Marvin Heiferman (London: Serpent’s Tail, 1997), 26. Italics mine.

¹⁷⁸ Richard Forman, *Unbalancing Acts: Foundations for a Theater*, ed. Ken Jordan (New York: Theatre Communications Group, 1992), 4.

disrupting the habitual patterns of viewing theatre, the audience could become aware of its own perception of the events unfolding on stage, rather than being involved and identifying with it.

Whereas the production of conventional theatre was based on the collaboration between playwright, director and designers, there was no collaboration in Ontological-Hysterical Theatre. In the creative process, Foreman was foremost a playwright, then a director, and finally a designer who built the scenery and props, recorded sounds, and focused lights. Since Foreman was involved in every aspect of the production and most of the dialogues of his plays were prerecorded on tape, his plays were sometimes considered as mere background for his scenography. However, the text was as important as his visual work. Every production started with text, which was generated from notebooks in which he kept daily logs of his random thoughts. As a result, Foreman's play text was not only fragmented but also self-referential: it was a documentary of how his mind operated when writing a play: "I wanted a theatre that did the opposite of 'flow' –a theatre that was true to my own mental experiences, that is, the world as being pieces of things, awkwardly present for a moment and then either re-presented by consciousness or dropped in favor of some other momentary presentation."¹⁷⁹ Often in Foreman's text, a line delivered by a character was best understood as Foreman having an ongoing dialogue with himself, commenting on the process of writing and what had just been said. For instance, a dialogue in *Rhoda in Potatoland* (1975-1976) was read as follows:

VOICE (pre-recorded by Foreman as a voice-over)

It should be easier than this.

What.

(Pause.)

Writing good.

Don't you know? There's nothing to it.

What.

Writing good.

¹⁷⁹ Richard Forman, *Plays and Manifestos*, ed. Kate Davy (New York: New York University Press, 1976), ix.

What makes me think writing is important.
(*Shrugs.*) Everybody does it all the time so it must be important.
She doesn't do it.
Who. (*Pause.*) Rhoda? She's always writing.
Everybody is always writing.

RHODA
(*Enters.*)
Hello.

VOICE
She wrote it.

RHODA
Am I late.

VOICE
She wrote it.

RHODA
She said it.

VOICE
Look, look compare her to a typewriter.¹⁸⁰

While Foreman's shift from writing conventional plays to his self-referential texts was a result of encountering the underground filmmakers in Cinematheque, he also acknowledged that Gertrude Stein's theoretical writings on theatre, especially her theory of the "continuous present," were the primary influence on the structural dimension of his plays. For Stein, the use of the continuous present was a writing method and staging technique of structuring a play based on a moment-to-moment composition of the piece instead of developing a coherent narrative and plot. In so doing, it eliminated a perceived syncopation between the emotional experience of the spectator and the emotional movement of the theatrical event on stage. Traditional theatre placed the audience in the position of remembering the past events at the same time anticipating the

¹⁸⁰ Richard Foreman, "Rhoda in Potatoland," in *Plays and Manifestos*, ed. Kate Davy (New York: New York University Press, 1976), 208.

upcoming climaxes or resolutions. This placement made Stein nervous and uneasy because it required her to read the performance in a predetermined way and put her either behind or ahead of the storyline in terms of emotional understanding.¹⁸¹ To resolve this perceived syncopation and reorient the audience's focus to the continual present, Stein proposed to view a play as a landscape. While traditional theatre experience followed a causal progression, the landscape presented different objects and events simultaneously. Like Stein, Foreman conceived his play and stage picture as a landscape in which all the design aspects participated in the moment-to-moment composition of the piece: "Ontological-Hysteric Theatre is a form of concrete theatre in which the moment-to-moment resistance and impenetrability of the materials worked onstage are framed and re-framed so that the spectator's attention is redistributed and exhilaration slowly invades his consciousness as a result of the continuous presentation and re-presentation of the atomic units of each experienced moment."¹⁸² In inventing his own stage reality, Foreman wanted the stage to present and re-present constantly, and for the audience to be intellectually awake and attentive to the multidimensional reality of what is being presented.

Whereas the traditional scenography was designed to serve the text in a complementary manner—whether it functioned to represent a specific location or to emphasize a particular directorial concept, Foreman refused to apply meanings to the visual elements within his scenography. Just as the texts derived from notes of his daily logs, the different components that contributed to his stage image emerged from what went through his head during the rehearsal process. For Foreman, these visual components did not have any particular visual effect or dramaturgical function; instead, they were significant in the way they created dense textures of an environment for the multivalent way of seeing:

¹⁸¹ Gertrude Stein, *Lectures in America* (New York: Random House, 1935), 99.

¹⁸² Richard Forman, *Plays and Manifestos*, xiii.

I'm visually very sophisticated, but I don't think in terms of making images. I wish I could get rid of scenery. I mean, to me, the most interesting experience I have of my plays is when I first sort of put them together and I'm sitting here and I'm reading very casually...again, what is this play about this year: "ah it's a racing car...oh yes, this is a scene with pancakes." And all that just vaguely flutters through my mind against a background, not focused on it, this wall which has no reality, it's all in limbo, and I would like to get that limbo sense in the theater. I think I do to a certain extent and the complexity of the décor creates that because it's sort of unreadable.... [T]hese visual issues are important to me in a way, but they are not important in the sense that Bob Wilson is visual in that he's trying to make striking pictures. I'm really not interested in that. I'm only interested in a kind of psycho-spiritual tension. I can see that images resolve; often times there are images, but that's not something I worry about. They're on stage, it's a moment which combines sound, light, gesture, together they make something balanced on the edge of life, an attempt to evade all categories.¹⁸³

Although Foreman's invention of stage-images for his productions evolved over the years, several components remained noticeably consistent as they were always in a state of being stylized and distanced in the process of performance. In most of his productions in the 70s, the most noticeable feature of Foreman's scenography was the strings that crisscrossed the performing space, sometimes connecting two stage objects or performers and sometimes dividing the stage from the audience. Although the performance took place in a small loft with no front curtain and a raised platform for the stage, Foreman did not attempt to break the audience performers in terms of the spatial configuration. The spectator would view the

¹⁸³ Richard Foreman, quoted in Babak A. Ebrahimian, *The Cinematic Theater* (Lanham: Scarecrow Press, 2004), 22.

performing space from the same direction, as they would in a traditional proscenium stage production. Foreman's use of strings not only framed the stage into a variety of geometric shapes but also added another level of distancing and psycho-spiritual tension: "I've long felt that theatrical space is not clearly enough defined; it never seems to have the density of something you can touch or taste, and I miss that. I found I could add compositional tension to the stage by crisscrossing it with lines of string, which lent the space a shimmering, hovering quality."¹⁸⁴ This compositional tension was intensified when the lights hung above the stage were focused into the audience's eyes rather than illuminated the objects on stage. For Foreman, the collaboration between the strings and lights turned the stage into an equal component of his stage image instead of a container to display the materials of the performance. Other identifiable components of Foreman's stage images included nude actors, mostly female, standing in grotesque tableaux and moving in an exaggerated way, props and set pieces with homemade quality, Victorian style lamps, overstuffed furniture and fringe, and Renaissance paintings, frames and chandeliers. Unlike Robert Wilson, Foreman's scenographical aim was not create a spectacle to immerse the audience. "Whatever happens onstage," Foreman declared, "bounces off the walls of the set, and is reflected back and forth between the objects that are positioned inside the space."¹⁸⁵ It was clear that the function of the components of his stage image was not to trigger memories and emotions of the illusionary world of a play so that the audience can associate and identify with it. Instead, they were the constant reminder of Foreman's stage reality, forcing the spectator to confront the text and the performance and questioning their modes and methods of perception.

Even though the visual components seemed to be at the core of Foreman's scenography, the aural material was also an important part of his design, though he found the process of

¹⁸⁴ Foreman, *Unbalancing Act*, 59.

¹⁸⁵ *Ibid.*, 57.

designing sound more challenging in comparison with his design of visual components. In an interview, Foreman admitted: “I’m constantly wishing I could find a way to make the listening be more important, and I find it very difficult to do that.”¹⁸⁶ After leaving Yale, Foreman started to work at Cinematheque, in charge of booking performances. It was during that time that Foreman presented the first concert of minimalist composers Philip Glass and Steve Reich in New York. Just like the underground film movement had inspired his writing and staging techniques, this group of minimalist composers would have a profound influence on Foreman’s technique of sound design. “In music—Phil Glass less than La Monte Young, but you know, Phil, Steve Reich, and La Monte. Seeing La Monte Young’s first concert was a revelation. He was a profound influence upon me. So at that time I thought, ‘Hey, what I’m going to do in the theatre’s what all those guys are doing in their fields.’”¹⁸⁷

3.4 Richard Foreman as a Sound Designer

Sound was an important element when Foreman translated his texts into the theatrical event, as he notes: “The sound-layering I use—tapes of repeated words, noises, music—also serves to reflect the multiple pulls of the visual and ideational aspects of manuscript.”¹⁸⁸ If Foreman’s visual elements on stage served to disrupt the habitual way of viewing, his use of sound not only added another layer to the density of his stage reality but also called into question the traditional way an audience listened to and understood the world of a play. Foreman’s sound design originated as a practical solution to the acting problem caused by his cast of non-actors, and it subsequently developed into a highly complex technique with his extensive use of tape

¹⁸⁶ Ebrahimian, 24-25.

¹⁸⁷ Charles Bernstein and Richard Foreman, “A Conversation with Richard Foreman,” *TDR* 36, no. 3 (Autumn, 1992), 107.

¹⁸⁸ Richard Foreman, “How I Write My (Self: Plays),” *TDR* 21, no. 4 (December, 1977), 13.

recorders. While the tape recorder generally served as a playback device in conventional theatre, Foreman employed it as an instrument to compose the multiple layers of sounds within his production. In what follows, I discuss Foreman's sound design from three aspects: First, the practice of taping dialogue, which had become a trademark of Foreman's production since his first production. Second, Foreman used a variety of tape-recorded one-syllable words, sounds and noises with no identifiable sources as framing devices in order to punctuate and foreground a particular word, object, action or tableau. Finally, the background music Foreman created by sampling and layering multiple tape loops simultaneously. Rather than developing it melodically, this technique created an ever-evolving soundtrack that highlighted the non-narrative, continuously present nature of Foreman's productions.

Foreman's use of tape-recorded voice in his productions was partially a result of his use of non-actors and partially a result of being exposed to minimalist musician's Steve Reich's tape composition. In *Angelface* (1968), Foreman decided to cast his non-actor friends to play the roles in the play, with no intention of training them in the traditional style of acting since the characters had no narrative or psychological basis. Foreman disliked the conventional acting-centered theatre where your entry into the world of the play was through the performer's virtuosity in creating a psychological connection with the audience and thus arousing their empathy. By presenting non-actors on stage, who had no preconceptions of how to behave, Foreman could stage the kind of raw quality he experienced watching underground films and maintain a certain distance between the stage and the audience, forcing them to attend the awkward and grotesque performance of his performers. However, during the rehearsal, he realized that it was too difficult for his nonactors to memorize all the lines in the two-week rehearsal time. Inspired by the minimalist composers' manipulation of sound through a tape

machine, the solution that Foreman discovered to concretize the text was to put them on tape: “I thought it would be interesting to get that thickness, that kind of overlay of sound in language that I’d heard not only in La Monte, but especially in some of the works of Steve Reich, the early works that dealt with shifting pulse patterns.”¹⁸⁹ Foreman described the tape technique employed in *Angelface*:

The actor recorded, monotonously and at a fairly quick speed, all of the lines. They read through the play with the pauses. In performance the tape was played and the actor, as soon as he heard one of his own lines coming over the tape, would start to repeat that lines as soon as it began. But where the recorded line was spoken at normal speed, he would, in repeating it, delay after each word, so that he never got to finish the line. If on the tape, he started another line in that same unit, he could either continue his original line or pick up the new line. Another rule was that when they got to a pause, wherever they were on stage, when the tape stopped, all of the actors stopped.¹⁹⁰

Foreman considered the language of his texts, especially in his early plays, a kind of “process language” or “phenomenological language.” Since the primary dramaturgical function of his use of language was to register actions on stage and add to the density of the stage-image rather than communicating ideas, the semantic meaning of the dialogue was taken away and broken into units of varying lengths via pauses, which served as a stage direction. Because of his distaste for the sound of the spoken American language on stage, Foreman prohibited his actors from projecting their voices. During the recording session, the actors were asked to speak slowly and clearly, reading their lines in an unemotional and uninflected manner. In so doing, Foreman believed that the audience could hear the quality of the words ringing through the text without

¹⁸⁹ Richard Foreman, “Interview with Ken Jordan, 1990.”

¹⁹⁰ Kate Davy, *Richard Foreman and the Ontological-Hysterical Theatre* (Ann Arbor: UMI Research Press, 1981), 141.

being manipulated by the performer's emotions. While Foreman recorded individual characters' lines on tape, he would also record his own voice for the lines designated as "Voice" or "Legend" in the texts. When his voice was heard during the performance, it functioned both as commentator by directly addressing the audience and as a character in the form of a voice-over interacting with other characters on stage. Since Foreman employed the tape recorder not only as a means for recording but also as an instrument, it became an integral part of his design which allowed him to "conduct" the performance. During the performance, Foreman would sit in the first row of the audience right in front of the performing space, operating the tape recorder from a small table. As the rules implanted by Foreman indicated, the performer could only proceed with their speech or movement when the recorded material was heard; if it was not heard, they could not speak or move. Since the performer's movement was completely dependent upon the speech recorded on tape, Foreman could easily control the pace and tempo of each performance by stopping the tape to hold the action or bringing the tape in sooner to fast-forward the actions. As Michael Kirby pointed out: "Using these techniques, Foreman is able to control performances to a degree that is impossible with traditional methods."¹⁹¹

However, it was not merely the controls available for tape recording that gave Foreman's tape-recorded dialogue a unique quality. By having the performers repeat the same lines once they heard them from the loudspeaker, Foreman was able to create a phase shift similar to Steve Reich's experiment with the process of phasing in his tape composition *It's Gonna Rain*. While Reich's phase shifting was created by two identical loops of human voices going in and out of sync, Foreman recreated the effect with live performers delivering their lines at a slower rate than the tape. As Foreman's scenography became more elaborate, his use of the recorded voices

¹⁹¹ Michael Kirby, "Richard Foreman's Ontological-Hysterical Theatre," *TDR* 17, no. 2 (June 1973), 15.

to explore the musical process of phase shifting became increasingly complex. An excerpt in *Sophia = (Wisdom) Part 3: The Cliffs* (1972), when Rhoda spoke about a dream, illustrated this:

RHODA

(Bells start and they still roll)

I (**VOICE**: “I”) ha (ad) a (a) fun (ny) dre (eam) las (st) ni (ight)
a (a) bout (ut) th (he) a (a) bom (min) na (able)
sn (now) ma (an).

(Organ music begins)

BEN

I (I) ha (ad) o (one) o (of) m (my) be (est) id (deas)
to (oo).

RHODA

(They are still rolling.)

Te (ell) me (e) ab (bout) i (it).

VOICE

Not yet. Not yet.¹⁹²

While Foreman still had the performers speak their lines live followed by the tape voice, he developed a technique to play different voices from different loudspeakers simultaneously. In this production, most of the time, the same tape voice was heard from both loudspeakers in mono. However, in the excerpt shown above, Rhoda and Ben’s tape voices were played from one loudspeaker; at the same time, Foreman’s voice (those words inserted in the parentheses) would be played almost simultaneously from the other loudspeaker, completing each word. Not only did Foreman’s approach create a phase shifting effect, it also obscured the line between speech and music. As the words went out of phase caused by the layering of different voices, Foreman created new combinations of timbres and rhythms with the dialogue. As the performer’s voices continued to be replayed on tape, accompanying by his own voice, Foreman’s sound system progressed from using one tape recorder and a pair of stereo loudspeakers to the use of a large

¹⁹² Richard Foreman, “Sophia = (Wisdom) Part 3: The Cliffs,” in *Plays and Manifestos*, 117.

reel-to-reel tape recorder, three small portable cassette tape recorders, and multiple loudspeakers beginning with the production of *Pandering to the Masses* (1975). Foreman described the technical advantages of this new system:

All the lines on tape were recorded by as many as four voices, alternating word by word. During the performance the tape was played back from loudspeakers located in the four corners of the performance space, so each sentence of dialogue would seem to circle the audience; they'd hear one word coming from the left side of the stage, then the next word from the right, and so on. We'd do it for the whole evening. The actors would slowly and softly repeat the lines of the character they were playing in counterpoint to the tape. Since the actors would speak at a slower rate than the tape they were cued by, it meant that they were soon overlapping each other as well as the tape. This would continue for a few lines, then a loud thud would interrupt, and a moment of silence would follow, clearing the air. Then the whole process would begin again.¹⁹³

The more elaborate sound system allowed Foreman to add movements to sound and to create a more sophisticated layering of live and recorded voices. Since there were loudspeakers in each of the four corners, Foreman would break down the dialogue into individual words and assign them to play from different loudspeakers. In so doing, he created an effect of the words traveling around the audience since they were projected from different loudspeakers one after the other. From time to time, the performer would be speaking a line live on stage while the next line from the other character would be heard from the loudspeakers. By layering live and recorded voices, along with other sound effects, noises and background music, Foreman was able to further complicate the dense soundscape of his production.

¹⁹³ Foreman, *Unbalancing Act*, 34.

Another distinctive feature of Foreman's productions was his use of different framing devices. For Foreman, a framing device was either a visual or aural element that disrupted the flow of the performance and reoriented the audience's focus to a particular word, stage object, action or tableau. For instance, Kate Davy described a sequence *Vertical Mobility (Sophia = (Wisdom) Part 4)* (1974), illustrating how a framing device worked: "At one point in the play the picture popped out of the frame leaving the frame and a square-shaped opening. Later, Sophia stood behind the wall, looking through the opening so that her face was framed. During a rehearsal Foreman added the beam of a flashlight so that her face also was framed by a small circle of light."¹⁹⁴ Based on Davy's description, a picture frame and the light were used as framing devices: as Sophia stood behind the empty frame, her face was framed; moreover, by adding the flashlight to focus on her face, it emphasized the depth of the space and, at the same time, created a close-up view of her face. A framing device did not always need to be a physical frame. In Michael Kirby's review of *Sophia = (Wisdom) Part 3: The Cliffs* (1972), he pointed out how Foreman used slide projection as a framing device to foreground the background music. Early in the second act, a man's voice was heard humming a jazz tune. After several moments, a series of slides came up:

THE WORKERS LIKE THAT KIND OF MUSIC.
EACH WORKER HAS A SEPARATE RADIO.

THE PEOPLE WHO ARE NOT WORKERS
PREFER MORE REFINED MUSIC.

THEY DO NOT NEED RADIOS.
THEY HEAR IT IN THEIR INNER EAR.¹⁹⁵

¹⁹⁴ Kate Davy, "Foreman's 'PAIN(T) and 'Vertical Mobility,'" *TDR* 18, no. 2 (June, 1974), 35.

¹⁹⁵ Kirby, 17-18.

Right after these slides came up, one performer asked the other what was on the radio, and the same voice humming a jazz tune was heard. Both performers stood in tableaux while it played. While Foreman's music was always played in the background, the use of slides reoriented the audience and brought their attention to the background music. Although there were many visual framing devices within Foreman's productions, he also introduced a variety of sound effects, noises, one-syllable words and pauses for framing lines and actions. The following excerpt from *Vertical Mobility* illustrates how different sounds functioned as framing devices:

RHODA

(Pause.)

He cannot speak openly, huh.

(Pause.)

Oh, Max, I do not recognize—

MAX

What.

RHODA

The room

(A "ping" against the word "room.")

MAX

Look.

(Pause.)

It became very beautiful. Oh Rhoda.

(A "thud" against the word "beautiful.")

ALL

Shhhhhhh.

(Pause.)

We are now in Paradise

(A "thud" against the word "Paradise.")

RHODA

I know it.

MAX

Is it beautiful enough.

RHODA

No.
(A loud “NO!” immediately after Rhoda’s “NO.”)¹⁹⁶

The repeated use of pauses, thuds, and one-syllable words, such as “What,” “Look,” or “Shhhhhh,” were the common sounds Foreman employed to break the syntactical flow of language, highlight certain words in the text, and provide cues for the performers. Other common sound effects he used as framing devices included ticking of a metronome, buzzers, bells, foghorns, pings, whistles, shattering glass, screams, and boings. Oftentimes, Foreman would present these sounds as what they were, but sometimes he would process them by manipulating their timbres and spatial nature. Kirby’s description of a scene from *Sophia = (Wisdom) Part 3: The Cliffs* indicated Foreman’s approach to manipulate sounds: “Motionless performers and offstage voices say, one after the other, the drawn-out, semi-musical word-sound ‘boing!’ For a few minutes, nothing is heard but the sequential repetition of the sound in different pitches and voices from different parts of the space. In a parallel sound sequence early in the second act, actors beat on tin pots with spoons. They strike the pots rhythmically but in different tempos, and this action, too, continues without dialog for some time.”¹⁹⁷ In so doing, Foreman’s arrangement of sound sequences blurred the distinction between the sounds of words and noises. Moreover, he disrupted the habitual way of listening with his creative use of simultaneity, along with the asynchronous use of sound effects and live manipulated speech. In many ways, Foreman’s use of sound shared many common factors with Pierre Schaeffer’s theory of sound objects. For Schaeffer, a sound object was a primary sound unit that was perceived in its intrinsic quality through reduced listening. Since the way one listened was affected by what one knew and what one believed, by manipulating sounds and using them as framing devices, Foreman also

¹⁹⁶ Richard Foreman, “Vertical Mobility (Sophia = (Wisdom) Part 4),” in *Plays and Manifestos*, 182.

¹⁹⁷ Kirby, 18.

encouraged the audience to listen in a reduced manner, focusing on the process of the making of theatre.

One of the most innovative approaches that Foreman brought to theatre sound design was his use of tape loops and music sampling. While the concept of looping and sampling had been developed by musicians since Schaeffer's use of disc cutter to make unique sound collages in the 1940s, it did not become a common practice in theatre sound design until the coming of digital sampling in the late 80s. In his day, Foreman was, if not unprecedented, one of the earliest theatre practitioners to create sound effects by sampling and using background music with tape loops that repeated a phrase of pre-recorded music or repeated a single sound effect or word. For instance, during a rehearsal of *PAIN(T)* (1974), Foreman made a loop of clicking sound by placing a microphone against the outside of a large glass bowl and then throwing two pennies into the bowl.¹⁹⁸ He then made a tape loop by splicing the magnetic tape and connecting the ends of tape together. When played on a reel-to-reel tape machine, the clicking sound would repeat indefinitely, creating a rhythmical underscore for the scene. In terms of making more traditional background music for creating moods or underscoring movements and dances, Foreman developed an arbitrary manner in which he would sample segments from the radio to form loops:

I'd turn the radio to certain stations I like and hear things, and then I'd run over and try to push the tape recorder in time to catch what I thought was interesting in that it had a potential loop on it. Then I would take that tape and find a little section, three seconds or so that I liked, which I would make a loop out of, and then I would record that loop onto

¹⁹⁸ Davy, *Richard Foreman and the Ontological-Hysterical Theatre*, 145.

a cassette so that it ran half an hour. And I would write to that...well, to two of them playing simultaneously.¹⁹⁹

Foreman's use of two tapes loops simultaneously not only provided another layer to the density of his stage picture but also echoed a doubling effect created by his practice of recording the dialogue on tape and having performers repeat certain words at different speeds. Since the background music became unidentifiable due to the two different loops of music playing at the same time, it also shared the dramaturgical function of Foreman's manipulation of sounds and use of framing devices, creating a split of consciousness that reoriented the way audience perceived the auditory world of the play. More importantly, because the background music made by two loops running at the same time created an ever-changing relationship between the two loops, it forced the audience to be aware of the process of making the background music. By calling attention to the interaction of the sounds, Foreman's use of tape loops stimulated the audience's subjective perception of the play:

What's interesting to me is the way that two loops, obviously not having exactly the same rhythm, obviously not being exactly the same length—it means that you are generating a world of continual change using the simplest elements, you see. Because the loops come into synch perhaps, what, every five minutes let's say, and otherwise their relationship to each other will always be shifting, so that you are creating a continually changing structure using the simple elements of this two-or three-second repeating loop. Which also appeals to me on a philosophical level as a discussion of how the world is generated from very basic building blocks. But as a sensory experience it's fascinating, because I

¹⁹⁹ Ebrahimian, 25.

am continually interested, in all levels of my work, in generating complicated structures from relatively simple building blocks in ways that I think echo the way life operates.²⁰⁰

While sound was traditionally considered a design element to complement the narrative of a play, Foreman demonstrated a different kind of sound design inspired by the possibilities of the machine. The control and flexibility available with tape recorders encouraged Foreman to think sound design in terms of process. Through his live manipulation of recorded dialogue, sounds and noises, and the background music made by tape loops and sampling technique, Foreman's sound design literalized, and made palpable, the theatrical space so that the process of concretizing his text could be clearly perceived. Although Foreman's sound design approach in his theatrical work has received little attention by the mainstream theatre, his approach nevertheless moved beyond the subservient and closed system of traditional use of sound effects and suggested a greater qualitative experience of sound in theatre.

²⁰⁰ Richard Foreman, "Interview with Ken Jordan, 1990."

CHAPTER 4

Sounding Out the Act of Listening

4.1 Listening in the Age of Mechanical Reproduction

With the significant advances in digital audio technology during the 1980s, the possibilities for creating sounds have become almost unlimited. Hans-Thies Lehmann observed this shift in his seminal work *Postdramatic Theatre*:

In electronic music it has become possible to manipulate the parameters of sound as desired and thus open up whole new areas for the musicalization of voices and sounds in theatre. While the individual tone is already composed of a whole array of qualities—frequency, pitch, overtones, timbre, volume—which can be manipulated with the help of synthesizers, the combinations of electronic sounds and tones (sampling) result in a whole new dimension of ‘sound’ in theatre.²⁰¹

Indeed, the technological advances have opened up a plurality of innovative performative practices in sound; however, technology’s influence on the making of sound not only manifests through the qualities of the sound itself and the addition of new technological machinery, but also the different modes of perception created in its production, which guides us to a new dimension of sound in theatre. Through engagement with technologies, the scope of what it is possible to “listen to” and “listen in” has increased.²⁰² As the phenomenologist Don Ihde said, “We know that we live immersed in a vast but invisible ocean of air that surrounds us and

²⁰¹ Hans-Thiel Lehmann, *Postdramatic Theatre*, trans. Karen Jürs-Munby (New York: Routledge), 92.

²⁰² In “Listening,” Tom Rich distinguishes the difference between “listen to” and “listen in.” While “listen in” refers to a mode of secret listening following the creation of radio broadcasting, telephone exchange, and the party line, “listen to” implies that a person passed beyond the perception of random auditory stimulus and attends to a sound with a higher degree of auditory attention. See Tom Rich, “Listening,” in *Keywords in Sound*, ed. David Novak and Matt Sakakeeny (Durham: Duke University Press, 2015), 99-101.

permeates us and without which our life must necessarily escape us.... The ocean now resounds with whale songs and shrimp percussion made possible by the extension of listening through electronic amplification.”²⁰³ Ihde’s idea is best exemplified in the electronic composition and mediations of pioneering American electronic composer Pauline Oliveros, who integrates audio technology into the subjectivity’s act of listening to achieve a transformative consciousness of self and world. Ever since Oliveros started to practice electronic music making in the 1960s, listening played an important role in her compositional process. As she recalled, “I stuck a microphone in my window and started recording whatever was happening,” she says. “Then I’d listen back and realize I hadn’t heard everything” with naked ears. “So I gave myself the practice of ‘listen to everything all the time’ and ‘remind yourself when you’re not.’ And I’ve been practicing that ever since ...”²⁰⁴ Other than using a tape recorder as a means to approach music and create new sound, Oliveros also found a way to “listen in” through this newfound medium from the beginning of her career.

Experimenting with various electronic productions of sound, Oliveros was always at the fore of technology. In 1965, she composed *Bye Bye Butterfly*, which was named the best piece of experimental music of the 1960s by the *New York Time* critic John Rockwell. In this piece, she showcased the use of delay processing that was made possible by using two tape recorders. In the performance, the original record of Puccini’s *Madama Butterfly* was recorded on the first tape recorder, and was then played back on the second tape recorder with some delay. When played, the soundtrack was fed directly back to the record channels of the first tape recorder, with additional reverberation and an electronic test tone generated by Hewlett Packard oscillators. The result was a barrage of slowly unfolding modulated tones that interacted with the original

²⁰³ Don Ihde, *Listening and Voice: Phenomenologies of Sound* (Albany: State University of New York Press, 2007), 3-5.

²⁰⁴ Jeff Kallis, “Accordionist plays back the world’s music.” *San Francisco Chronicle* 12 Oct. 2001.

soundtrack and changed dynamically as they continued to be repeated. According to Oliveros' statement on this piece, "[it] bids farewell not only to the music of the 19th century but also to the system of polite morality of that age and its attendant institutionalized oppression of the female sex."²⁰⁵ Oliveros' way of sound making demonstrated a pioneering practice in composition that was less determined by preconceived ideas and musical notations but instead a negotiation of different sound sources and of space and time. With the arrival of digital technology in the 1980s, Oliveros developed an interactive music system called Expanded Instrument System (EIS), which was a collection of microphones, amplifiers, and signal processors connected to foot pedals that allowed her to manipulate the sounds of her accordion in live performance. After converting this system from analog to digital, she was able to create multiple voices by sending different sounds through digital processors, thereby manipulating and generating various timbres of sound in real time. Even though sound technologies helped Oliveros expand the limitations of traditional instruments and the way she performed, it is important to note that she did not encourage technological determinism—the idea that the development of technology has irresistible consequences for the users. For Oliveros, technology and machine are extensions of her body and mind which allow her to listen more deeply. In other words, it is not simply the technology but the relationship between the technology and her practice of the act of listening that determine her composition and performance. "It's about the human/machine relationship or interface—the power of technology to expand the mind. You find solutions to creative problems and those solutions lead you into new territory where new solutions have to be found."²⁰⁶

Employing electronic and later, digital processes to explore the possibilities of creating new music, Oliveros created new sound that wouldn't normally reach the listener's ear, thereby

²⁰⁵ Pauline Oliveros, *Deep Listening*, 92.

²⁰⁶ Cory Arcangel, "Pauline Oliveros." *BOMB Magazine* 107, (Spring 2009). Accessed 25 Nov. 2015. <http://bombmagazine.org/article/3268/pauline-oliveros>

demanding a new way of listening—as if listening is not the means to derive enjoyment from the melody or harmony but rather a way to explore the material presence of sound.

In the autumn of 1988, under Stuart Dempster’s invitation, Pauline Oliveros stopped by Seattle to visit a vast two-million-gallon underground concrete water cistern at Fort Worden in Port Townsend, Washington. Fascinated by the acoustics and the natural reverberation in the fourteen-foot underground cistern, Oliveros decided to treat the acoustic space as an instrument, supplementing to the possibilities of electronically generated sound transformations. With Dempster (trombone and digeridoo) and the sound artist Panaiotis (vocals), Oliveros recorded an album at this underground cistern under the title of *Deep Listening*. Listening to the first track of the album, it seems to be nothing more than deep endless drones—the presence of a constant layer of certain frequency ranges—with modulations and tremendous reverberation. In the subsequent tracks, on top of these drones, there are sounds veering from abstract tones in different pitches to the cadence of banging on metal pipes and found objects in the cistern. While the sounds may seem to be electronically processed, they are recorded completely with acoustic instruments and modulated by the acoustics of the 186-foot diameter cistern with its 45-second natural reverberation. “The space is real, and unique.” Dempster explained. “The cistern showed a very smooth frequency response and no echoes, only a smooth reverberation, the amplitude of which appears to begin at the same decibel level as the source. Consequently, it is impossible to tell where the performer stops and the reverberation takes over.”²⁰⁷ In order to play in the cistern environment, the three of them had to learn to listen in a new way. They had no plan, no written score, and no discussion beforehand; they simply improvised and listened as the cistern played with them. Oliveros later wrote about this musical experience in the album’s liner notes:

²⁰⁷Pauline Oliveros, Stuart Dempster, and Panaiotis. *Deep Listening*. New Albion, 1989. CD.

Each composer represented in *Deep Listening* has a very individual style of composition. As we improvise together, and listen intensely to one another, our styles encounter in the moment, and intermingle to make a collective music. I call the result ‘deep listening.’ [...] Listening, not only to one another, but to the transformative spatial modulations, is an essential process in the music. The cistern space, in effect, is an instrument played simultaneously by all three composers.²⁰⁸

As it turns out, the performance transcended the conventional notion that distinguishes music from sound, predominantly based on the idea that music presumes to be some arrangement of sound that is made up of harmony and melody. While it demands a new way of listening, the piece was composed entirely through the act of listening, as the performers listened to the sound of the space, to each other, and to the vibration of their own bodies. The production and release of *Deep Listening* marked a significant event in Oliveros’ career, as it led to the formation of the Deep Listening Band; her work after this record rests on the practice of Deep Listening.

This practice, as developed by Oliveros in the following years, explores the difference between hearing and listening. For Oliveros, the dynamic of one’s auditory attention is what distinguishes listening from hearing in order to create guidelines for listening as a way of responding to composition and performance:

As a musician, I am interested in the sensual nature of sound, its power of synchronization, coordination, release and change. Hearing represents the primary sense organ—hearing happens involuntarily. Listening is a voluntary process that through training and experience produces culture.... Deep listening is listening in every possible way to everything possible to hear no matter what you are doing. Such intense listening includes the sounds of daily life, of nature, or one’s own thoughts as well as musical

²⁰⁸ Ibid.

sounds. Deep listening represents a heightened state of awareness and connects to all that there is. As a composer I make my music through Deep Listening.²⁰⁹

Describing hearing as an involuntary act, Oliveros first confirms the notion that each auditory perception is based on the ear's openness to the accumulation of all sound because the ears have no lids like the eyes.²¹⁰ Regarding different attention levels in relation to auditory perception, her claim is similar to the common distinction that hearing is primarily a physiological means to enable perception whereas listening is more a psychological act which gives attention to what is perceived both acoustically and psychologically. Barry Truax makes a similar distinction between hearing and listening, arguing that hearing is passive when compared to listening because it happens in most unconscious ways as an autonomous processes of perception. By contrast, listening suggests an active involvement in the search for sonic information that is usable and potentially meaningful to the brain.²¹¹ In the years that followed, Oliveros continued to develop her ideas during her tenure at the University of California San Diego and her non-profit Deep Listening Institute. For Oliveros, the practice of deep listening encourages a mode of active listening that “expand[s] the perception of sounds to include the whole space/time continuum of sound—encountering the vastness and complexities as much as possible” while targeting “a sound or sequence of sounds as a focus within the space/time continuum and to perceive the detail or trajectory of the sound or sequence of sounds.”²¹² In contrast to the music that turns the listener into a passive receiver, Oliveros’ music demonstrates the importance of the

²⁰⁹Pauline Oliveros, “Quantum Listening: From Practice to Theory (To Practice Practice),” *Sound Art Archive*, accessed May 1, 2018, https://soundartarchive.net/articles/Oliveros-1999-Quantum_listening.pdf

²¹⁰ Hillel Schwartz’s comment on the ear’s indisposed receptivity concurs with Oliveros’ idea; as he says, “the ear lacks the most rudimentary of defences: it has no equivalent to the eyelids that protect vision; the lips and tongue that protect taste; the nasal hairs and sneezes that protect smell; and the general mobility that protects touch and proprioception.” See Hillel Schwartz, “The Indefensible Ear: A History,” in *The Auditory Culture Reader*, eds. Michael Bull and Les Back (Oxford: Berg, 2003), 487.

²¹¹ Barry Truax, *Acoustic Communication* (Norwood: Ablex Publishing, 1984), 4-16.

²¹² Pauline Oliveros, *Deep Listening: A Composer’s Sound Practice* (New York: IUniverse, Inc, 2005), xxiii.

act of listening by melding body, mind, and machine into a sound experience that calls for active involvement from both the listener and the performer.

Oliveros' integration of sound/music making and modes of listening serves as a convenient point of departure to investigate the relationship between sound reproduction technology and the act of listening. While sound technology provides musicians endless means for creating new sound, the development of sound technology in the late nineteenth century is inspired by how the ear operates rather than the prominence of sound. For instance, in *The Audible Past* (2003), media scholar Jonathan Sterne contends that Hermann Helmholtz's invention of electric telegraph in the 1860s is based on his discovery of how the tympanic membrane works. Helmholtz's discovery of how sound works through the middle and inner ear led him to treat sound "as a determined effect that could be created irrespective of its cause, and he offered a theory of hearing as sympathetic vibration that would be borne out in late sound-reproduction technologies."²¹³ In other words, the sound reproduction technology captures and reproduces not only the source of sound but also the effects of sound manifested in one's auditory perception. Thus, sound design in theatre should not only be understood as the arrangement of sound which has been crafted through sound technology, but also the organization of different modes of listening which are defined as ways to process the acoustic intensities as information to the listener. As Ross Brown has suggested, the auditory experience of theatre can be influenced by "the subtle modification of the auditorium acoustic or ambient presence using artificial reverberation, the subliminal use of ambient effects or subtle electroacoustic reinforcements of certain elements of the performance."²¹⁴ By making sounds

²¹³ Jonathan Sterne, *The Audible Past* (Durham: Duke University Press, 2003), 66.

²¹⁴ Ross Brown, "Sound design: the scenography of engagement and distraction," in *Theatre and Performance Design: A Reader in Scenography*, eds. Jane Collins and Andrew Nisbet (London: Routledge, 2010), 342.

repeatable and manipulatable, the advent of sound reproduction technology not only expands the possibilities for creating sound in theatre, but also provides a range of listening modes as analytical tools to investigate the audience's engagement with the designed auditory environment.

In this chapter, I investigate different modes of listening as a means to understand how the listener engages with different sounds in theatre, and how sound design plays a significant role in the interplay between listener perspectives and different modes of listening. Based on the three listening modes discussed by the Soundscape studies, I first examine how conventional theatre sound design practices manipulate the audience's auditory attention by syncing different sounds to an image, a narrative, or a context based on the interplay between foreground and background listening perspectives. While these modes of listening provide stability between the listener and the designed auditory environment, they limit the possibilities of theatre sound and turn the listeners to passive receiver. Against this context, I examine the way the Wooster Group disrupts the auditory focus by giving rise to different modes of listening in their production of *You, The Birdie! (Phèdre)*, thereby reactivating the audience's subjective perception.

4.2 Three Modes of Listening

In his introduction to the third edition of *Sound and Music for the Theatre* (2013), American theatre and opera director Mark Lamos contends that theatre sound design has fundamentally changed the way we listen:

We hear differently now. And the sound designer helps us hear the insides of a play, from the way a door is opened offstage to the breeze we hear outside an onstage window....

We need sound design to focus the ears of the watchers just as acutely as the lighting

design focuses their eyes. We need it to enhance not only the volume of a spoken line, but also the sounds around the drama and inside it. Sound design can build suspense, can focus a spoken moment, and can direct the ear to listen with more care.²¹⁵

Historically, a focused listening environment was culturally constructed by eliminating the auditory distractions and silencing the spectatorship.²¹⁶ The advent of sound technology has enabled different auditory elements to be carefully woven together in order to authentically replicate the real life soundscape, reinforcing stage-oriented focused listening. However, this simulation of reality is not based on the faithful reproduction of auditory elements within the soundscape but through the spatial organization of how listening is simulated. For instance, in order to recreate a rain soundscape, it takes more than designing a single continuous sound cue of rain played back through loudspeakers. This is largely due to the dynamic of consciousness and unconsciousness in the listener's attention when perceiving rain in real life. While a continuous sound cue informs the audience rain is taking place within the context of a play, it is not sufficient to recreate the sensation they experience in real life. In reality, we pay attention to the sound of raining only when it starts up. After a while, our brain does not keep permanent awareness of such an event because it does not provide anything new to our understanding of the environment. In this regard, even if the sound of rain is continuously played in the background, it does not appear permanently in the listener's consciousness because human brain is capable of focusing on the desired sound while eliminating the unwanted noises.

²¹⁵ Mark Lamos, "Introduction to the Third Edition," in *Sound and Music for the Theatre: Theatre Art and Technique of Design*, eds. Deena Kaye and James Lebrecht (Oxford, Focal Books, 2013), xvii-xviii.

²¹⁶ Observing Wagner's staging technique at Bayreuth to eliminate this kind of socially engaged attendance, Adrian Curtin has argued that "contemporary disgruntlement about theatre noise—both from actors about audiences and from audience members about each other, generally having to do with whispering/talking, eating, spluttering, shuffling, and using smartphones (which glow in the dark as well)—signals the institutionalization of the ideologies of silent spectatorship and focused listening in theatre, allied to the (frankly unreasonable) expectation that a theatre soundscape should have a comparable signal-to-noise ratio as one's living room." See Adrian Curtin, *Avant-Garde Theatre Sound* (Basingstoke: Palgrave Macmillan, 2014), 150.

In his discussion of how human perception of live and recorded sound relates to the theatrical experience, Daniel Deshays provided a comprehensive design that imitated the rain soundscape as heard in nature:

The idea is to multiply the points of diffusion by using several small loudspeakers, placed at variable distance around the backstage—and even on stage—and to play various sounds of rain, recorded in a myriad of situations: resonating in a sewer, tapping on a window or on a zinc roof... In this way, a complex sound field is devised from which the listener can capture, in a freer way, what he (or she) truly wishes to listen to.... Such multiplicity of sound sources allows us to distance ourselves from the tyranny of the single medium, which always delivers in stereo. In this way, several ‘real’ monophonic sources coexist, as in the real world, allowing the public a greater freedom of choice concerning their own listening journey.²¹⁷

In Deshays’ recreation of a rain soundscape, the multiplicity of sound sources first provides the audience a listening environment which allows for selective focus. While a single soundtrack of rain tells the audience *what* to listen to, it fails to provide the listener the freedom to focus their attention, as it would happen in real life. What is fundamental in listening is the ability to focus on different sounds selectively, a psychoacoustic process commonly known as the “cocktail party effect.” In a noisy party scene, one is able to selectively listen to a single speaker, and apparently not hear all the noise in the surrounding that competes for perceptual attention. By placing different sounds in different locations onstage and backstage, the multiplicity of sound sources also construct a spatial synthesis where each sound object and event provides a listening perspective that the designer can use to further manipulate the audience’s attention. Studying the

²¹⁷ Daniel Deshays, “Staging Sound: A Matter of Dissociation,” *Soundtrack 2*, no. 1 (2009), 61.

spatial aspects of different sounds within a soundscape, R. Murray Schafer contended that a soundscape can be divided into three listening perspectives: *figure* (foreground), *ground* (background), and *field/keynote* (context).²¹⁸ Adopting Schafer's idea, Theo Van Leeuwen comes up with the "three-stage plan" to describe how the listener distinguishes these perspectives in relation to his or her listening attention: "[Schafer] defines 'Figure' as 'the focus of interest,' the sound 'signal,' 'Ground' as the setting or context, the 'keynote sound,' and 'Field' as 'the place where the observation takes place, the soundscape'.... The 'three-stage plan' means dividing the sounds which are heard simultaneously into three groups and then *hierarchizing* these groups, treating some as more important than others."²¹⁹ Since listening attention prioritizes what we desire to hear in relation to how it is presented via means of different perspectives, the audience's aural attention can be manipulated by the arrangement of monophonic sources of different rain sounds. In this way, an acoustic context of rain soundscape (*field*) was designed through the coexistence of foreground sounds that focused the listener's attention (*figure*) and background sounds (*ground*) that were heard but not listened to.

Based on Schafer's distinction of different listening perspectives, Truax further proposed a range of listening modes—ways to process acoustic intensities and perspectives as information in our brains—as analytical tools to examine our engagement with the soundscape. Based on the attention levels in our auditory perception, the three listening modes are:

1. *Listening-in-search*, which is listening at its most active, involving a conscious search of the environment for cues. In this mode of listening, detail is of the greatest importance, as is the ability to focus on one sound to the exclusion of others.

²¹⁸ R. Murray Schafer, *The Turning of the World* (New York: Alfred A. Knopf, 1977), 9-10.

²¹⁹ Theo Van Leeuwen, *Speech, Music, Sound* (Basingstoke, MacMillan, 1999), 16.

2. *Listening-in-readiness*, in which the attention is ready to receive significant information, but where the focus of one's attention is probably directed elsewhere. This mode of listening depends on association built up over time, so that the sounds are familiar and can be readily identified even by "background" processing in the brain.
3. *Background listening*, which occurs when we are not listening for a particular sound, and when its occurrence had no special or immediate significance to us.²²⁰

For Truax, *listening-in-search* is the most active listening mode because it involves an analytical nature similar to a mode of semantic listening that deals with how our brain process language. In text-based theatre, the audience engages with this mode of listening through the voice of the actor, since it functions as a vehicle for linguistic meaning and communication. By prioritizing the actor's voice over other sounds, theatre sound design guarantees the intelligibility of the words spoken. Unlike the first mode of listening that focused on the listener's subjective interpretation of spoken word or the meaning behind of sound objects, the second degree of listening, which involves *listening-in-readiness*, concerns with gathering information about the cause of sound. This is the most common listening mode in our daily life because it is the primary mode for a listener to understand his or her relationship with the auditory environment. One of the cases in which this mode of listening operates is in our awareness of traffic noises when we walk across a busy intersection. Most of time, we cannot identify each sound within this noisy soundscape, but we pay immediate attention to those sounds like a car horn or siren that alert an approaching danger. As Roland Barthes observed in his essay "Listening," "listening is that preliminary attention which permits intercepting whatever might disturb the territorial

²²⁰ Truax, 19-24.

system, it is a mode of defence against surprise; its object (what it is oriented toward) is menace or, conversely, need; the raw material of listening is the index, because it either reveals danger or promises the satisfaction of need.”²²¹ Finding the cause of a sound serves as an index of a threat; it helps stabilize the relationship between the listening subject and an auditory environment. Finding the cause of a sound is not equal to finding meaning. This listening mode rather relies on previous experience and knowledge of the sound with an external significance. In theatre, this mode of listening is manipulated by the sound design, especially through the phenomenon of spatial orientation and sound synthesis. What the audience listens to is not the original cause of the sound, but causes that the designed sound makes them believe in. Among the three modes of listening, *background listening* is the least active listening among the three modes. Traffic, electrical hums, or air conditioning are the typical sounds that engage this mode of listening because their constancy of intensity level makes them easy for the brain to adapt to, and thereby, ignoring their existence. In theatre, these sounds are either considered as unwelcome noises or they are put in the background of the listener’s auditory attention, coloring a space in terms of its atmosphere.

When these listening modes are applied to theatre, they are not necessarily mutually exclusive. In fact, theatre sound design often manipulates the audience’s attention by shifting from one mode of listening to another. The design of a “false sound bed,” as I have discussed in the first chapter, to foreground an indexical sound is an example of using sound design to shift the audience attention from *background listening* to *listening-in-readiness*. In order to highlight a gunshot sound cue that happens during a significant dramatic moment, sound designer Gareth Fry would first create a subtle air-conditioning noise as a “false sound bed” to put in the

²²¹ Roland Barthes and Roland Havas, *The Responsibility of Forms: Critical Essays on Music, Art, and Representation* (Berkeley: University of California Press, 1991), 247.

background of the audience's attention, and then he would play back the gunshot sound while at the same time cutting out the air-conditioning noise in the background. Since the sound of a gunshot is too short to establish its indexical meaning before fading out, removing the background sound and making the audience become aware that something has changed in the auditory environment provides a blank canvas and draws the audience's attention to the short gunshot sound cue. In Abe Jacob's design of the "absence of sound" for *A Chorus Line*, he also adopted the same approach to sharpen the audience's attention for Paul's emotional monologue. By switching off the house air-conditioning while the audience was applauding the previous number, he created a relatively silent auditory environment for the audience to engage in the *listening-in-search* mode of listening with Paul's monologue. In these two examples, the use of a "false sound bed" in theatre sound design illustrates that how the different perspectives of background sound and foreground sound are intertwined, constantly shifting the audience's auditory attention between different modes of listening.

The advent of sound reproduction technology allowed for a split listening situation, created by splitting an original sound and its electroacoustic transmission or reproduction. Schafer describes this situation as "schizophonia":

I coined the term schizophonia in *The New Soundscape* intending it to be a nervous world. Related to schizophrenia, I wanted it to convey the same sense of aberration and drama. Indeed, the overkill of hi-fi gadgetry not only contributes generously to the lo-fi problem, but it creates a synthetic soundscape in which natural sounds are becoming increasingly unnatural while machine-made substitutes are providing the operative signals directing modern life.²²²

²²² Schafer, 91.

In Schafer's idea, the schizophrenic effects caused by electroacoustic reproduction lead to the formation of a lo-fi soundscape, where each sound is obscured and perspectives are lost. Since the listening process is characterized by the interaction of different listening modes, a "hi-fi" auditory environment is required. Such an environment, according to Truax, is one that is "balanced and well 'designed,' whether the design is intentional or the result of natural causes.... One does not have to 'fight' the environment to make sense of it. Rather, it invites participation and reinforces a positive relationship between the individual and the environment."²²³ While conventional theatre sound design attempts to focus the audience's attention by cleansing the theatre of aural distractions caused by the schizophrenic effect, it limits the possibility of theatre sound and the audience's subjective perception. As Ross Brown has suggested, "the phobia about the audience being distracted by the materiality of production and the extent to which noise became anathema to theatre during the history of its 'modernization,' denies the phenomenology of audience and the ontology of sound as a field both of significant event-objects but also of inevitable distraction."²²⁴ In what follows, I examine how the Wooster Group's *To You, The Birdie! (Phèdre)* employs the schizophrenic effect as an aesthetic opportunity to give rise to Pierre Schaffer's notion of acousmatic sound and reduced listening.

4.3 The Technical Universe of the Wooster Group

In 1975, Elizabeth LeCompte founded the Wooster Group with the production of *Sakonnet Point*. The founding members were actors from Richard Schechner's Performance Group and some of their friends, including Spalding Gray, Jim Clayburgh, Ron Vawter, Willem Dafoe, Kate

²²³ Truax, 20.

²²⁴ Ross Brown, "Towards Theatre Noise," in *Theatre Noise: The Sound of Performance*, eds. Lynne Kendrick and David Roesner (Newcastle: Cambridge Scholars Publishing, 2011), 7.

Valk and Peyton Smith. Even though LeCompte started her journey in theatre as assistant director to Schechner, she developed a theatre aesthetic and directorial practice that shared more common denominators with Robert Wilson and Richard Foreman than with Schechner's Environmental Theatre, which emphasized a genuine exchange between the performer's emotional and psychological state and the audience:

[LeCompte] vividly recalls Foreman's *Pain(t)* (1974) which included a fight between two sisters, Rhoda and Eleanor.... LeCompte remembers it not as a literal representation but as an "abstraction of a fight," featuring recorded voices and postures that suggested a fight more powerfully than anything she had experienced in the realistic theatre. Here she saw violence performed "with no relation to natural gesture and yet so real that it made you believe it was actually happening." Similarly inspirational was Robert Wilson's *Deafman Glance* (1970) which expanded the possibilities she envisioned in using a non-linear structure and "a visual language that was not necessarily psychologically real." In watching Wilson's work, she became attuned to its "musical" rather than logical form and to its "geometric structure": its movement drawn by the performers on the stage floor.²²⁵

Wilson's and Foreman's influences on LeCompte's theatre aesthetic were evident in her staging technique of presenting a multiplicity of events on the stage at the same time including her arrangement of found materials, documentary and films, dramatic texts, improvised actions and various technologies. In so doing, LeCompte continuously pushed the audience expectation, challenging the sensibilities of both the audience and the performer on stage. As LeCompte famously put: "I'm so involved with form I could put anything into a structure. It has no personal

²²⁵ David Savran, *The Wooster Group, 1975-1985: Breaking the Rules* (Ann Arbor: UMI Research Press, 1986), 4.

meaning for me.”²²⁶ In an interview with LeCompte, Foreman noted that the making of non-linear density on stage and keeping the audience observational and analytical rather than emotional were what distinguished both the Wooster Group and his Ontological-Hysteric Theatre from a conventional mode of theatre: “That defines the real anti-theatrical tradition, which you and I are into, as opposed to that other Ibsenite tradition that still demands you craft the audience’s attention towards that specific ‘important’ thing that is supposed to happen inside your preconceived premise. And once you’ve thrown out that notion, you’re in a new theatrical world.”²²⁷ Just as Foreman added a glass wall between the audience and the stage, LeCompte also intentionally kept a distance between the performing spaces and the audience, dividing them with the use of metal rails, raised platforms, and movable metal frameworks that could slide like curtains. By installing these devices, LeCompte not only broke away from Schechner’s emphasis on the physical interaction between the performers and the audience, but also added yet another level of distancing, keeping the audience as an active witness of the performance.²²⁸

Unlike Wilson and Foreman, who always created new pieces from scratch, the Wooster Group employed a classic text as a point of departure for the creation of a new work.²²⁹ In the case of *To You, The Birdie! (Phèdre)*, it was Racine’s *Phèdre*. Unlike most of the Wooster

²²⁶ Elizabeth LeCompte, “Acting/Non-Acting,” *Performance Art Magazine* 2 (1979), 15.

²²⁷ Richard Foreman and Elizabeth LeCompte, “Off-Broadway’s Most Inventive Directors Talk about Their Art: Discussion with Elizabeth LeCompte,” in *Richard Foreman: Art+Performance*, ed. Gerald Rabkin (Baltimore: John Hopkins University Press, 1999), 139.

²²⁸ In a conversation with Ron Vawter and David Savran, Elizabeth LeCompte discusses the importance of confronting the material that interested her rather than the audience. For LeCompte, the audience’s role is to witness it. She also admits, “Obviously, for many audience members, it’s not pleasurable. I don’t think that that’s what you necessarily go to the theatre for. In fact, I don’t know where you go for that ... It’s a very hard thing. But I think that’s the politics of the piece.” See Savran, 45.

²²⁹ To name a few, the group’s first work *Route 1 & 9* (1981) used Thornton Wilder’s *Our Town* as a starting point; *L.S.D. (...Just the highpoints...)* (1984) employed themes from Arthur Miller’s *The Crucible*; *BRACE UP!* (1991) was based on Anton Chekhov’s *Three Sisters*; *HOUSE/LIGHTS* (1998) drew part of the text from Gertrude Stein’s *Doctor Faustus Lights the Lights*.

Group's earlier work, there were no parallel texts layered against Racine's text.²³⁰ The text of *To You, The Birdie!* was entirely based on Paul Schmidt's compact translation of Racine's *Phèdre*. When LeCompte first received the translation in 1993 from Schmidt, the writing did not grab her interest. Six years later, after Schmidt passed away, ensemble member Kate Valk did a radio version of Schmidt's translation for the BBC. Given all the work that Valk did for her version, LeCompte decided to put it into production. What distinguished LeCompte's approach to canonical plays from other twentieth-century directors was her deconstruction of the original texts in a literal way. While contemporary directors revitalized a classic play by setting it in a different historical period or by inserting new cultural references, LeCompte would extract scenes, characters, dialogues, and images and place them in juxtaposition with other raw materials on stage. In this way, the fragmented classic text was simply a building block no different from an actor's gesture, a sound cue, or a prop. In *To You, The Birdie! (Phèdre)*, LeCompte placed Schmidt's translation in juxtaposition with the game of badminton and a physical score generated from Martha Graham's dance version of *Phèdre*. In the first six weeks of rehearsal, the game of badminton started as a physical activity that the actors could play to generate movement and creative ideas, and then the game structure of badminton became the framework for this new work, where the goddess Venus doubled as the referee of the game and of the tragedy; the servants doubled as attendants and served shuttlecocks to the main characters.²³¹ For theatre critic Ben Brantley, the game of badminton not only served as multifaceted metaphor for "the formality of the play," "the ritualized nature of courtly society,"

²³⁰ For instance, in their production of *Brace Up!* (2003), Anton Chekhov's *Three Sisters* were juxtaposed with Japanese horror movies. In their 1999 Obie-winning piece *House/Lights*, the text of Gertrude Stein's *Doctor Faustus Lights the Lights* was layered with Joseph Mawra's B-movie classic, *Olga's House of Shame*.

²³¹ The resulting title of the production *To You, The Birdie!* was a literal translation a French phrase used in the original badminton rules at the court games, as a courtesy notice when a badminton player serves his opponent before serving the birdie (shuttlecock).

and “that big, nobody-wins sport called love,” it also manifested the characters’ personalities and fates within the play: “Hippolytus is too easily rattled and keeps throwing down his racket. Theseus spikes the birdie with an angry, military hand. Poor Phèdre can’t even lift the racket.”²³² The set design also resembled a French badminton court with a nod to the Wooster Group’s aesthetic: a metal frame enclosed a playing space on a slightly elevated platform with a pair of benches behind it. At upstage and downstage center, in the place of the posts that hold the net, there were two metal structures that allowed a large flat plasma screen to rise and fall. Right behind the front screen, there was a large glass panel, mirrored by the second panel at the rear of the platform that moved like a sliding door.²³³ Additionally, there were overhead flat screens facing the performers on stage, showing video clips of Merce Cunningham and Martha Graham’s choreography during the performance.

For many performers, paying attention to the video clips of the dance while performing on stage could be distracting, but it was crucial to LeCompte’s performance practice, as it not only served as a physical guideline for onstage actions, but also provided an impulse for the performers to keep a present relationship with different materials encountered during the performance. Since the Wooster Group’s performance was based on the performers’ interactions with different materials and objects, LeCompte would confront the performers with texts, visual and audio technologies, and props to liberate them from any preconceived thinking and open themselves entirely to what was happening during the performance. Another example of this

²³² Eric Brantley, “Racine’s Pale Queen, Struggling with Racket Sports,” *New York Times*, February 19, 2002.

²³³ In an interview with Philip Auslander, Willem Dafoe talks about the importance of the visibility of theatre machinery in the Wooster Group’s works: “[O]ne thing [that] is very specific about the Wooster Group is [that] we work with a lot of technology and it’s never hidden, which is an enormous difference from most theatre. Particularly now that the commercial theatre uses more technology, they make great efforts to hide it more and more.” See Willem Dafoe, Interview with Philip Auslander, in “Task and Vision Revisited: Two Conversations with Willem Dafoe (1980/2002)” in *The Wooster Group and Its Traditions*, ed. Johan Callens (Brussels: P.I.E-Peter Lang, 2004), 102.

approach to performance in *To You, The Birdie! (Phèdre)* was LeCompte's live spoken commentary to the performers through the use of the in-ear earphones. Prior to this production, the Wooster Group had a long history of channeling texts through the act of listening in the performance. Playing the prerecorded text during the performance allowed the text to become a source material that could be responded to and mediated by the performers, using it as a basis for their performances.²³⁴ In the case of *To You, The Birdie! (Phèdre)*, Kate Valk described how she came up with the ideas of using in-ear earphones to channel LeCompte's live spoken instructions:

I remember a couple of days before we were going to do our first open rehearsal, I went back to a bit of rehearsal video tape to work out some blocking. Liz was calling out directions and orders from the back of the room on the bit of tape I was watching, and I thought to myself, "The most interesting thing in the room is Liz." So, I asked Geoff Abbas, our soundman, "Can you put Liz on microphone and get her to come through on the in-ear," and he said, "Yes." I had learned my lesson from *St. Antony*, that you had better find out what is really vital and make damn sure you have that when you go into performance.²³⁵

By employing this technique, the earphone and microphone transformed LeCompte's voice into a material that the performers had to really listen and respond to. Throughout the performance, LeCompte would provide the performers with instructions on movements, commentaries on what was happening in the moment, or would simply cheer them up, like a sport coach would speak to an athlete. Regarding the effect that using the video as a physical subtext had on the performers,

²³⁴ For instance, in *Rumstick Road* (1977), Rom Vawter's performance was based on the lip-syncing of the recorded conversation between Spalding Gray and his Father. In *L.S.D. (...Just the High Points...)* (1984) Nancy Reilly spoke her lines as she listened to the recording of Leary's babysitter via a Walkman.

²³⁵ Andrew Quick, *The Wooster Group Workbook* (New York: Routledge, 2007), 162.

Dafoe said: “They aren’t things that we necessarily copy but they inform how we’re doing something. It’s like if I’m talking to you but I may be looking at a Bugs Bunny cartoon. That’s going to affect how I’m talking to you and particularly if we play around with some imitations, some dialogue, with that unseen technology.... You’re a little off-balance. You’re always a little fluid.”²³⁶ Thus, the effect of bringing together the text of Schmidt’s translation with the live video and audio feed encouraged the performers to learn how to be present on stage yet created a sense of fragmentation and disembodiment as they fought to stay not ahead of or behind these materials.

As a counterpoint to the different continuities presented by the actor’s playing badminton on stage, the performance constantly employed technology to disrupt the neo-classical unities of action, time and place in order to redirect the audience’s attentions from the dramatic text back to the multiplicity of events on stage. In *To You, The Birdie! (Phèdre)*, this technological disembodiment was evident in the use of the mobile plasma screens that moved slowly and smoothly in front of the performers to divide their bodies and performances through live mediations. At the start of the piece, Hippolytus (Ari Fliakos) and Theramenes (Scott Shepherd) entered the stage and sat on a stool behind the downstage flat plasma screen that covered most of their lower bodies. As they started a conversation about Theseus’s long absence and Phèdre’s hostility towards Hippolytus, the video on the screen shows a slightly blurred action of the legs which seem to be matched to those of the actors, suggesting an X-ray representation. However, as the video and the actor’s conversation progressed, the representation did not precisely align with the bodies; as the performers crossed and re-crossed their legs, the video image moves slightly faster and out of synch with the actors’ movements. In many occasions throughout the

²³⁶ Auslander, “Task and Vision Revisited: Two Conversations with Willem Dafoe (1980/2002),” 102.

performance, while Phèdre (Kate Valk) delivered her monologues (read by the character Theramenes into a microphone at the back of the stage), the plasma screen downstage moved up and down to cover either Phèdre's head or feet with projected images of her head and feet. Later in the play, after Theseus (Willem Dafoe) returns from war and is being massaged by his attendants, he lays down on the floor with his head merged with a screen onto which his head was projected. Observing these visual disruptions, Steven Connor admitted: "I could not determine whether a time-delay or visual reverb system was in operation here, feeding actual movements back in to the performance, or whether we were watching a leg-track and a face-track recorded in its entirety on another occasion, or several occasions."²³⁷ Either Connor was seeing pre-recorded image projected on top of the live, or a live feed of the actor's head and legs videotaping in real time; as Arnold Aronson argued, it was the uncertainty caused by visual disjuncture that "engendered a phenomenological investigation that erupts in the minds of the spectators and which, importantly, overlays the text of Racine and adapter Paul Schmidt."²³⁸ Just as the disembodiment of visual materials refocused the audience's attention, later in this chapter, I discuss how the use of sound in this production gives rise to a schizophrenic listening situation and plays a significant role in activating the audience's auditory attention.

Over the years, the Wooster Group has developed a highly mediatized theatrical language through their engagement of technology; however, not all critics held a positive view of the group's use of technology to fragment the coherence of the classic drama. For Michael Billington, the Wooster Group's highly mediatized theatrical language undermined the moral dilemmas and the discursive meaning of Racine's *Phèdre*. As he wrote in the review of the

²³⁷ Steven Connor, "Watching the Birdie," *Steven Connor*, accessed May 10, 2018. <http://www.stevenconnor.com/birdie/>

²³⁸ Arnold Aronson, *Looking into the Abyss: Essays on Scenography* (Ann Arbor: The University of Michigan Press, 2005), 174.

group's performance at the Riverside Studio, London in 2002: "the endless battery of aural and visual effects is less a way of illuminating Racine than of ducking the problems in making classical tragedy accessible to a modern audience.... Look at the recent work of Lepage or Complicité and you find that technical wizardry is put to the service of complex ideas. What we are seeing at the Riverside is not really revolutionary or ahead of its time, but simply a piece of Wooster sauce."²³⁹ For Billington, *To You, the Birdie!* did not break new ground because he viewed the group's use of technology as the typical sort of nod toward modern development in theatre. While contemporary theatre incorporated technology like high resolution and elaborate lighting and sound systems to reinforce the scenography, the Wooster Group engaged technology in the service of a performance-making practice based on problem solving. Willem Dafoe illustrated this idea in an interview:

People will tell you different things but, for example in this piece [*To You, The Birdie!* (*Phèdre*)], our video stuff is home video stuff. Our sound stuff is home sound stuff. We started out quite humbly. Our computer stuff is home computer stuff. It was stuff that we had around. And when we get in a room and we make a piece, we bring our stuff with us. And it really doesn't involve ideas as much as these are wonderful tools to use to help us problem solve.... We do a lot of mix of live and prerecorded stuff and that really is interesting because you have to figure in the mix all the time.... You can't hunker down and absolutely control the performance because you've always got to reconsider the mix. Because even though you're working maybe with the same tracks, how it gets mixed each night by the technicians, who are basically performers—unseen performers—and how you feel that according to your feelings and how it comes to you. That's the tension

²³⁹ Michael Billington, "To You, the Birdie!" *The Guardian* May 11, 2002.

and that's the play of performing in one of the theatre pieces. So technology is just ... a wonderful go-between that helps us bounce stuff off of each other.²⁴⁰

For years, scholars have tried to find a general principle or theory behind the Wooster Group's use of technology. And yet, if there is one, it is a process of playing with different materials with a lot of trial and error, because LeCompte's insistence on being open to the materiality of performance in relation to theatre making means that her use of technology is more pragmatic than theoretical. Take her use of different TV monitors on stage for example: "To do with a television, you have to turn the television into another actor, a participator in the scene with you, one that you can't ever take for granted. You have to imagine, when you look at the TV, that it's for the first time and take on whatever is presented to you at that moment, so that you don't prepare for it. I'm taking what's a normal discipline in theatre and applying it to the TV—people think of TV as a mechanized thing, but you can't do that here. For me, there are so many impulses that can be generated by a visual picture."²⁴¹ By keeping a pragmatic relationship with technology, the Wooster Group's approach to disrupting the visual, spatial, auditory, and textual continuity is always anchored in simulating the sensory experience subject to the disjuncture of temporal and spatial dislocation. "There's no question that my work has been influenced by MTV," stated by LeCompte in an interview in 1984, "and specifically before MTV by ads on TV—the cutting, editing, distancing, storytelling, the combination of live characters and animation in commercials, the quick pacing. Telling a sometimes disjointed story in a very rapid way is definitely a great influence."²⁴² Even though the visual is at the core of the Wooster

²⁴⁰ Auslander, 102.

²⁴¹ Quick, 217.

²⁴² M.N. Levine, "Interview with Elizabeth LeCompte," *Theatre Times* 3, no. 8 (August, 1984), 13.

Group's work, its sound design also plays an important role in the group's simulation of the schizophrenic listening situation caused by the advent of recording and communication devices.

4.4 Sounding Out the Act of Listening in *To You, The Birdie! (Phèdre)*

In *To You, The Birdie! (Phèdre)*, the sensory disjuncture not only occurred through the actor's body interacting with projected images or videos of Merce Cunningham and Martha Graham's dances, but quite often it also happened in an unusual combination of the performance of natural and electronically mediated voice and the sophisticated use of playback sound effects associated with the actor's movement. The practice of juxtaposing two different types of voices emerged from the differing acting styles of Frances McDormand (who played the servant Oenone) and Kate Valk, as LeCompte recalled:

I realized that [a naturalistic style of acting] was what Frances was good at and I also knew that Katie wasn't at all comfortable with this type of naturalism as a performer. And this was the problem: with Frances being natural, Katie looked very awkward and uneasy in the language. Whenever I tried to get Frances to do what Katie is so good at, moving and saying the lines in a lifted, heightened, way, it just didn't work. So I had to set them off against each other. I had two kinds of performer that were an absolute anathema to each other. I solved this problem by having Scott provide a third voice that was the bigger voice.²⁴³

While the rest of the performers used their natural voice, all of *Phèdre*'s dialogue throughout the play was read by Scott Shepherd (who played Theramenes) into a microphone with an electronic vocal processor and a 1.5-second delay time-lapse at the back of the stage. She would only use

²⁴³ Quick, 263.

her natural voice when she was at points of high crisis or expressed distress. When Scott read Phèdre's lines, Valk did not attempt to lip-sync or embody the speech played back through the speakers. Instead, the separation of her voice from her body enabled Valk more freedom to physicalize the passion of Phèdre through her movements. Due to the visual deprivation, while the mediated voice conveyed linguistic meaning, it equally drew the listener's attention to the material presence of sound itself which took precedence over linguistic content. Observing the mediated voice in this production, Bonnie Marranca maintained, "The Wooster Group revels in the rhetorical play of text and image and hearing and sight, as they demonstrate the very process or 'articulation' Meaning is less important than the contrapuntal and polyphonic 'voices' each aspect of the staging expresses. What matters is the intensity of presence."²⁴⁴ Due to the sound reproduction and processing technology, the phenomenon of voice could be isolated and processed from its corporeal and origin in real time during the performance to an autonomous event, creating yet another layer to the bombardment of visual and auditory on the performer and the audience's perception.

Along with the mediated voice, the sound designer John Collins sampled a palette of sound objects out of their original contexts and reimagined their causes and effects when he mapped sound cues to almost every move the actors made. Taking the badminton scene as an example, Collins explained how the elaborate sound score was created:

Using recordings made from the actors' rackets as they struck shuttlecocks (birdies), impact sounds from FX CDs and samples from David Linton's electronic score, I created sounds to associate with Ari and Scott furiously slapping the birdie back and forth on the stage. There was one sound I played in tandem with Ari's racket, another for Scott's and

²⁴⁴ Bonnie Marranca, "The Wooster Group: A Dictionary of Ideas," *PAJ* 25, no.2 (May, 2003), 15.

a third that I could use at random. I triggered a sound for the birdie missing the racket and hitting the floor—the sound of a glass bottle breaking. If the birdie sailed upstage and landed in a little trough between the platform and a table, I hit a key with a watery splash on it.... If someone took a step wearing a particular shoe, I triggered a particular sound. If someone dropped anything (including himself) into the trough behind the stage, I triggered a splash. Most of the sixty-one keys on this keyboard remained active throughout the show.²⁴⁵

With the advent of digital sampling, Collins was able to easily sample different sound sources and assign them to each of the keys on a sampler so they could be triggered spontaneously.²⁴⁶ Similar to Pierre Schaeffer's approach to sound object, Collins isolated these sounds from their original contexts and transformed them into autonomous objects. By re-associating these sound objects and the actions on stage, such as bird-chirping sounds with the racket hitting the birdie or glass-bottle-breaking sounds with the birdie hitting the floor, it became obvious that the main dramaturgical function for the use of these sound objects was not to reinforce the action, but to interact with the performers on stage. In this case, a sound designer was hired not only to design the show but also to perform his work. Collins recalled how he had to perform with the performers onstage through his sounds: "I had to hit my keyboard a few milliseconds ahead of the very fast-moving performers, consequently I had to be able to predict the contact with the birdie before the actors actually made it. Timing my sound to land exactly with my expectation of the birdie hitting the floor I would trigger the bottle-break sound and quickly follow it with the

²⁴⁵ John Collins, "Performing Sound/Sounding Space" in *Theatre Noise: The Sound of Performance*, eds., Lynne Kendrick and David Roesner (Newcastle: Cambridge Scholar Publishing, 2011), 26-27.

²⁴⁶ Digital sampling refers to digital recording and playback—a process that turns sound waves into a stream of 0s and 1s, and then, when a sound is reconstructed, the digital-to-analog converter emits voltages corresponding to each of these binary numbers that resembles the original sound wave.

buzzer to end the point.”²⁴⁷ The arrival of more complex technology not only increased the possibilities of designing sound in theatre, but also encouraged the sound designer to think more creatively and to be an active participant in a production.

From the audience’s perspective, the juxtaposition of the disembodied voice and the re-purposed sound objects created a listening situation that reflected what Schafer referred to as “schizophonia”—a kind of sound phobia caused by removing and reassembling the sounds and their causes during the process of electroacoustic manipulation and reproduction. While Schafer viewed this listening situation as a threat to the three listening modes discussed by Soundscape studies because it disrupted the perspectives in the listener’s auditory attention, Pierre Schaeffer described the recorded sound as “acousmatic sound,” treating it as an aesthetic opportunity to sharpen the listener’s attention to sound. For Schaeffer, acousmatic sound gave rise to *reduced listening*, a mode of listening that refocused the listener’s attention to the intrinsic qualities of sounds, independent of its cause and of its meaning:

We have at our disposal the generality of sounds—at least in principle—without having to produce them; all we have to do is push the button on a tape recorder. Deliberately forgetting every reference to instrumental causes or preexisting musical significations, we then seek to devote ourselves entirely and exclusively to *listening*, to discover the instinctive paths that lead from the purely “sonorous” to the purely “musical.” Such is the suggestion of acousmatics: to deny the instrument and cultural conditioning, *to put in front of us the sonorous and its musical “possibility.”*²⁴⁸

Based on Schaeffer’s description, reduced listening as it was emerged from the concept of acousmatic sound, operating as a phenomenological reduction or bracketing by excluding

²⁴⁷ Collins, 27.

²⁴⁸ Pierre Schaeffer, “Acousmatics,” in *Audio Culture: Readings in Modern Music*, eds by Christoph Cox and Daniel Warner (New York: Continuum, 2004), 81.

everything that did not pertain to the material substance of a sound. In comparison to the three listening modes which stabilize the listener's relationship with an auditory environment and thus turn the listener into a passive receiver, as suggested by the Soundscape studies, the voluntary act of removing all references for a sound as suggested by reduced listening "disrupts established lazy habits and opens up a world of previously unimagined questions for those who try it."²⁴⁹ Therefore, according to Michel Chion, "reduced listening has the enormous advantage of opening up our ears and sharpening our power of listening."²⁵⁰ In this sense, Schaeffer's concept of acousmatic sound and reduced listening provides an understanding of how the use of mediated voice and the re-purposed sound cues could possibly create a focused auditory attention within the soundscape of the production. However, the use of acousmatic sound and reduced listening in *To You, The Birdie! (Phèdre)* is different from Schaeffer's reduced listening in its strict sense. For Schaeffer, reduced listening only concerns the act of listening to the intrinsic qualities of sound; in order to study acousmatic sound, it must be fixed and recorded. The acousmatic sounds in this production—the disembodied voice of Phèdre and the re-purposed sound objects that the designer uses to seamlessly mesh with the performers' movements—do not aim at focusing the audience's auditory attention on the value of the sound out of the context of the stage. Rather, they were employed to build different connections between sound and movement that the performer and the audience could respond to.

In this way, by stripping away the visual sources and focusing on the sound itself, the acousmatic sounds in this production do not entirely invoke the audience to listen in the mode of reduced listening. Even though reduced listening is able to heighten a listener's auditory

²⁴⁹ Michel Chion, *Audio-Vision: Sound on Screen*, ed. and trans., Claudia Gorbman (New York: Columbia University Press, 1994), 30.

²⁵⁰ *Ibid.*, 31.

attention, Chion asserts that the reactivation of the listener's attention cannot be achieved by reduced listening alone:

Schaeffer thought the acousmatic situation could encourage reduced listening, in that it provokes one to separate oneself from causes or effects in favor of consciously attending to sonic textures, masses, and velocities. But, on the contrary, the opposite often occurs, at least at first, since the acousmatic situation intensifies causal listening in taking away the aid of sight. Confronted with a sound from a loudspeaker that is presenting itself without a visual calling card, the listener is led all the more intently to ask, "What's that?" (i.e., "What is causing this sound?") and to be attuned to the minutest clues (often interpreted wrong anyway) that might help to identify the cause.²⁵¹

As Chion suggests, the different listening modes are usually overlapped and intertwined in the perception of a sound event. In Chion's categorization of different listening modes, causal listening is the most common mode of listening in order to identify a sound's cause, which is similar to Truax's concept of *listening-in-readiness*. In an acousmatic listening situation, the listener immediately engages causal listening to gather information about a sound cause; however, finding a cause in this visually deprived context is not identical to finding meaning. Just as someone responds to a text message alert tone while reading a book in a quiet environment, finding the cause of a sound is to search for a stable relationship between the listening subject and the auditory environment. It is only when the listener starts to question the source of the sound (whether the beeping sound is from the smoke detector or a cell phone) that his attention shifts from causal listening mode to a *listening-in-search* mode for the purpose, in Barthes' idea, of listening for the sake of meaning, "decoding what is obscure, blurred, or mute,

²⁵¹ Ibid., 32.

in order to make available to consciousness the ‘underside’ of meaning (what is experienced, postulated, intentionalized as hidden).”²⁵²

In *To You, The Birdie! (Phèdre)*, the acousmatic listening situation reactivates the audience’s auditory attention by challenging the mode of causal listening. By blurring the distinction between sound and its sources, Collins is able to sample and play back a palette of sounds to map the performer’s every movement and also the movement of each set piece. The disembodied voice, dubbed by another performer, and the video projected on the plasma screen constantly confound the listener regarding its precise location and origin. By sounding out an acousmatic listening situation with an overload of signifiers in the audience’s perceptions of sound, text, and video images, the Wooster Group requires that their audience stay active during the performance, constantly moving their auditory attention between different modes of listening.

²⁵² Barthes, 249.

CONCLUSION

As I started researching for this dissertation in 2004, the Tony Awards Administration Committee announced that any future awards for best sound design of a play and of a musical would be eliminated.²⁵³ According to Patrick Healy's *New York Times* article, the Committee's decision was driven largely by three factors:

1. Tony voters do not know what sound design is or how to assess it;
2. A large number of Tony voters choose not to cast ballots in sound design categories because of this lack of expertise;
3. Some administration committee members believe that sound design is more of a technical craft, rather than a theatrical art form that the Tonys are intended to honor.²⁵⁴

Finding the urgency to respond to those Tony voters who do not know what sound design is and do not feel competent to judge sound design, this dissertation argues that theatre sound design is not merely a technical craft but also an art form by examining how the development of different sound technologies influence sound making and the act of listening in theatre and the various ways of incorporating sound as a constituent part of the overall scenography in a production. In this dissertation, I emphasize the importance of sound in a theatrical production through an investigation of American theatre's engagement with the audio reproduction technologies in the 1970s. Since the incorporation of sound into each production discussed in this dissertation is

²⁵³ After conducting a review of the Best Sound Design of a Musical and the Best Sound Design of a Play categories with several industry professionals for 18 months, the Tony Awards have decided to reinstate the Sound Design categories for the 2017-2018 season.

²⁵⁴ Patrick Healy, "Tony Committee Decision to Drop Sound Design Awards Prompts Noisy Outcry," *New York Times*, June 12, 2014, <https://artsbeat.blogs.nytimes.com/2014/06/12/tony-committee-decision-to-drop-sound-design-awards-prompts-noisy-outcry/>

constituted in various ways, I reconstruct the type and variety of sounds by attending to the method and the artistic rationale of the sounds employed, the dramaturgical function of different auditory elements within a production, and the documented reception of the particular sounds.

Through my extensive analysis of Abe Jacob's rock and roll sound system for Broadway, Robert Wilson's use of the spatiality of sound to create a kinetic auditory environment, Richard Foreman's sculpting of different sound objects to create dense layers in his intermediate productions, and the Wooster Group's use of sound to manipulate the audience's auditory attention, I conclude that, by making sound repeatable, sound reproduction technology extends the understanding of sound from an ephemeral phenomenon to an event and object. Moreover, since sound could be analyzed and manipulated through electroacoustic means, it is not only to be understood in its production but in its reception. In the case of the productions discussed in this dissertation, the impulses are manifold. All these productions include conceptions of sound effects, sound object, sound event, and different modes of listening. While in each chapter I pair my case studies with each of these concepts, they are not mutually exclusive. In fact, all these conceptions and approaches are closely interwoven in the process of sound design for a production.

This dissertation's trajectory has taken it from Abe Jacob's sound design for Broadway in the 70s, as he establishes the modern sound design practice in theatre, and Robert Wilson and Richard Foreman's exploration of the autonomous use of sound and voice, as they breaks with the conventional dramaturgical use of sound in theatre, to an analysis of their resonances in a more current performance practice in the Wooster Group's use of sound. Having discussed how sound is staged and dramatized in response to the advent of technology in the previous chapters, I conclude this study by presenting my own sound design for Ping Chong's *Baldwin/NOW*.

In January 2016, New York-based interdisciplinary artist Ping Chong was invited by the Dance Department at University of Illinois to be the artist-in-residence to create a new piece of work. Right after I heard this news, I volunteered to join the sound design supervisor M. Anthony Reimer to co-design sound for this production. Although Chong had some preconceived design ideas for this new piece, he preferred to develop the design elements, especially sound, during the devising process. Over four weeks in January, I was present at every rehearsal to work with the performers. Led by Chong, I not only learned to listen more closely to my own design, but also to rethink the audio-vision relationship by paying more attention to the performers' breathes, impulses, and movements. As a result of the collaborative effort, Ping Chong, along with the design team and the ensemble members, created *Baldwin/NOW*—a work that responded to the unjust killing of Trayvon Martin and addressed the current conversation in America about race and the violence perpetuated against the African American communities throughout American history. Situating Chong's use of sound within recent discussions about theatre sound design and its relationship to the soundscape, which refers to the objects of sound in their given environments and the listener's engagement with these sonic environments, I ask: What does it mean to conceptualize theatre sound design in terms of sounding out and how does it affect our embodied experiences to the interrogation of race and violence in this production? How do the different approaches to design sound in a theatrical production discussed in previous chapters resonate through my own design of this production?

Through a close examination of the arrangement of spoken texts adapted from a 1968 speech by James Baldwin, pre-recorded voiceovers, and sound effects of pendulum swing and anvil strike, in tandem with movements and projections within the production, I first analyze the dramaturgical functions of these different sonic elements. Drawing on Tim Ingold's "Against

Soundscape,” in which he asserts that sound as well as light is not the object but the medium of our engagement with the world, I further challenge the appropriateness of the common design process that reduces visual and sound design to a binary opposition. I conclude by suggesting that the designed sonic elements in this production are not only to be listened to as sounding objects in the production of meanings. These different kinds of sounds, when put together with certain movements or projections, affect our subjective experience of the seen, inviting us to sound out the social injustice in the world of the production.

Research on Ping Chong’s multimedia works is extensive. It often focuses on his use of a variety of visual technologies and techniques, such as video installations or film projections.²⁵⁵ While sound is an equally important constituent part resonating throughout his works, the consideration of his approach to sound and its relation to vision has been sporadic. Chong was one of the first theatre artists to use recorded sound for stage production in the early 70s. His attention to various types of live and recorded sounds was evident in his theatre debut *Lazarus*—a work about a man whose face was bandaged returned from its biblical world to the surreal urban purgatory of New York City. Trained in visual arts and film instead of conventional theatre, Chong considered himself a collage artist whose approach is to combine materials in those combinations that have never been seen before. When *Lazarus* premiered in Meredith Monk’s studio in 1972, Chong juxtaposed static stage actions with large frame slide projections of urban scenes and a stairway inside a building, edited video clips of a fifties monster movie, amplified voiceovers, electronically generated scores, and sound effects. There were no dialogues and what happened on stage evaded a linear narrative. Chong has mentioned in several interviews that *Lazarus* was his most uncompromising work in his entire career, but more

²⁵⁵ For the discussion of Ping Chong’s multimedia works, see Theodore Shank, *Beyond Boundaries: American Alternative Theatre* (2002), pp. 252-263, and Esther Kim Lee, *A History of Asian American Theatre* (2011), pp. 110-118.

importantly, “it established his seminal integration of slide and film projection, puppetry and recorded sound in a theater work.”²⁵⁶

At the time *Lazarus* was created, New York avant-gardists were questioning boundaries between different art forms. For Chong, *Lazarus* could be seen as a three-dimensional extension of a piece of visual art; thus, the visual and audio elements in the show were designed to experiment with the audience’s spatial perception. For instance, all the sound effects were created live by Ping Chong during the performance. If a bird appeared on the slide, Chong would flip the book pages to simulate the bird’s flapping wings sound effect. Furthermore, the sound effects were picked up by a microphone and played back to the audience through the loudspeakers on stage. The main purpose of the use of microphone in this production was not to amplify the sound effects but to change the audience’s perception of the space. By changing the distance between the microphone and the sound source, Chong could take advantage of the proximity effect²⁵⁷ of the microphone to shape the tone and volume of the sound, thus affects the audience’s perception of the acoustic of the performing space. Moreover, creating sound effects for the performance in real time required Chong to participate more as a performer than as a designer/operator. In *Lazarus*, not only was sound an equal partner to the other visual elements in the performance but stage. If the Wooster Group is known for having sound designers work as a real-time Foley artist to create and perform sound during the performance since the early 90s, especially in *Brace Up!* (1990) or *To You, The Birdie!* (2001), Ping Chong’s approach to sound design predates the Wooster Group. Ever since *Lazarus*, sound has played an important role in inviting the audience to experience the world of his work from a different perspective. In my

²⁵⁶ Ping Chong, “Lazarus,” <http://www.pingchong.org/interdisciplinary-performance/production-archive/lazarus/>

²⁵⁷ The proximity effect is a phenomenon that causes the increase of low frequency response when the source of sound is moved closer to the microphone. Depends on different type of sound, the proximity effect can either create problem or become a tool to create shape sound creatively.

personal interview with Chong, he has contended that perceived silence, as a kind of designed sound, was the auditory landscape where the movements and actions in his visual oriented work in the 70s took place.

Chong's approach to exploit the relationship between silence and sound as a framework also reflected in the structure of *Baldwin/Now*. Premiering at the February Dance concert at Krannert Center of the Performing Arts, the first portion of the performance featured theatre artist Latrelle Bright quietly delivering a monologue adapted from James Baldwin's 1968 speech "Baldwin's Nigger" on an empty stage. For Chong, the audience needs to hear and feel the weight of her monologue. Therefore he advised Bright to use silence to give it weight. In the course of her monologue, Bright would often pause in between her lines. These pauses varied in different durations, and the function of them was more expressive than structural. When these silences were felt in the performance, they were heavy with a sense of desperation. It was also during these silent moments, the dancers started to enter the stage at different paths and times. Holding with the wooden chairs in their hands, they had learned to step within the dips and pauses of Bright's voice. Eventually, they positioned themselves around Bright right before the end of her monologue.

As soon as Bright finished the monologue, the audience heard the pendulum blade sound from the speakers, making a swoosh noise swung from left to right. This pendulum blade swing noises then became the foundation for the choreography of the second portion. As the pendulum blade sound moved in a steady rhythm, the dancers would stand up, sit down, turn left, and turn right. Sometimes they ran horizontally as if they were moving along with the direction that the pendulum blade moved, sometimes they sat on their chair not moving at all. On top of their movements there were also video projections and pre-recorded voiceovers. The video was a

projection of names of African American killed in the United States from the dawn of the twentieth century to present. The names would appear on the screen in the upper stage with the dates of their death and how they died. As each name appeared, there will be a pre-recorded voiceover reciting the names, date and cause of death. Half way through the dance, the same pendulum blade sound that the audience had been hearing repetitively got louder and the movements of dancers became more intense as the dancers started to move in a faster path. They started to fall off their chairs and they got up sit back to the chairs. They started to run from their chair but being pulled back to their chairs. In the meantime, the video projection of names and the voiceovers started to overlap. In the end of the dance, a sound of hammer striking an anvil was heard. Once the dancers heard the sound, they all fell to ground sitting on the chairs. The deep impact sound of the wooden chairs and their bodies hitting the dance floor was picked up by the contact microphones, and the vibration of this impact sound was played back to the audience through the subwoofers sitting in the front of the stage. As they fell to the floor, the video projection of names exploded and a pool of blood spurted all over the screen.

In most of the theatre pieces I have designed prior to this performance, the aim of the designed sound is to create sounding objects to harness the audience's focus listening and to tell them about what they could not see through vision. In *Baldwin/Now* I distinguish the different sounds I created for this production in three different categories.²⁵⁸ The prolonged silence in the first portion and the consistent pendulum blade swing sound effect and the final striking anvil sound in the second portion were respectively the prevailing sonic background of the performance. Dramaturgically speaking, the silence that underscored the monologue not only gave it weight, it also served as a dynamic counterpoint that foregrounded the harshness and

²⁵⁸ My methodology of distinguishing sound follows R Murray Schafer's analysis of the features of a sonic environment. See. R. Murray Schafer, *The Turning of The World* (1977).

violence of the pendulum blade swing noises. If the pendulum sound is the background, the pre-recorded voiceover of names was the foreground sounds designed to encode with messages or information. Finally, there were impact sound made by the dancers' footsteps, chair and body falling to the floor during the performance. These noises were carefully amplified by different microphones and mixed into the soundscape of the production.

Designing sound for *Baldwin/Now* was not only about crafting sound as a signifier, it was also about shaping the listening experience of the audience. The sound system in *Baldwin/Now* made a selective and very effective use of both the main and peripheral speakers. The pendulum sound that underscored the dance and the voiceover were initially programmed to be played back from the main speakers located on each side of the front stage. When the audience first heard these sounds, they sounded like they were coming from the stage where the dance and the video projections took place. In this way, the sounds pertained to the aesthetics of the fourth wall, favoring a directional and distanced listening experience. However, when the pendulum noises got louder in volume and sharper in pitch and the voiceovers started to randomly overlap, they progressively transmitted from the front of house speakers through all the peripheral speakers in a circular movement. Beyond signaling the names of the victims, the spherical diffusion of the voiceovers became an overwhelming burst of indistinguishable ambient noises. By playing back these sounds from the front of the stage to all around the auditorium, it not only broke the boundary between the stage and the auditorium, but also situated the audience within the soundscape of pendulum blade swinging frantically.

By shaping the audience's listening experience from a stage oriented one to a more omnidirectional acoustic experience, one would assume that sound immersed the audience within the designed soundscape due to the different sensorial perception between the ear and the eye. In

his seminal work *Orality and Literacy: The Technologizing of the Word* first written in 1982, Walter Ong asserts, “Sight isolates, sound incorporates. Whereas sight situates the observer outside what he views, at a distance, sound pours into hearer.”²⁵⁹ Examining the relationship between sound design and scenography, Ross Brown has observed that “ [W]ith visual theatre design: sense is derived on the basis of detachment from the scene. Sound, however, whatever events the sources of individual sounds might represent, is *in totum* an immersive environment. One cannot stand back from it and see the entire picture; one’s aural attention does not have the equivalent of sightlines; the theatrical mode of listening does not gaze uniformly, but is, by nature, a state of continual omnidirectional distraction.”²⁶⁰ Granted, while the eye cannot achieve peripheral vision, the ear simultaneously picks up sound waves from all directions. Yet, in a multimedia performance like *Baldwin/Now* where sound, movements and images coexisted and were inextricably interwoven, is the audience’s perception of the aural and visual design so departmentalized?

Being in the rehearsals for a month and attending the final performances, I found my perception of the consistent pendulum swinging sounds started to match my perception of the movements of the dancers. My intention for sound design was to create a focused listening experience and use a plethora of different sounding objects to reinforce the perception of violence in the racial tension between races, but my perception between the thing seen and the thing heard was blurred. As the movements became more intense and the voiceovers started to distort and overlap in multiple layers, I heard the drone sound of speech rather than names and the pendulum sound stopped to sound like a pendulum but vibrations in the air. Toward the end of the performance, sound objects were indistinguishable and played against my focus of

²⁵⁹ Walter Ong, *Orality and Literacy: The Technologizing of the Word*, (New York: Routledge, 2002), 70.

²⁶⁰ Ross Brown, *Sound: A Reader in Theatre Practice*, (Basingstoke: Palgrave Macmillan, 2010), p.132.

listening. Adrian Curtin has proposed that “a theatre soundscape is generally unpredictable and somewhat randomized; it is a site in which meaning is contested and negotiated. [...] Just as any give audience member will interpret a production in a relatively unique manner, so, too, will he or she comprehend and engage with a theatre soundscape relatively uniquely.”²⁶¹ For Curtin, a soundscape cannot be designed because it belongs to the realm of theatrical reception. Indeed, soundscape, named in 1969 by composer R. Murray Schafer, refers to a conceptual apparatus that refers to an acoustic environment that listeners experience as surrounding them in space. In this respect, a soundscape is not just a physical environment of given sounding objects, it is also the dynamic relationship between this environment and the way a listener perceives it. Yet, could the concept of soundscape still be an instructive tool to discuss a given designed acoustic environment if the sounding objects are indistinguishable and one’s engagement to this environment appeared to be phenomenally co-opt by both sound and visual design?

In suggesting that soundscape objectifies sound rather than treating it as experiential, Tim Ingold in “Against Soundscape” has observed that, “the environment that we experience, know and move around in is not sliced up along the lines of the sensory pathways by which we enter into it. The world we perceive is the same world, what ever path we take and each of us perceives it as an undivided centre of activity and awareness.”²⁶² For Ingold, there are no unique ontological qualities to each one of the human senses. As a matter of fact, the light waves and sound waves that influence our perception of the world share a surprising number of physical similarities. From here, he continues, “Sound, in my view, is neither mental nor material, but a phenomenon of experience—that is, of our immersion in and commingling with the world in

²⁶¹ Adrian Curtin, “Defining and Reconstructing Theatre Sound,” in *Theatre and Performance Design: A Reader in Scenography*, eds., Jane Collins and Andrew Nisbet, (New York: Routledge, 2010), 219.

²⁶² Tim Ingold, “Against Soundscape,” in *Autumn Leaves: Sound and the Environment in Artistic Practice*, ed., Angus Carlyle, (Paris: Double Entendre, 2007), 10.

which we find ourselves. [...] For sound, I would argue, is not the object but the medium of our perception. It is what we hear in. Similarly, we do not see light but see in it.”²⁶³

In the context of *Baldwin/Now*, Tim Ingold’s attitude toward the binary approaches that pit sound and vision against one another appears to be seminal, for they capture the essence of sound’s role in the performance. For Ping Chong, designing sound is a way to manipulate the audience’s perception of space and time rather than signaling the director’s intention or the meaning of the production. Even though my design process started from sampling sound as a sound object, it was when this object became indistinguishable through the electro-acoustic manipulation that it transformed from an object to a medium for the audience to “listen in.” To sound out race and violence in *Baldwin/Now* is not to create sounding objects to reinforce the movements and narrative, but to use sound as a medium to invite the audience to embody and explore a history that is discomfoting. Each night of the performance, the audience saw video projections of names of African Americans murdered by the law enforcement while immersed in the soundscape. Underneath the names were the dancers’ bodies, tuned to the same frequency as the audience’s in order to sense a history of racial tension not yet played out.

Gertrude Stein once said, “Nothing is more interesting to know about theatre than the relation of sight and sound.”²⁶⁴ However, this relationship between the thing seen and the thing heard—and by implication, the relationship between stage design and sound design—has been largely undeveloped in theatre scholarship and artistic practice. The phenomenon of sound, as I realized through the design of this production, is never perceived in isolation. The act of looking always plays an important role in the process of my auditory perception. There is a need not only to rethink the relationship between sound and image within the discourse of theatre sound

²⁶³ Ibid., p. 11.

²⁶⁴ Gertrude Stein, *Last Operas and Plays*. (Baltimore: Johns Hopkins Press, 1949), XLI.

design, but also to pay closer attention to the gap between sound as a medium and sound as an experience.

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