

SIGNAL TO NOISE:
MUSIC AND THE ECLIPSE OF MODERNISM

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A Dissertation submitted to the
Graduate School-New Brunswick
Rutgers, The State University of New Jersey
in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in History

written under the direction of

T.J. Jackson Lears

and approved by

New Brunswick, New Jersey

May 2013

ABSTRACT OF THE DISSERTATION

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There was danger in the modern American soundscape; the danger of interruption and disorder. The rhetoric of postwar aural culture was preoccupied with containing sounds and keeping them in their appropriate places. The management and domestication of noise was a critical political and social issue in the quarter century following the Second World War. It was also an aesthetic issue. Although technological noise was celebrated in modern American literature, music and popular culture as a signal of technological sublime and the promise of modern rationality in the US, after 1945 noise that had been exceptional and sublime became mundane. Technological noise was resignified as "pollution" and narrated as the aural detritus of modernity.

Modern music reinforced this project through the production of hegemonic fields of representation that legitimized the discursive boundaries of modernity and delegitimized that which lay outside of them. Postwar American modernist composers, reconfigured as technical specialists, developed a hyper-rational idiom of "total control" which sought to discipline aural disorder and police the boundaries between aesthetically-acceptable music and sound and disruptive noise. Leveraging the authority of the academy and the concert hall, they banished the danger in an idiom of total control that inscribed inviolable aesthetic boundaries that separated music from its other. The avant-

garde of the 1950s and 1960s introduced noise to the spaces of 20th century music and interrupted these boundaries, destabilizing the aural and aesthetic territories of modernism. Denying the authority of rationality and compositional intent, the avant-garde did not subsequently re-territorialize these spaces, producing a rupture in the discourse of modern music that shattered its hegemony and contributed to its eclipse by the end of the 1960s.

ACKNOWLEDGEMENTS

This project is the product of an extended conversation that I have been having with friends, family and colleagues since the day I became aware of music. That I was finally able to crystalize my musings in this form is largely due to the support and guidance I received from the members of my committee: Ann Fabian, Alison Isenberg, and Nancy Rao. I am particularly grateful to my advisor, Jackson Lears, whose advice, "you can't just write about stuff," focused my questions and inspired me to listen more closely and to dig deeper into the meanings contained in music and the aural environment around us. It is no overstatement to say that I could not have completed this project without his guidance, and the help of my committee.

I benefited from the enormous archival wealth of the New York Public Library for the Performing Arts, the Getty Institute, the Library of Congress, Columbia University's Butler Library, the Music Library of the University at Buffalo, and la Bibliothèque Nationale de France in Paris. In particular, I am very grateful for the assistance I received from Alexander Magoun at the David Sarnoff Library in Princeton, Greg MacAyeal at the Northwestern University Music Library and Richard Boursey at the Irving S. Gilmore Music Library at Yale University.

I retained my sanity and motivation largely thanks to the support and enthusiasm of my friends and colleagues. Regular jam sessions with Jim Livingston, which would alternate between twelve-bar blues and intellectual explorations into the more abstruse realms of cultural theory and history, helped me hone my chops in historical analysis and on the electric guitar. My studio collaboration with Mike Rashkovsky and Julia Dranov,

musicians of great talent and passion, kept me from imagining that sound and music were mere theoretical abstractions. My colleagues and coworkers at Rutgers-Newark, above all, Christina Strasburger and Lisa Toniolo, offered support and encouragement when the demands of research, writing and teaching became almost overwhelming. I must thank three of my oldest friends: Harris Breslow who inspired me to listen to the music in noise on his stereo in his Clanranald apartment many years ago, and Alan Conter and Ameene Shishakly, who read chapters and offered advice and ideas from outside of the boundaries of both the United States and the academy.

I owe a particular debt to my friends and graduate school colleagues Christopher Mitchell, Liz Gloyn, Andrew Daily, Allison Miller, Eric Barry and Alejandro Gomez del-Moral. In casual conversation, over beers, and in the Rutgers History Theory Reading Group, this extraordinary community of scholars helped to validate my ideas, pointed me in new and fruitful directions and encouraged me to push through the limits of discourse into "the soft bits" of cultural history. I cannot thank them enough for their genius, enthusiasm, humour and friendship, and I can only hope that, in some way, I returned the favour.

I have dedicated this project to the memory of my parents, Nancy Salter and Joe Friedman. They made me all that I am. Together, they taught me to read and to love books, stories, music and history. I would never have conceived of pursuing my doctorate without their encouragement, and I would have had neither the intellectual means, nor the motivation to pursue it to its completion without their unbending confidence in my abilities and their love. They were present at this project's inception and it is the deepest regret of my life that they are not here to see its completion.

Finally, I must express my deepest love and gratitude to Molly Giblin. My partner in all things, her ideas, knowledge and scholarship are as much a part of this project as are my own. She never doubted that I would complete this task even when my confidence flagged. She allowed me to howl in frustration when I hit the wall and felt that I could go no further, only to gently push me past every obstacle with encouragement and keen critique. She has read and reread every chapter, and every word and sentence bears her mark. Her belief in me and my work never failed, and this project would not have been possible without her limitless love and confidence.

DEDICATION

For Nancy Jean Salter and Joseph Aaron Friedman

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INTRODUCTION

MUSIC AND ITS OTHER

There was only silence. David Tudor sat at the piano at the Maverick Concert Hall in Woodstock, New York on a damp August night in 1952. The concert, to benefit the Artists' Benevolent fund, featured compositions by avant-garde *enfant terrible* John Cage, his colleagues from the Greenwich Village avant-garde music scene Earle Brown, Morton Feldman and 18-year-old Christian Wolff, and French composer Pierre Boulez. Henry Cowell's work *The Banshee*, composed in 1925, but still fresh and challenging 27 years later, would conclude the performance. Tudor premiered a new piece by Cage, erroneously listed as "Four Pieces" in the concert program. *4'33"* was a single work in three movements of various lengths determined by chance. "I was looking at sheets of music paper scored for piano—two staves—with measures of four beats and the structural delineations given by the constant tempo," Tudor later recalled. "So I was looking at the first movement and I was turning pages because I was reading the score in time."¹ However, the pianist did not play as he carefully followed the score. "This is a piece in three movements during all three of which no sounds are intentionally produced," Cage had specified.²

The audience, "made up partly of sophisticates of the avant-garde, partly of local music lovers, and partly of vacationing members of the New York Philharmonic," grew

¹ John Tudor, "Interview with Peter Dickinson, Ibis Hotel, London, July 26, 1987," in Peter Dickinson, ed., *CageTalk: Dialogues With & About John Cage* (Rochester: University of Rochester Press, 2006),

² John Cage, "Notes on Composition II," *John Cage: Writer*, ed. Richard Kostelanetz (New York: Cooper Square Press, 2000), 52.

restless, Kyle Gann notes.³ Cage's reputation preceded him, and they certainly expected to be challenged. But a composition consisting entirely of silence on a program of new music, in a space where *music* was supposed to be heard, was a step too far. The concert concluded with a discussion. Much of the audience was furious, writes David Revill. A local artist called on the "good people of Woodstock" to run Cage and his colleagues out of town.⁴ Given the audience's reaction, it is surprising how little noise *4'33"* made in the music press and newspapers at the time. They might have thought it was some kind of a hoax or a joke. Two years later, the *New York Times* scolded a much more respectful reception of a repeat performance of the work at the Carl Fischer Concert Hall: "Oddly, it is less easy to fool a naïve audience with such things than a sophisticated audience that does not know very much about the structure of music," a *Times* reviewer reported.⁵ Walter Winchell, ever on the lookout for threats to American society, listed Cage in a litany of that season's outrages, along with Christine Jorgensen and Andrei Gromyko's tuxedo. He wrote in his nationally-syndicated gossip that, "A new 'composition' for piano (by John Cage) consists of 4 minutes and 33 seconds of silence."⁶

It was no joke. "*4'33"* was not a gesture for Cage, but something he sincerely took to heart and one of the key moments in the development of his mature philosophy and practice," notes Douglas Kahn.⁷ Nor was there silence. The hall was open at one end to the forest, and in the audience's expectant hush, Cage later recalled, "we heard in the first [movement], breeze; in the second, the first drops of a light rain (on the roof); in the third,

³ Kyle Gann, *No Such Thing as Silence: John Cage's 4'33"* (New Haven: Yale University Press, 2010), 5.

⁴ David Revill, *The Roaring Silence, John Cage: A Life* (New York: Arcade Publishing, 1992), 166.

⁵ J.B., "Look, No Hands! And It's 'Music,'" *New York Times*, 15 April 1954, 34.

⁶ Walter Winchell, "Broadway Baubles and Beads," *The Washington Post*, 25 April 1954, ST21.

⁷ Douglas Kahn, "John Cage: Silence and Silencing," *The Musical Quarterly* 81, Winter 1997, 561 (556-598)

the voices of disturbed listeners, some of may be said to still be walking out."⁸ On a program of music, in a space coded for the quiet, respectful reception of music, with a performer reading a score prepared by a composer, there was only noise. The very environmental sounds and disruptions had to that point been excluded by musical convention and expectation. The performance of *4'33"* was a rupture in the discourse of modern music. With it, Cage and the generation of avant-garde composers he inspired announced the eclipse of modernism. Their music of non-music, to paraphrase Michel Foucault, "restored to our silent and immobile soil its rifts, its instability, its flaws."⁹ The avant-garde's aesthetic rebellion shook the dogmas of modernism to their foundations.

Noise was the other that lurked at the edges of music, just as madness stalks rationality. Undisciplined, unintentional, *unmusical* sounds always threatened to invade and disrupt the purity of performance and reception. In 1872, Viennese waltz composer Eduard Strauss famously exploded in an apoplectic fit at the intrusion at a concert in a Viennese *biergarten*. "The bone of contention is this," *The Musical Standard* reported. "Herr Straus considers that the noise of cups and saucers, dominoes and ice plates, not to speak of the clatter of the tall beer glasses used, must of necessity interfere with the true enjoyment of his music by those who can sit and listen without taking refreshment."¹⁰ The judicious application of sound-control technologies could help. In 1919, the Kieselhorst Piano Company of St. Louis, Missouri, offered a partial solution with the "Sitophone," an insulated, gramophone-equipped listening booth that allowed customers

⁸ Cage, letter to Rita LaPlante Raffman, 11 Feb 1977, ms., carbon, John Cage Collection, Music Library, Northwestern University, Evanston, IL, Box 24, Folder 5.

⁹ Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1994), xxiv.

¹⁰ "Foreign Intelligence," *The Musical Standard*, 20 April 1872, 208. In German, Strauss's name was spelled Strauß. The reviewer uses an alternate English rendering of his name, which is today normally spelled "Strauss."

to listen to music without interference. The clarity of sound was unprecedented, "as virtually all outside noise is eliminated."¹¹

The 20th century history of music and its other is imbricated in burgeoning modernity and the millennial aspirations of progress. "Music is inscribed between noise and silence, in the space of the social codification it reveals," Jacques Attali notes in *Noise*. "Every code of music is rooted in the ideologies and technologies of its age, and at the same time produces them."¹² Even if the modern world existed only in the minds of composers and their audiences, they believed that it was real. Recent attempts to expand the tent of modernism, to recognize that there were other valances, different faces and manifestations of what its adherents believed to be modern are valuable. They demonstrate the fluidity of an idea often wielded in the name of exclusivity and assimilation. Evacuated of rigid meaning, modernism only reveals itself in opposition to what it is not, and then only within the framework of the vision of a particular set of circumstances. By the midpoint of the 20th century, modernism had acquired an explicit set of meanings for composers and their audiences immersed in a rhetoric of modernity and progress that, Jackson Lears writes, "combined the delusion that Darwinian theory underwrote linear human advance with a vague technological determinism."¹³

Yet the path of inevitable progress was constructed on a paradox. Every innovation that confirmed human rationality and genius, and demonstrated humanity's dominance over its environment, threatened to subvert itself. The marshaling of the

¹¹ "H.A. Kieselhorst Perfects New Machine to Relieve Congestion," *The Music Trades*, 22 November 1919, 35.

¹² Jacques Attali, *Noise: The Political Economy of Music*, tr. Brian Massumi (Minneapolis: University of Minnesota Press, 1985), 19.

¹³ Jackson Lears, *Rebirth of a Nation: The Making of Modern America, 1877-1920* (New York: Harper Perennial, 2009), 236.

forces of mass production to generate wealth at a level unparalleled in human history produced class antagonism and poverty. The modern city provided for the shelter and transportation of millions, and the slums and ear-splitting din of urban congestion. Even technologies like the gramophone and radio, which promised to transmit the work of the giants of classical music, conversely threatened to bury it under a patina of noise. In the last pages of Herman Hesse's *Steppenwolf*, Harry Haller is appalled when Mozart tunes a radio to Georg Friedrich Handel's *Concerto Gross in F Major*. The "devilish tin trumpet spat out, without more ado, a mixture of bronchial slime and chewed rubber; that noise that owners of gramophones and radios have agreed to call music," he declares. "And behind the slime and the croaking there was, sure enough, like an old master beneath a layer of dirt, the noble outline of that divine music."¹⁴

What was this slime and filth? What is noise? The question of the aural other was critical to the project of modern music in the 20th century. Edgard Varèse's famous dictum that "subjectively, *noise* is any sound one doesn't like," is insufficient.¹⁵ Varèse's definition has the virtue of simplicity and the authority of one of the great composers of the 20th century, but it ignores the fact that one can hear music that "one doesn't like" while recognizing that it is *not* noise, but music. Conversely, music itself can also be noise. Throughout the first half of the century, for example, street musicians and marching bands were more frequent targets of civic noise abatement campaigns than even the sounds of street cars and automobiles. The choral movement of Beethoven's 9th *Symphony* is one of the great, universally-celebrated monuments of music but, at 3:00 am, when you're trying to sleep, the sounds of a choir lustily singing "*Freude, schoener*

¹⁴ Herman Hesse, *Steppenwolf*, tr. Basil Creighton (New York: Henry Holt and Company, 1963), 212.

¹⁵ Edgard Varèse, "The Liberation of Sound," *Perspectives of New Music* 5, Autumn-Winter 1966, 18. (11-19)

Goetterfunken, Tochter aus Elysium" bleeding through the wall from your neighbour's apartment is nothing less than noise.

Noise seemed eminently classifiable in the full positivistic flush of postwar American scientism. "It seems possible to distinguish between two kinds of noise: acoustical noise and cultural noise," the American composer and music theorist Leonard Meyer wrote in 1957. "Acoustical noise results from poor building acoustics (echoes, dead spots, etc.), poor transmission systems (which we leave to the hi-fi-natics), or just plain extra-musical sounds (talking, airplanes, and mosquitoes, if one is a devotee of summer concerts). Cultural noise, as I shall use the term, refers to disparities which may exist between the habit responses required by the musical style and those which a given individual actually possesses."¹⁶ What Meyer failed to recognize, and what the avant-garde would soon make clear, was that *all* noise is cultural noise. The categories of relative acoustical quality and extra-musicality are culturally produced and historically contingent. Noise is sound out of place and is not produced sonically or subjectively, but rhetorically.

American modernism was a protean discourse. It sought to reconcile the contradictory impulses of release and restraint unleashed by the promise of progress and the awesome power set loose by industrialization and technology. Lears notes that much of American history "is the story of how tensions that originated in religious conflict – between spontaneity and authority, release and control – were translated at various times into secular, public terms."¹⁷ Indeed, American modern music in the 20th century followed a trajectory of rapturous innovation, invariably followed by a retrenchment and

¹⁶ Leonard B. Meyer, "Meaning in Music and Information Theory," *The Journal of Aesthetics and Art Criticism* 15, June 1957, 420.

¹⁷ Lears, *Rebirth of a Nation*, 6.

re-inscription of discursive boundaries. "Of course, the history of music has always been involved in controls, rarely with any new sensitivity to sound," Feldman wrote in 1965. "Whatever breakthroughs have occurred, took place only when new systems were devised." Yet the music of the past had always, he noted, preserved the dichotomy of "the man and the machine." There had always been an "aura of danger, of something gone amiss."¹⁸

There *was* danger in the modern American soundscape; the danger of interruption and disorder. The rhetoric of the postwar aural culture was preoccupied with the project of containing sounds and keeping them in their appropriate places. The dominant modernism of the time reinforced this project through the production of hegemonic fields of representation that legitimized the discursive boundaries of modernity and delegitimized that which lay outside of them. By the 1960s, high-modernist composers such as Milton Babbitt and Roger Sessions, leveraging the authority of the academy and the concert hall, had banished the danger in an idiom of total control that inscribed inviolable aesthetic boundaries that separated music from its other.

Sound, as a component of the historical sensorium, has received considerable attention in historical literature in recent years. As Sophia Rosenfeld noted in her contribution to the *American Historical Review's* forum on "The History of the Senses" in April 2011, "auditory history has entered the discipline with a vengeance—at the intersection of the history of music, the body, technology, medicine, disability, the environment, and everyday life."¹⁹ Much of this work is deeply indebted to R. Murray

¹⁸ Morton Feldman, "The Anxiety of Art," *Give My Regards to Eighth Street: Collected Writings of Morton Feldman*, edited by B.H. Friedman (Cambridge, MA: Exact Change, 2000), 27.

¹⁹ Sophia Rosenfeld, "On Being Heard: A Case for Paying Attention to the Historical Ear," *The American Historical Review* 116 (2), April 2011, 317.

Schafer, whose 1977 book *The Tuning of the World*, republished in 1994 as *The Soundscape: Our Sonic Environment and the Tuning of the World*, introduced the analytical categories deployed by virtually every historian of sound. Schafer's notion of the soundscape – an aural environment as important as physical and social environment – has been profoundly influential. In Schafer's formulation, soundscapes are composed of two discrete features. Keynote sounds form the aural background; they are sounds that "may not always be heard consciously," but "the fact that they are ubiquitously there suggests the possibility of a deep and pervasive influence." While these do not usually contain meaning, signals "are foreground sounds and they are listened to consciously." Signals both contain meaning and announce themselves, like bells and sirens, and "may often be organized into quite elaborate codes permitting messages of considerable complexity to be transmitted to those who can interpret them."²⁰

Mark M. Smith makes liberal use of Schafer's taxonomy in *Listening to 19th Century America* to posit that meanings were articulated through sound both before and after the Civil War, writing of an "aural sectionalism" that divided the industrial North from the agrarian South, and produced a barrier of unintelligibility. Though disruptive and problematic when uncontrolled – and thus subject to the very first legal restrictions on sound – mechanical sounds were nonetheless deemed an expression of a healthy, industrializing society looking toward a progressive future. For the social and ideological leaders of the North, many of whom, Smith notes, would help set the agenda for the Progressive movement's sometimes troubled embrace of technology, "the aural activities

²⁰ R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, (Rochester, VT: Destiny Books, 1994), 9-10.

of the northern working class evidenced the efficacy and appropriateness of northern freedom and democracy."²¹

Yet Americans' relationship with their aural environment was, and remained, highly contested. This discourse had fairly early antecedents in American history. For example, in *Hearing Things: Religion, Illusion and the American Enlightenment*, Leigh Eric Schmidt documents the privileging of writing and the marginalization of sound in the "Enlightenment Project" of eighteenth and nineteenth-century American religious discourse: "Enlightenment philosophes sought a quieter heaven—no ethereal, revelatory voices; no divine speech apart from the mechanisms of nature."²² While the written word embodied the universal rationality of modernity and was consistent with masculine rhetorics of control and discipline, the spoken and sung word, and sound generally, was deeply mistrusted for its sensuous resonance, indiscipline and – as passively received – for its "femaleness."²³

The aural history of the modern United States can be seen as an ongoing struggle for aural discipline. In her 2002 monograph *The Soundscape of Modernity*, Emily Thompson's explores the emergence of modern acoustic science in the effort by architects and engineers to contain and structure the reception of sound in an increasingly crowded aural environment. With the prevalence of increasingly technologically-mediated sounds in the first third of the 20th century, Thompson charts the emergence of "equally new trends in the culture of listening."²⁴ Some of these included the valorization of a "silence"

²¹ Mark M. Smith, *Listening to Nineteenth-Century America* (Chapel Hill: University of North Carolina Press, 2001), 159.

²² Leigh Eric Schmidt, *Hearing Things: Religion, Illusion, and the American Enlightenment* (Cambridge: Harvard University Press, 2000), 125.

²³ Schmidt, 34.

²⁴ Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America 1900-1933* (Cambridge: The MIT Press, 2002), 2.

that had not existed prior to the 20th century and the articulation of a discourse of "modern sound" premised on focus and control. Thompson documents an engagement with noise by acousticians and engineers that focused on its exclusion from a discourse of "modern sound." Yet in the years following the Second World War, with the multiplication of noise sources, the escalation of levels and the production of noise as the abjected aural detritus of modernity created a crisis for "modern sound" to police its borders.

Karin Bijsterveld's *Mechanical Sound: Technology, Culture, and Public Problems of Noise in the Twentieth Century*, published in 2008, addresses the modern soundscape from the other side of the boundary. A history of the "problem" of noise from the end of the 19th century to the end of the 21st, Bijsterveld's study focuses on the "spatialization" of silence and technological noise. In producing spaces of control, as Thompson documented, acoustic theory and, above all, noise abatement policy produced a corresponding space of noise "We have been trying to create islands of silence," she writes, "yet have left a sea of sound to be fiercely discussed."²⁵ The source of the noise – whether technological or human determined what form that discussion would take, whether subjected to legal injunctions or celebrated or tolerated. Surprisingly, Bijsterveld finds a remarkable consistency and continuity in the strategies throughout the 20th century. While she challenges the notion that noise is the inevitable handmaiden of progress and economic prosperity, Bijsterveld's notion of the continuity of noise problem rests on an uncritical deployment of noise as a material, trans-historical category.

²⁵ Karin Bijsterveld, *Mechanical Sound: Technology, Culture, and Public Problems of Noise in the Twentieth Century* (Cambridge, MA: The MIT Press, 2008), 4.

More broadly, the relationship of noise to sound and the conditions of their appearance has been a central focus of the developing field of sound studies over the last decade. As Michele Hilmes observed in *American Quarterly* in 2005, sound studies originated within film studies, inspired by French composer and theorist Michel Chion's 1994 study *Audio-Vision: Sound on Screen*. Its main thrust is less "the study of sound itself, or as practices of aurality within a particular industry or field, than of the cultural contexts out of which sound media emerged and which they in turn work to create: *sound culture*."²⁶ Indeed, in *Noise, Water, Meat: A History of Sound in the Arts*, Douglas Kahn makes a strong argument for a study of sound culture that parallels the exploration of visual culture in the arts of the 20th century. In Kahn's reading, sounds appear in art both acoustically and as representations, yet they have a significance and signification tied to their moment of production and reception. The "sound and the fury never signify nothing or, rather, just nothing," he writes. "What such auditive states have proven to drown out are the social in sound – the political, poetical, and ecological."²⁷

In *Acoustic Territories: Sound Culture and Everyday Life*, Brandon LaBelle notes that "acoustic space," the physical mapping of a sound event, is both fluid and transient and "brings forward a process of acoustic *territorialization*, in which the disintegration and reconfiguration" of space "becomes a political process."²⁸ Acoustic territories are thus highly contested spaces in struggles for power at personal, political and cultural levels. "The act of disturbing the neighbors developed into an elaborate network of social

²⁶ Michele Hilmes, "Is There a Field Called Sound Culture Studies? And Does It Matter?" *American Quarterly* 57, March 2005, 249.

²⁷ Douglas Kahn, *Noise, Water, Meat: A History of Sound in the Arts* (Cambridge, MA: The MIT Press, 2001), 4.

²⁸ Brandon LaBelle, *Acoustic Territories: Sound Culture and Everyday Life* (New York: Continuum, 2010), xxv.

challenges," he writes.²⁹ The "ambient architecture" of a 20th century shopping mall, with its carefully-designed acoustic treatments and keynote of Muzak, is designed to produce specific customer behaviours and subjectivities that promote consumption. Yet the process is complex, requiring a dynamic negotiation of both the commercial goal and the customers' desires. The "mall instigates a level of feedback so as to loop the customer and the shopping condition together, weaving them into a psychodynamic structure."³⁰

In his ambitious and often speculative book *Making Noise: From Babel to the Big Bang & Beyond*, Hillel Schwartz proposes that a history of noise, in particular, can be understood as a dialectic of creation and loss. "What disrupts the initial stillness is at first and always noise," he writes, "having disrupted the stillness, noise is forever conditioned by nostalgic yearnings for a calm that is no more, pleading for a peace to be restored, oracles of a harmony yet to come."³¹ Schwartz writes that there is hope and expectation in the appearance of every new noise, regardless of how "unwanted" its aural disruption might be and, in negotiating this apparent paradox, the Western narrative of noise has been a fluid process of ekphrasis and metaphor. The irreducibility of the paradox is what ultimately opens a creative cultural and linguistic space. "Timeless and untimely, noise is the noisiest of concepts, abundantly self-contradictory," he writes. "Noise must be what we were waiting for all along, an encounter with the chaotic that loosens the lug-bolts of routine."³²

The literature of the history of American modern music is extensive, reaching back to the 1930s as critics and, more often, the composers themselves undertook the

²⁹ LaBelle, 53.

³⁰ LaBelle, 175.

³¹ Hillel Schwartz, *Making Noise: From Babel to the Big Bang & Beyond* (New York, Zone Books, 2011), 20.

³² Schwartz, 858.

difficult task of explaining their idiom in the context of contemporary culture and European musical tradition to an often resistant audience. Cowell invited his colleagues to discuss each other's work in *American Composers on American Music* in 1933. Nicolas Slonimsky is today remembered less for his music than for *Music Since 1900*, an encyclopedic compendium of modern music first published in 1937 and issued in six editions until 2001. More explicitly scholarly treatments appeared in the second half of the last century as 20th century American music became recognized as a discrete genealogy, such as Barbara Tischler's *An American Music: The Search for an American Musical Identity*, published in 1986, and Nicholas Tawa's *American Composers and their Public* from 1995. Although both Tawa and Tischler pay close attention to the interaction of compositional intent and conditions of audience reception, their narratives are extremely narrow, discussing the composer-audience relationship in isolation from other cultural currents to define how American modern music was essentially American. Tischler, in particular, fails to interrogate the rhetorical and discursive content of modernism, seeing it instead simply as a style and practice that composers adopted "to contribute to the acceptance of American music, irrespective of its intended national inspiration or message."³³

More recent scholarship has greatly expanded the genealogy of American music, to situate it the broader cultural conversation of the 20th century. For example, musicologist Nadine Hubbs argues for the centrality of gender identity in the work of some of the leading American composers, including Marc Blitzstein, Aaron Copland and Virgil Thomson. In *The Queer Composition of America's Sound: Gay Modernism*,

³³ Barbara L. Tischler, *An American Music: The Search for an American Musical Identity*, (New York: Oxford University Press, 1986), 92.

American Music and National Identity, she argues that the compositions of queer modernists like Copland can be understood as performativity through which they "composed" themselves to be publicly consistent with hegemonic gender ideologies. "In its appropriation into the national-symbolic imaginary, and even in some of the scenarios in which it was originally presented, Copland's Americana idiom is outfitted with a sentimentalized national heterosexuality."³⁴ Although Hubbs is primarily concerned with the gender politics and personal networks that bound her circle of modernists together, she nods in the direction of the transatlantic conversation between American music and French neo-classicism in which they were immersed. That conversation, and the broader context of the intellectual and creative environment of the 1920s – including Dadaism, Futurism, jazz and theosophy – is the focus of Carol Oja's *Making Music Modern: New York in the 1920s*, published in 2003. Oja convincingly implicates the many streams of American modern music in the fluid and often contradictory rhetoric and iconography of the early efflorescence of interwar modernism in France and Germany, as well as in the United States.

The place of music in aural culture or, more specifically, how music is historically imbricated in the complex negotiation of meanings in the historical soundscape, has only recently been addressed. Veit Erlmann's sprawling *Reason and Resonance: A History of Modern Aurality*, published in 2010, argues for a history of the subject that privileges sound culture as the marker of space and time. Erlmann devotes considerable attention to music as one of the myriad modes of sound, and one particularly amenable to the 19th century "Romantic project of replacing the finite divine cosmos with a world forever in

³⁴ Nadine Hubbs, *The Queer Composition of America's Sound: Gay Modernism, American Music and National Identity* (Berkeley: University of California Press, 2000), 10.

the making."³⁵ Joel Dinerstein's *Swinging the Machine: Modernity, Technology and African American Culture Between the Wars*, published in 2003 is both more focused and far-reaching in its analysis of the linkages between sound culture, music and subjectivity. He argues that jazz emerged in the 1920s as a cultural response to the machine-age challenge of "how can a human being reclaim his or her human motor from workplace demands, and how can a person integrate the newly revved-up, machine-driven human motor into the entire human organism?"³⁶ By reconfiguring the rhythms of technology, he notes, African-American musicians and their audiences were able to recuperate a subjective "humanity" from the dehumanizing ambitions of machine-age modernity.

This study argues that music and sound are not separate entities engaged in a cultural dialogue, however; music *is* sound. It is the clearest signal in the soundscape, a "soundmark" in Schafer's taxonomy, imbued with complex emotive and narrative meanings.³⁷ Music may be read as a text which reveals the genealogy of sound discourse, the intentionalities of composers and musicians, and the aural codes whose boundaries contain cultural expectations and reception. The most highly determined and intentional of sounds, art music offers unique access to the competing ideological claims to aural space in the 20th century.

The rhetoric of space is central to music. It is not all that different in this respect from other art forms, such as literature, painting and sculpture. Visual and performing arts have clearly defined "spaces" – the canvas, the space occupied by a sculpture, the stage which constrains the action of a play. But while the space of music is physical – the

³⁵ Veit Erlmann, *Reason and Resonance: A History of Modern Aurality*, (New York: Zone Books, 2010), 216.

³⁶ Joel Dinerstein, *Swinging the Machine: Modernity, Technology and African American Culture Between the Wars* (Amherst: University of Massachusetts Press, 2003), 11.

³⁷ Schafer, 10.

concert hall or the listener's living room – it is also primarily rhetorical. The very language of musical theory deploys space: the motive moves, through time certainly, but also in relation to a field of rhetorical space produced by the dynamics of harmony. Harmony itself is understood in terms of the "interval distance" between tones; while there may be no actual physical separation between the tonic and dominant notes of a scale, they are referred to having a distance of "one fifth," or eight semitones. Sounds are not simply arranged according to harmonic and melodic conventions, they are also organized in "forms" whose meaning rhetorically evokes shapes.

The musical conventions of 20th century modernism were narrated as having specific boundaries within which the sounds which sounds are music and, outside of which they are not, no matter how they are arranged. "As soon as you leave them you are in an area of music not recognizable as such," Feldman observed with a combination of defiance and pique.³⁸ It was, however, an area recognizable as noise. Indeed, the spaces of 20th art music – physical, social, harmonic and rhetorical – were entirely territorialized as spaces of order and rationality. Noise, LaBelle notes, gave "form to the radically formless, creating space for the intensities of diversity, strangeness, and the unfamiliar."³⁹

The title of this study refers to the signal to noise ratio, an axiom of modern signal processing theory. This concept describes the relative power of a given signal to the accompanying background noise, and is used to describe qualities as diverse as subjective video quality, the clarity of an audio signal and harmonic distortion. Hesse invoked noise as a metaphor for the intelligibility of knowledge; Mozart explains that the sound of the music just breaking through the radio static is a manifestation of the central contest of

³⁸ Feldman, "The Anxiety of Art," 28.

³⁹ LaBelle, xxiii.

modernity between knowledge and its other. Foucault notes that modernity was constructed of categories that classified objects of knowledge according to their sameness and excluded the other beyond their boundaries: "a profound historicity penetrates into the heart of things, isolates and defines them in their own coherence, imposes upon them the forms of order implied by the continuity of time."⁴⁰

Noise interrupted the space of modern aural order. It is, Simon Reynolds writes, anti-music: "interference, something which blocks transmission, jams the code, prevents sense being made." Aural "sense," an articulation of modern rationality, was thus threatened by annihilation by the "dark, unmanageable matter of horror and sickness" of noise, the aural abject that causes "a blockage and destabilization of the codes by which we make sense of the world, make life habitable."⁴¹ Noise is not *sound that interrupts* order but the interruption itself. Articulating modernity's aspirations of progress and rationality, modernism produced itself in spaces of order – within the boundaries of discourse and well as in the confines of the concert hall. Cage, Feldman and their avant garde colleagues interrupted these boundaries and brought the formless, disorganized and unintentional from the outside in. The opening of aural and musical space to the outside signaled the collapse of modernism.

During the 20th century, music was subjected to the modern project that sought to discipline disorder and subject the aural environment to rational control. Paradoxically, modernism collapsed because it succeeded too well. It produced an idiom of music, exemplified by the works of Babbitt, Sessions, and other composers endorsed by the academy and official culture, that required highly-specialized skills to produce and

⁴⁰ Foucault, xiii.

⁴¹ Simon Reynolds, *Blissed Out: The Raptures of Rock* (London: Serpent's Tail: 1990), 57.

understand. Yet, in doing so, its exponents isolated themselves behind increasingly rigid aesthetic and institutional boundaries from a fluidly changing sound culture and society. In their search for technical excellence and pure rationality, modernist composers made themselves irrelevant, while inviting the noise of the avant-garde's anti-rational critique.

Modern music is still composed and performed today. It can be heard in symphony concerts and accompanying the heroics of Hollywood action pictures. Babbitt composed music almost to the year of his death in 2011 and contemporary composers as diverse as Karlheinz Essel and Robert Morris continue to produce recognizably-modern music. It remains a viable idiom, just as a composer today might choose to write music in the style of Bach or employ the contrapuntal techniques of *Ars Nova*. It continues to be heard in concert halls alongside the music of Mozart, Beethoven and Mahler. However, it can no longer make the sole, authoritative claim to the aural and discursive territories of music. The aesthetic rebellion of the 1950s and 1960s subverted modernism's authority and hegemony. After the avant-garde, there were no borders; there was only noise.

CHAPTER 1

A FIERCE-THROATED ROAR

I. The Bane of Modern Life

"Noise... is the bane of our existence," physicist Vern Knudsen observed in *Time* magazine in the winter of 1961. The co-founder of the Acoustical Society of America in 1922, whose research in architectural acoustics was critical to the development of postwar noise control technology, had frankly had enough; he hated noise. And no wonder; the *Time* reporter observed that the United States had become the loudest place on earth, and was getting noisier: "Ever more numerous jet planes scream overhead, unmuffled trucks roar through city streets, sports cars whine along once placid suburban roads, and missile-age workers are being exposed to the highest and most dangerous noise levels in history."⁴²

The irony, of which neither the reporter nor Knudsen were probably aware, was that Knudsen's campaign against this "human plague" of noise appeared in the same issue that celebrated America's scientists as "Men of the Year" for 1960. Among the fifteen men honoured were architects of technologies closely associated with American genius, prosperity and power: Charles Stark Draper, who developed the navigation systems used by the jets roaring overhead; William Shockley, who won the Nobel Prize in 1956 for his part in inventing the transistor that "made possible everything from the fob-sized portable radio to the fantastic instrumentation that the U.S. packs into its space satellites;" Edward

⁴² "The Noise Haters," *Time*, 2 January 1961, 29.

Teller, the father of the hydrogen bomb – at 278 dB, the loudest human-made noise ever produced.⁴³

The contrast between the article about Knudsen and the cover story on his illustrious colleagues in the scientific community underlined one of the great paradoxes of postwar American modernity: the technologies and innovations that had made the United States the world's preeminent superpower and had delivered unprecedented prosperity to millions of America had also produced a plague of noise so great that, at times, it dominated public policy debates, obsessed environmental and occupation health professionals, and threatened to delay the coming of the Jet Age.

Such concerns were not, of course unprecedented. The United States, particularly its cities, was already a noisy place in the 19th century. As early as 1877, the Philadelphia *North American* reported on the "nerve destroying tumult" of morning in the city. The *North American's* reporter bemoaned the coming dawn, when the volume of city noise rose with the sun and city dwellers awoke "to hear the huckster shriek 'watermillions, red ripe termatteses, canteloupes, string beans, pertaties, peaches ten cents er quarter peck, cheap sugar coren,' etc."⁴⁴ The Pittsburg *Dispatch* noted in 1891 that it was enough for "city folk to sigh for the quiet of the country" and hope to escape "the monotonous, discordant songs of the city noisemakers by day and by night."⁴⁵ The New York *Sun* reported on a "quaint Long Islander" who, visiting Manhattan to procure winter supplies, complained "How yer can stand these noises beats me... I can't stay here overnight, nohow. Last year they nearly drove me crazy."⁴⁶

⁴³ "Men of the Year: US Scientists," *Time*, 2 January 1961, 42.

⁴⁴ "Noise," *The North American*, Philadelphia, 15 August 1877, 1.

⁴⁵ "Snap Shots in Season," *The Pittsburgh Dispatch*, 15 August 1891, 4.

⁴⁶ "Various Observations," *The New York Sun*, 4 October 1891, 28.

Noise was the inevitable byproduct of increasing urban congestion, and this was most evident in New York, America's largest, and most congested city. There were, by 1906, reported the *New York Daily Tribune*, "many persons who think that New York City is the noisiest city in the world and that there are many unnecessary noises to be heard within its borders." It was high time, the newspaper argued, that somebody did something about "the shrill, inane whistle of the cheerful milkman, the muffled bat, bat of a carpet beater, the bugle blast of the 'scissors to grind' man, the jangle of the junkman's string of cowbells, horribly out of harmony; the rattle of coal in the chute on Its way down to the cellar, or the crash and bang of a street piano."⁴⁷ Drawing a direct connection between urban noise and "nervous and mental diseases" and bemoaning the inability of police to enforce "noise discipline," the *Tribune* called for a civic crusade, led by municipal officials to stamp out the plague.

Vexation over noise was expressed in newspaper and magazine articles from San Francisco to New York that peaked in the late-1920s. They marked the emergence of a discourse that constructed the problem – and its solutions – as one of borders. It was not so much a question of the *quality* of sound, although the rhetoric of the moment defined it as "sound without agreeable or musical quality,"⁴⁸ but of social and cultural boundaries. Invisible and intangible, noise transgressed class, gender, racial and above all, spatial boundaries. Jacques Attali notes in *Noise: The Political Economy of Music* that street musicians were routinely expelled from 19th century cities in an effort to control "those

⁴⁷ "New York is Plagued by Needless Noises," *New York Daily Tribune*, 28 October 1909, 4.

⁴⁸ Edward F. Brown, E.B. Dennis, jr., Jean Henry, G. Edward Pendray, eds., *City Noise: the Report of the Commission Appointed by Dr. Shirley W. Wynne, Commissioner of Health, to Study Noise in New York City and to Develop Means of Abating it* (New York: Noise Abatement Commission, New York Department of Health, 1930), 106.

[performers] who were unable to enter the capitalist mode of production."⁴⁹ Music that resisted market discipline could not be performed in spaces determined and governed by the authority of the market.

Such aural-spatial discipline was practiced as commonly in American cities. The *New York Times* reported on an 1881 Paris police order "forbidding jugglers, organ grinders and 'wandering minstrels,' from standing and performing on the public thoroughfares" under the headline "Why not do it here?"⁵⁰ Why not, indeed? By 1889, the *Times* reported that Mayor Hugh Grant had been inundated with mail from New Yorkers "ferocious in their desire to banish the wandering minstrels from the city."⁵¹ An attempt to suppress "the organ grinder and wandering trombone player" was stalled by an Alderman Carlin a few weeks later who, in the words of the *Times*, "showed himself to be the champion of the humbugs who make nuisances of themselves in the public streets."⁵² By the end of the year, City Council finally passed the ordinance, greatly restricting the places and hours where street musicians could legally play, and licensing no more than three hundred in the entire city. Washington, D.C. and Chicago soon enacted similar bylaws.

It was not the melodiousness (or the lack of it) of the street musicians that turned their music into noise, but where, when and by whom their music was performed. What emerges from the earliest debates on noise control in American cities is that noise was understood, above all, as sound out-of-place, a disordered force that needed to be brought to heel. The problem of street musicians was narrated as the penetration of American

⁴⁹ Attali, 73.

⁵⁰ "Why Not Do it Here?" *New York Times*, 21 May 1881, 3.

⁵¹ "Street Musicians Denounced," *New York Times*, 19 July 1889, 8.

⁵² "Carlin is Also a Nuisance," *New York Times*, 24 July 1889, 2.

space by the undisciplined, foreign, immigrant "other." The organ grinders were invariably Italians, and the *Times* bemoaned "the most appalling combinations of tone ever extorted from brass and wood" by the "annual invasion of the Germans with their bands."⁵³ It is no accident that the Philadelphia "huckster" pitched his "watermillions" and "termatesses" in a heavy and presumably foreign or African-American accent.

The problem of noise was one of the aural discipline of spatial boundaries. The *New York World's* catalogue of the aural irritants of the big city in 1913 is an indictment of indiscipline: "Old-clothes men, fruit hawkers, street-car gongs, junkmen's bells, cats, barking dogs and granite pavements..."⁵⁴ Sounds that intruded unbidden on space were noise, particularly the sounds of work raging, according to the *Times* in 1929, "from the rattling of restaurant dishes, the clatter of carelessly handled garbage cans, to riveting, the blowing of automobile horns, screeching brakes and electric drills."⁵⁵ These were sounds that broke the barrier between public and private space and above all, between the socio-economic space of working class employment and the private space of middle-class domesticity. Controlling immigrant street musicians was a start but clearly there was work still to be done.

By the fall of 1929, the problem of urban noise had become so acute that New York City's health commissioner Shirley Wynne set up a special Noise Abatement Commission in "the first attempt by an American city to solve this growing problem of metropolitan life."⁵⁶ Headed by Mayor James Walker and including nine medical doctors,

⁵³ "Musical Invasions," *New York Times*, 18 September 1881, 3.

⁵⁴ "Nerve-Racking Noises of New York; How They Increase the Death Rate," *The World*, New York, 5 March, 1903, 13.

⁵⁵ "Wynne to Name Board on Noise Abatement; Experts to Study Means to Control City's Din." *New York Times*, 2 October 1929, 1.

⁵⁶ "Wynne to Name Board on Noise Abatement," 1.

the twenty commissioners spent almost a year finding a way to define and solve the problem. The commission's report, published in September 1930 was clear. Noise, chasing New Yorkers from the streets into their own homes, threatened to transform them into neurotics.⁵⁷ It was a contagion, and the Commission's solution was to amend the City Health Code and City Charter to restrict practices like radio use, public singing and general noisemaking and allow police officers to ticket offenders in a manner similar to the "fine imposed and collected by the Police Department on cars parked in the streets in the theatre district" recently approved by the City Council.⁵⁸ The thrust of the Commission's recommendations was that noise was a question of public order and public health when it transgressed the boundary between public and private space.

The New York Noise Abatement Commission's report is also significant for the distinction that it attempted to draw between acceptable, or at least necessary noises, and unacceptable, actionable noises. The commissioners insisted that there "is a difference between street and industrial noises. Street noises are the more injurious because they are non-rhythmical – the body cannot become adjusted to them, and they create tensions generating angry emotions, thereby adding to fatigue."⁵⁹ Industrial noise was both more euphonious and economically necessary. Moreover, it was produced within specific spaces. Street noise was jarring, pervasive and, the commission believed, often of little economic value.

Significantly, the discourse of noise, as it was embodied in the debates culminating in the Noise Abatement Commission's report, was narrated as a *human* rather than a technological problem. Certainly, most of the new technologies of the early 20th

⁵⁷ Brown, et al., 106.

⁵⁸ Brown, et al., 201.

⁵⁹ Brown, et al., 106-107.

century, like automobiles, elevated trains and electrical tools, produced distinct sounds and were sometimes cited in catalogues of aural irritants, but technology itself was not yet equated with noise nuisance. On the contrary, technological noise was invariably excused, as in the New York Noise Abatement Commission's report, as "necessary noise." In what was already being called the machine age by the beginning of the 20th century, the sounds of machines signified science, rationality, industry, modernity and above all, American genius and ingenuity. The technological bane of Knudsen's existence had not yet been defined as a "plague."

Americans had a romance with technology in the first half of the 20th century, exemplified in the experience of what Leo Marx called "the technological sublime." The machine embodied all the promise of modernity – the triumph over nature and the creation of universal prosperity in a classless society of consumers – as it provided the metaphorical logic that would simultaneously mitigate social friction and ensure continued prosperity. Americans' technological romance was stormy, to be sure, and was tied-up in an ongoing negotiation with technology and technocratic society, class friction and gender roles. But while technology held out the gleaming, chrome-plated and streamlined promise of a long-awaited modern millennium, interrupted by wars and the Great Depression – and thus even more eagerly sought – its noises remained exceptional and necessary and thus tolerable, even celebrated.

II. The Middletons Meet the Motoman

At a pivotal moment in the 1939 promotional film-cum-domestic drama *The Middleton Family at the New York World's Fair*, the Middletons gather in the main hall

of the Westinghouse Electric Company pavilion for an encounter with the technological sublime. Produced by Westinghouse, the film was one of 200 shown at the 1939-1940 World's Fair in Flushing, New York, and distributed to as many as 8,000 movie palaces around the country to fill weekend cheaply schedules between the main features and, Westinghouse hoped, "bring the fair back home to people who couldn't make the trip."⁶⁰

An expensive, 55-minute Technicolor spectacular, promoted with full-page colour advertisements in national magazines, *The Middleton Family* captures a moment when, still suffering in the depth of the Great Depression, Americans could look forward to the promise of a utopian "World of Tomorrow," accessible through the bounty of modern technology, and delivered, within two decades, as a consumer product by corporate capitalism. It was certainly, as the *New York Times* film critic Thomas Pryor noted, a crass "product of the company's exploitation department" contrived for the purpose of selling Westinghouse products,⁶¹ but like many of the corporate films produced for the fair, it has a more transcendent significance. It embodied the optimism in a capitalist, technological modernity that had become something of a secular faith in the United States at the end of the 1930s.

The eponymous family are "a Westinghouse equivalent of the Hollywood Jones family,"⁶² everytown Americans embodying both the unity of traditional middle-class, middle-American values – they are, after all, the Middletons – while reflecting the social divisions and crisis of national faith produced by a decade of economic depression. The *pater familias* is a Hoover Republican whose faith in the values of hard work and sobriety remains undimmed. Grandma is the archetypal homemaker, a link to the past and

⁶⁰ Thomas M. Pryor, "Tomorrow's Propaganda," *New York Times*, 18 June 1939, 116.

⁶¹ Pryor, 116.

⁶² Pryor, 116.

the keeper of the feminine sanctity of the domestic sphere, while Mrs. Middleton revels in her domestic role as much as she dreams of a day when her chores might be made easier.

The younger Middletons, however, are a good deal less sanguine about America. Teenaged son Bud is cynical about his future. He petulantly dismisses a radio report about job opportunities for American youth: "What opportunities?" he asks. "Say, do you know the motto of the last graduating class?" Mr. Middleton looks up from his newspaper. "Something lofty, no doubt," he wearily replies. "Yeah," Bud says, "'WPA, here we come – that's super lofty.'" At that point, Father chides Bud for being "licked already," and reveals the reason that the family has come to New York all the way from Indiana: "You've heard all the talkers; now I'm going to show you the do-ers. That's why I brought you and your mother to the fair."

The visit has another purpose, however. Daughter Babs has been away at college in New York, where she has embraced the trappings of a "new woman" of the 1930s. The elder Middletons are worried. Apparently seduced by cosmopolitan New York, Babs has fallen under the romantic spell of her art professor, the flabby, pompous Communist Nicholas Makaroff. She had discarded her all-American hometown beau Jim Treadway for the somewhat seedy, somewhat Semitic intellectual but, together with her family, encounters Jim again at the World's Fair, where he is now a Westinghouse engineer and the Middletons' guide to the wonders of technology. Bud's cynicism begins to fade in the face of a technological world in which, as Jim says, "nothing is impossible." Indeed, the Westinghouse engineer chides the teenager that "prosperity and pessimism don't travel together," pointing to the promise of a glorious technological future.

The Middletons reconvene in the main hall for a spectacular display of engineering. Elektro the Moto-Man, a seven-foot-tall aluminum robot appears on a dais above the crowd of onlookers. Elektro is the *Unheimliche* – familiar in the form of a man, but driven by the technological innovations of men. He is a Frankensteinian marvel, possessing "a fine brain of 48 electrical relays," that allows him to respond to his handler's commands, joke with the audience, do basic arithmetic and smoke a cigarette, even though he's only "two years old." Jim explains that Elektro is "full of motors gears, cams and photoelectric cells" in a tone of voice that suggests that his parts list, assembled through human ingenuity, is anything but mundane. Indeed, the Middletons look on with awe. Bud is struck dumb. Father gasps "it's the most remarkable thing I've ever seen." Even politically confused Babs, though wondering if the automaton has a human heart, is won over to the promise of technology as she admires Elektro's manmade brain.⁶³

Ultimately, the Middletons resolve their differences in collective embrace of technological promise. Mother sees a promise of deliverance in Westinghouse's soon-to-be-marketed domestic marvels. Bud, finding a role model in Jim, enters and wins an essay contest on the benefits of technology in general and Westinghouse in particular. And in the last moments of the film, as the family returns to the fair site to see it lit up at night, Babs, having dumped Makaroff like a sack of garbage, goes off on a tryst with Jim. Overwhelmed, the normally voluble engineer finds himself lost for words. Babs, now reconciled to Jim, technology and capitalism, takes his arm. "Just let me hold onto you," she says and pauses as the soundtrack music swells in a fanfare of heroic brass and the camera pans up the height of the Westinghouse pavilion tower, "I wonder if the years

⁶³ Robert R. Snody, dir., *The Middleton Family at the New York World's Fair*, Westinghouse Electric Company, 1939.

ahead will be as grand as this," she sighs. "We haven't seen anything yet, darling," Jim replies. "For all of this is merely a sample of the real world of tomorrow."

III. Type of the Modern

Like Babs, it took Americans considerable time fully to embrace the promise of a technological modernity. As Leo Marx argues in *The Machine in the Garden* in 1964, Americans' relationship with modernity has long been fraught and contested. Marx's study begins with the sudden, intrusion of a locomotive into Nathaniel Hawthorne's pastoral reverie in Concord, Mass. in the summer of 1844. The novelist related that he had retreated to the woods known locally as "Sleepy Hollow" with the deeply Romantic intention of immersing himself in the minutiae of nature – until the pastoral idyll was shattered:

But, hark! there is the whistle of the locomotive - the long shriek, harsh, above all other harshness, for the space of a mile cannot mollify it into harmony. It tells a story of busy men, citizens, from the hot street, who have come to spend a day in a country village, men of business; in short of all unquietness; and no wonder that it gives such a startling shriek, since it brings the noisy world into the midst of our slumberous peace.⁶⁴

The outside world of industry, the city and machines shatters the sylvan stillness, inserting into the pastoral myth of the self-sufficient, Jeffersonian yeoman farmer a modernity invariably "associated with crude, masculine aggressiveness in contrast with the tender feminine, and submissive attitudes traditionally attached to the landscape."⁶⁵

For Marx the intrusion of technology into the pastoral defines a central tension in American literature, culture and national self-representation. "The sudden appearance of

⁶⁴ Quoted in Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 1964), 13.

⁶⁵ Marx, 29.

the machine in the garden is an arresting, endlessly evocative image," he writes. "It causes the instantaneous clash of opposed states of mind: a strong urge to believe in the rural myth along with an awareness of industrialization as counterforce to that myth."⁶⁶ It can also be read as the defining *modern* moment, what Walter Benjamin so simply and evocatively described as "the new in the context of what has already been there."⁶⁷ The modern exists in the past it interrupts, in the full expectation that it will be superseded in an irresistible future. It charges forward into change, as W.T. Lhamon observes, speeding into the future as it "looks over its shoulder, alarmed, in one way or another, to its own crawling buggy past."⁶⁸

There was a barely-controlled sense of excitement in Americans' narratives of modernity. Even in Hawthorne's time technology, the machine, was clothed in a rhetoric of progress inextricably associated with "the conquest of space and time" and the heroic articulation of America's manifest destiny. It was a rhetoric of what Marx calls the "technological sublime," where the awe and reverence "once reserved for the Deity and later bestowed upon the visible landscape is directed toward technology or, rather, the technological conquest of matter."⁶⁹ It was a quasi-religious encounter with an object which "disrupts ordinary perception and astonishes the senses, forcing the observer to grapple mentally with its immensity and power."⁷⁰ In machine age America, these encounters were invariably with the technological objects of a surging modernity, the products of human ingenuity, which demonstrated, with every new machine or scientific

⁶⁶ Marx, 229.

⁶⁷ Walter Benjamin, *The Arcades Project*, trans. Howard Eiland and Kevin McLaughlin (Cambridge: The Belknap Press of Harvard University Press, 1999), 544.

⁶⁸ W.T. Lhamon, *Deliberate Speed: The Origins of a Cultural Style in the American 1950s*, (Washington: Smithsonian Institution Press, 1990), 28.

⁶⁹ Marx, 197. See also Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism* (London: Verso, 1991), 37–38

⁷⁰ David E. Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994), 15

principle, the power of civilization to conquer, dominate and harness the forces of nature. The telegraph, the railroad and above all electricity were celebrated, according to David Nye, as the "collective realization of the power of human intellect."⁷¹

First appearing in the 1881 edition of *Leaves of Grass*, a little more than a decade before Frederick Jackson Turner mourned the closing of the frontier, Walt Whitman's poem "To a Locomotive in Winter" inverted Hawthorne in a celebration by invoking the locomotive as the engine of change, modernity and American progress. His encounter with it is a moment of sublimity:

Type of the modern! emblem of motion and power! pulse of the continent!
For once, come serve the Muse, and merge in verse, even as here I see thee,
With storm, and buffeting gusts of wind, and falling snow;
By day, thy warning, ringing bell to sound its notes,
By night, thy silent signal lamps to swing.

Whatever reservations Whitman, or any American, might have had about "the machine in the garden's" disruption of the American pastoral idea, he was swept along by its power:

Thy trills of shrieks by rocks and hills return'd,
Launch'd o'er the prairies wide—across the lakes,
To the free skies, unpent, and glad, and strong.⁷²

All that was great about the American future – its strength, its freedom and its opportunity – was embodied in the throbbing, swelling, driving force of modernity and its emblematic technology. At the heart of Whitman's poem is a sense of exaltation at the potential of a *human* conquest of nature – the "prairies wide" that the wagon trains of a generation before crossed only at their peril – and the joy and freedom it promised.

Indeed, the conquest of nature, humanity's ability to tame its environment and material conditions with science and reason – and, of course, with the technological

⁷¹ Nye, 62.

⁷² Walt Whitman, "To a Locomotive in Winter," *Leaves of Grass* (Philadelphia: David McKay, 1884), 358.

products of science and reason – was a defining ideal of modernity at the beginning of the 20th century. "In point of fact, science gives its tone to modern culture," Thorstein Veblen observed in 1906. Scientific inquiry "is a feature of modern culture, and the attitude which critics take toward this phenomenon is chiefly significant as indicating how far their own habit of mind coincides with the enlightened common-sense of civilised mankind. It shows in what degree they are abreast of the advance of culture."⁷³ It was this above all, from the vantage point of the first decade of the 20th century, which had brought about the ascendance of modernity. It was, for Veblen, this "peculiar excellence" of the modern culture that gave it "a decisive practical advantage over all other cultural schemes that have gone before or that have come into competition with it."⁷⁴

"Modern civilization's" most distinctive trait was its embrace of a cool-headed scientific rationality, which had allowed the technologically and, for Veblen, economically "advanced" societies of Europe and North America – "Christendom" – to triumph over its material environment. "The modern civilised peoples are in a peculiar degree capable of an impersonal, dispassionate insight into the material facts with which mankind has to deal. The apex of cultural growth is at this point."⁷⁵ Rationality had imparted a discipline to modern civilization, its "highest discipline," according to Veblen. This had been made manifest in the machines that had come to dominate its economies and had conversely structured modern culture. "And so long as the machine process continues to hold its dominant place as a disciplinary factor in modern culture," Veblen wrote, "so long must the spiritual and intellectual life of this cultural era maintain the

⁷³ Thorstein Veblen. "The Place of Science in Modern Civilisation," *The Place of Science in Modern Civilisation and Other Essays* (New York: B.W. Huebsch, 1919), 29.

⁷⁴ Veblen. "The Place of Science in Modern Civilisation," 1.

⁷⁵ Veblen. "The Place of Science in Modern Civilisation," 1.

character which the machine process gives it."⁷⁶ The rationality of modern civilization, in short, was machine logic.

This meant much more than simply the valorization and deployment of the scientific method wherever possible or the celebration of cool-headed rationality over "savage" and "barbarian" impulses. "The material framework of modern civilization is the industrial system,"⁷⁷ Veblen wrote. The "machine process" meant not only the "aggregate of mechanical appliances for the mediation of human labor," it was the mode of modern life and it informed virtually every economically productive activity that made civilization modern. "The scope of the process is larger than the machine."⁷⁸ Whatever misgivings Veblen might have had about the spiritual health of life in the machine age, he found it "difficult to believe that the machine technology and the pursuit of the material sciences will be definitively superseded."⁷⁹ It was, after all, the machine that had provided modern civilization with its power.

It also promised unprecedented prosperity. Economist Simon Patten embraced the technological sublime even more enthusiastically than Veblen. From the vantage point of 1905, he saw the United States on the brink of a new age, where machinery, science and human intelligence endowed Americans with godlike powers. Modern technology and science "may well affect [nature] as the elements do, upbuilding, obliterating and creating," he wrote, "but they are man's forces and will be used to hasten his dominion over nature."⁸⁰ The implications were clear to Patten; for the first time in its history, humanity was liberated from the tyranny of its environment and had become the master

⁷⁶ Veblen. "The Place of Science in Modern Civilisation," 30.

⁷⁷ Veblen, *The Theory of Business Enterprise*, (New York: Charles Scribner's Sons, 1904), 1.

⁷⁸ Veblen, *The Theory of Business Enterprise*, 5.

⁷⁹ Veblen, *The Theory of Business Enterprise*, 400.

⁸⁰ Simon Patten, *The New Basis of Civilization* (London: Macmillan & Co., 1907), 26.

of nature. Starvation, hardship and "social strife" could be eliminated. "A higher civilization is a present possibility that may be realized by people living in this century. It is ready now to appear; but its emergence implies a change of opinions, ideals, and institutions, and a shifting from past to present conditions."⁸¹ Above all, it required "social control" to mobilize the power of human industry.

Patten was confident that it would be – would have to be – a new modality control that would strike what Jackson Lears calls a managerial equipoise between the conflicting and mutually constituting protestant ethics of sober discipline and ecstatic abundance deep with American culture.⁸² He envisioned a kind of industrial dialectic in which the rewards of prosperity, including higher wages, access to consumer goods and the leisure time to enjoy them, would soften and enable the discipline that, in turn, would produce the abundance that supported it. Together, they would "draw men forward" into a new, decidedly bourgeois, civilization. "A single age of control would do what epochs of natural evolution could not," he wrote. "Although the unsocial cannot be eliminated, it may be suppressed by bonds of control so closely but yet so carefully and intelligently drawn that men would scarcely become aware of their own weakness. And all this maybe done with the aid of forces now in active operation."⁸³ With considerable foresight, Patten's idealization of social control would, Lears notes, become characteristic "of managerial social science throughout the first half of the twentieth century."⁸⁴ The surging modernity of Elektro the Motoman would be founded on rhetorics of discipline and abundance.

⁸¹ Patten 186.

⁸² Lears, *Fables of Abundance: A Cultural History of Advertising in America*, (New York: Basic Books, 1994), 46-53 and Lears, *Something for Nothing: Luck in America* (New York: Viking, 2003), 232.

⁸³ Patten, 178.

⁸⁴ Lears, *Fables of Abundance*, 114.

The disciplinary project had its purest material expression in scientific management practices theorized and promoted by Frederick Winslow Taylor in 1911. Taylor argued that industrial output and material economic prosperity for all Americans could be achieved by adopting this kind of discipline through rational management. American industry would reap unimagined efficiencies "through eliminating unnecessary motions and substituting fast for slow and inefficient motions."⁸⁵ This required both serious scientific study and strict shop floor discipline, but the benefits for industry would be immense. Taylor imagined that rationalized industry was only the beginning, and that "the principles of scientific management are applicable to all kinds of human activities, from our simplest individual acts to the work of our great corporations..."⁸⁶ Indeed, the great allure of Taylorism was that it provided the foundation for an overarching rational structure for the efficiency and betterment of modern civilization.

The Taylorist program of industrial and social control did not arrive unchallenged, however – nor would it ever be. Taylor promised prosperity for all through efficiency, but labor and the growing political left asked "at what cost?" and "for whom?" while captains of industry rushed to implement its prescriptions. Shortly after the publication of *The Principles of Scientific Management* in 1911, a congressional committee began hearings on "the Taylor System's" potential benefits and possible effects on wages and working conditions. American Federation of Labor founder and president Samuel Gompers accused those industrialists who had rushed to modernize and rationalize their factories of "producing wealth but grinding men." While acknowledging its benefits to consumer capitalism and the corporate bottom-line, Gompers maintained that Taylorism "will mean

⁸⁵ Frederick Winslow Taylor, *The Principles of Scientific Management* (New York: Harper & Brothers, 1913), 16.

⁸⁶ Taylor, xii.

great production in goods and things, but in so far as man is concerned, it means destruction."⁸⁷

Organized labor would remain staunchly opposed to Taylorism and its corollaries, the automated assembly line and increasingly refined divisions of labor, for decades. Scientific management degraded the worker, the International Moulders and Foundry Workers Union said in 1915, by separating a worker's craft skill – the "one great asset of the wage worker" – from craft knowledge and placing it in the hands of "efficiency experts." The successful rationalization of industry along Taylorist lines would be "the greatest blow that could be delivered against unionism and the organized workers."⁸⁸ For many commentators, the modernization of industry, though perhaps inevitable, was merely one more example of the moral bankruptcy of the industrial age. "What is wrong with industry is clearly a moral question," a contributor to Littell's general-content magazine *The Living Age*, wrote, noting the increasing "subjugation of the worker both to the machine and to the will of others, who are vested with an authority in which the workers have no share."⁸⁹

Yet, if Taylorism promised to modernize manufacturing and enrich capitalists by disenfranchising workers from their own work and subverting the moral foundations of American industry, its corollary promised to deliver access to unimagined abundance to consumers. "We are not living in an age of industrial expansion; the very expression shows a lack of grasp of what's going on," wrote Henry Ford, the foremost champion of

⁸⁷ Congress, House, Committee on Labor, *Investigation of the Taylor System of Shop Management*, 62nd Cong., 1st sess., 28 April 1911, 27.

⁸⁸ International Moulders Journal, "Modern Industry and Craft Skill," in Walton Hale Hamilton, ed., *Current Economic Problems: A Series of Readings in The Control of Industrial Development* (Chicago: The University of Chicago Press, 1915), 629.

⁸⁹ "What's Wrong with Industry?" *The Living Age*, 7 December 1918, 589.

scientific management and popular hero of industrial technology. "We are living in an age when for the first time it is possible to supply a fair part of the needs of all peoples if they really want their needs supplied."⁹⁰

Ford wrote that labor's belief that workers were disenfranchised and impoverished by Taylorism "is pernicious, but it is widespread."⁹¹ Rather, he proclaimed "[w]e are living in an age when it is possible to use power and machinery in the public interest – and at private profit."⁹² Social divisions had been rendered obsolete in the emergence of modern manufacturing and the mass market, uniting production, labor and consumption in a single moment: "An employed man is an out-of-work customer. He cannot buy. An underpaid man is a customer reduced in purchasing power. He cannot buy."⁹³ This was an article of faith for the industrialist whose power and reputation were justified by his ability to harness the forces of production and deliver an automobile – heretofore an unimaginable luxury – that even his own employees could afford in mass quantities. The Fordist millennium would arrive, he predicted, when the ability to consume matched American industry's ability to produce.⁹⁴

IV. Negotiating Modernity

The future appeared in the offing after 1918. The First World War briefly interrupted the march of progress, but it was a also moment of rupture for "modern civilization." It was the modernist Rapture that swept away the old order to prepare the way for the future. President Woodrow Wilson had proclaimed the end of the Old Order

⁹⁰ Henry Ford, *Today and Tomorrow* (Cambridge: Productivity Press, 1988), 276.

⁹¹ Ford, 157.

⁹² Ford, 276.

⁹³ Ford, 152.

⁹⁴ Ford, 261.

in a speech at London's Guildhall two days before Christmas 1918 and on the eve of the Versailles Conference.⁹⁵ He had anticipated the moment in a speech during the 1916 election campaign. Edited into essay form and republished in 1921, his words were a call to action: "Our life has broken away from the past... The old political formulas do not fit the present problems; they read now like documents taken out of a forgotten age."⁹⁶ Yet, with the opportunity of a clean slate and the extinguishment of the erstwhile immutable truths of a dead age behind them, Americans faced a future full of uncertainty. "There was a time when America was blithe with self-confidence" Wilson wrote. "She boasted that she, and she alone, knew the processes of popular government; but now she sees her skies overcast; she sees that there are at work forces which she did not dream of in her hopeful youth."⁹⁷

Misgivings about technological progress still lingered and the war had painfully laid bare the tensions like an open wound. The generation of Americans who had come of age in the trenches slowly returned to the United States as the incarnation of the existential conflict. The soldier, Modris Ecksteins observes in *Rites of Spring*, became "not just the harbinger but the very agent of the modern aesthetic, the progenitor of destruction but also the embodiment of the future."⁹⁸ The ways that soldiers negotiated destruction and promise varied widely, but in giving voice to this tension they became, in a sense, prophets of the technological sublime. They were, after all, intimately acquainted with the awesome power of the machine.

⁹⁵ "Wilson Says Task of Nations Is not Yet Completed; Anxious For Peace Work to Be started," *The Washington Post*, 29 December 1918, 3.

⁹⁶ Woodrow Wilson, *The New Freedom* (New York: Doubleday, Page & Company, 1921), 3-4.

⁹⁷ Wilson, 28.

⁹⁸ Modris Eksteins, *Rites of Spring: The Great War and the Birth of the Modern Age* (Boston and New York: Houghton Mifflin, 1989), 213.

For John Dos Passos, the modern condition meant being trapped within a rational, Taylorized culture of machine logic with no way out. The protagonist of his early novel *Three Soldiers*, an American soldier in Europe, is suddenly struck by the thought of "all the tingling bodies constrained into the rigid attitudes of automatons in uniforms like this one; of all the hideous farce of making men into machines."⁹⁹ The modern man in the modern army of the machine age was a machine. Dos Passos was deeply conflicted about modernity, reflecting the tensions in American culture at large, and he conceived of his mission, at least in part, "to justify the ways of machinery to man."¹⁰⁰ His work expressed deep reservations about whether man and machine could be reconciled, or whether the former would be subsumed in the dehumanized gears of a burgeoning corporate technocracy, yet it is resigned to the inevitability of modernization.

Dos Passos's first significant novel, *Manhattan Transfer*, published in 1925, took the metaphor a step further. The novel is a kind of *bildungsroman* of New York in which the city is the embodiment of modern civilization. The city was both "the literal environment and scene, and hence a part of the subject, of most modern literature," notes literary critic Monroe Spears, "it is the background which produces the typical modern man and the stage upon which he acts."¹⁰¹ For Dos Passos, "modern man" progressively loses his soul as the city grows around him and Fordist capitalism thrives. Modern technologies, consumer capitalism and the lifestyles and practices they produce and support expand, grow and change, while New Yorkers' lives becoming increasingly impoverished – both literally and figuratively – and shrink into insignificance. Jimmy

⁹⁹ John Dos Passos, *Three Soldiers* (New York: George H. Doran Co., 1931), 325.

¹⁰⁰ Cecilia Tichi, *Shifting Gears: Technology, Literature, Culture in Modernist America* (Chapel Hill, The University of North Carolina Press, 1987), 216

¹⁰¹ Monroe K. Spears, *Dionysus and the City: Modernism in Twentieth-Century Poetry* (New York: Oxford University Press, 1970), 71.

Herf (the closest thing to a central character) finds himself increasingly penned-in amid the novelties of skyscrapers, the electric lights illuminating Columbus Circle, the subways and cars. By the end of the novel, penniless, unable to escape and bereft of his job, family and ideals, the once-promising young man wanders aimlessly through winter streets devoid of hope.

Dos Passos' critique of the city was not entirely unprecedented, of course. Hawthorne's journal documented the threat of the penetration of the "unquietness" of the city on the rails of modernity into the pastoral myth. A generation of Progressive reformers descended into America's surging metropolises to repair what they believed had gone so terribly wrong. Yet, Dos Passos wrote not as a reformer, but as an idealist who, like Jimmy in *Manhattan Transfer*, had run out of idealism and was reconciled to the onward march of dubious progress.

To be sure, industrial rationalization and mechanization would be often blamed for the economic hardship. The Roosevelt administration's National Resources Science Committee noted in its 1937 report *Technological Trends and National Policy* that new technologies were often disruptive and "technological unemployment is one of the most tragic effects of the sudden adoption of many new inventions..."¹⁰² Three years later, documentary filmmaker Willard Van Dyke captured the scale of the tragedy in his film *Valley Town: A Study of Machines and Men*. Profiling the effects of the Great Depression on a Pennsylvania steel town, the narrator intones: "The years had brought a new method, a new machine: automatic, high-speed strip mill. For every thirty men who worked before, now there is only one. No more strain on the back and shoulders! No more work

¹⁰² National Resources Science Committee, *Technology Trends and National Policy*, (Washington: Government Printing Office, June 1937), ix.

for three thousand families."¹⁰³ Yet even then, modern technology was not, itself, the culprit. The NTSC observed: "inventions create jobs as well as take them away,"¹⁰⁴ and Van Dyke assured viewers "it wasn't the fault of machines; we can't blame them for depression."¹⁰⁵

Yet as the century advanced into the 1930s, pessimistic modernists began to find themselves increasingly marginalized. Fordism seemed, as Antonio Gramsci noted from his Italian prison cell, to soften the harder edges of industrial capitalism, legitimizing a consumer-technocratic ideology of "progress" through the "persuasion and consent" of democratized consumption that couldn't be achieved through coercion alone.¹⁰⁶ Combined, Taylorism and Fordism were the organizing principles of an American modernity that drugged the proletariat into willing submission by providing material satisfaction in consumption in the present and holding out the promise of prosperity and abundance of progress.

V. Progress

By the early 1930s, "progress" had become something of a national faith. Already in 1921, President Wilson had sounded the note that would set the tone for the following decade. "Progress! Did you ever reflect that the word is almost a new one?" he asked. No word comes more naturally to the lips of modern man, as if the thing it stands for were almost synonymous with life itself...¹⁰⁷ Even a decade later, in the despondency of the

¹⁰³ Willard Van Dyke, dir., *Valley Town: A Study of Machines and Men*, Educational Film Institute of New York University and Documentary Film Producers, Inc., 1940.

¹⁰⁴ National Resources Science Committee, ix.

¹⁰⁵ Van Dyke.

¹⁰⁶ Antonio Gramsci, *Selections from the Prison Notebooks*, ed. and trans. Quintin Hoare and Geoffrey Nowell Smith (New York: International Publishers, 1971), 310.

¹⁰⁷ Wilson, 42.

Great Depression, technological progress, and its avatar the machine, was far more likely to be hailed as saviour than Satan. Expressing the spirit of the times, social scientist Robert Douglas Bowden reproached "deterministic modernists" like Dos Passos for their pessimism. "Some American critics, caught up in this fog bank of gloom and having lost all sense of direction, have joined in singing lustily *The Machine Age Blues*," he wrote in 1932.¹⁰⁸ Americans were living in a mechanistic age, "and we are pleased that it is so." The tempo of life had accelerated beyond all expectation and delivered unprecedented abundance. "The very accomplishments of our mechanistic age have pricked imaginations to unbounded activity and diversity, and by just so much has enriched modern life beyond the most extravagant dreams of a century ago."¹⁰⁹

Charles Beard, the leading voice of a school of American Progressive historians, whose very label evoked their commitment to the faith, emphatically embraced the millennial optimism of the age. "Although hailed in some circles of conceit as a glorious symbol of more speed and bigger machines, and in others as a covering for cruel materialism, the concept of progress is one of the most profound and germinal ideas at work in the modern age," he wrote. Progress "implies that mankind, by making use of science and invention, can progressively emancipate itself from plagues, famines, and social disasters, and subjugate the materials and forces of the earth to the purposes of the good life – here and now."¹¹⁰ Americans might have chafed in the bondage of record unemployment, runaway inflation and starvation, but technological progress promised deliverance.

¹⁰⁸ Robert Douglas Bowden, *In Defense of Tomorrow*, reprint of 1932 edition (Freeport and New York: Books for Libraries Press, 1970), 3.

¹⁰⁹ Bowden, 201-202.

¹¹⁰ Charles A. Beard, "The Idea of Progress," in Charles A. Beard, ed., *A Century of Progress*, (New York: Harper & Brothers, 1932), 3.

"Invention" was bathed in the quasi-mystical light of an electric arc. The technical adept, the engineer and the applied scientist, emerged in American media and literature as a kind of paladin of progress – a figure who could conjure a future of promise in the concrete present, who would "bring the bold, visionary schemes from the imagination into tangible reality," writes Cecilia Tichi. "They are poets for the quotidian."¹¹¹ As both prophet and conjuror, the technological hero was simultaneously the author of progress and the medium through which its irresistible forces entered history. These forces rushed to their inevitable conclusion in a rapidly approaching future promising something akin to salvation. The engineer, as a literary trope, Tichi writes, was embedded in an "American belief in joint spiritual and material progress which was expected to culminate, imminently, in the millennium..."¹¹² The America of the machine age seemed to be gearing up for an extraordinary new epoch, and those men (always men) who could make it happen were illuminated in a sublime glow.

Even Dos Passos, for all of his misgivings, expressed wonder at the power of new technologies like electricity and the motion picture, and saw not a little magic in the power of the scientist and engineer. His profile of Charles "Proteus" Steinmetz in the *U.S.A* trilogy simultaneously evoked both a fear of technocracy and ecstatic wonderment at the sublime power of the scientist-engineer. Steinmetz was clearly a victim of the dehumanizing corporate technocracy — "the most valuable piece of apparatus General Electric had until he wore out and died." Yet he was also "a famous magician," who

made a toy thunderstorm in his laboratory and made all the toy trains run on time and the meat stay cold in the icebox and the lamp in the parlor and the great

¹¹¹ Tichi, 120.

¹¹² Tichi, 121.

lighthouses and the searchlights and the revolving beams of light that guide airplanes at night towards Chicago, New York, St. Louis, Los Angeles...¹¹³

Steinmetz might have made a Faustian bargain and sold his soul to the Satanic General Electric Corporation but, like Goethe's tragic hero, the bargain gave him access to the essence of life and the secrets of the universe.

Looking ahead from 1931, *The Saturday Evening Post* imagined, within a decade, "homes run by dynamos" and "filled with mechanical servants that never threaten to quit, never argue, never forget, never want a day off and seldom fail."¹¹⁴ Very soon in the electrically-automated office, "[a]utomotons will write, sign, cut and stack checks."¹¹⁵ Vacuum tubes, invented in the late-19th century, but only perfected in the 1920s, would bring about an electronic revolution: "Truly, the mechanics of this new decade will be the mechanics of the imponderable and the infinitesimal."¹¹⁶ In the mass media of the time, in any event, Americans had entered a period of rapid progress – toward a state of technological grace. Arthur Train, in *Harper's*, listed a dozen exciting new technologies, from electronic home security systems to stereoscopic movies on television. "All these things are possible," he wrote. "The mere enumeration of them gives the characteristic atmosphere of the times in which we live."¹¹⁷

There seemed to be no problem that the wizards of technology could not overcome, no hardship or onerous task that could not be made easier by the latest inventions. On movie screens, in books and magazines, Americans could thrill to the excitement of every astonishing technological leap forward. The popular press, and the

¹¹³ Dos Passos, *The 42nd Parallel*, First Mariner Books Edition (New York: Mariner Books, 2000), 256.

¹¹⁴ Floyd W. Parsons, "A Look Ahead," *The Saturday Evening Post*, 4 April, 1931.

¹¹⁵ Parsons, 150.

¹¹⁶ Parsons, 149.

¹¹⁷ Arthur Train, jr., "Catching Up with the Inventors," *Harpers*, March 1938, 365.

advertisers that made it profitable, had already established itself as America's most enthusiastic proponents of Fordist technological progress by the end of the First World War. They had products to sell, and an audience to inform. Popular technology and science magazines breathlessly celebrated, explained and illustrated sublime, and often ridiculous, technological deployment of human genius.

The change had happened almost overnight. In its October 1915 issue, *Popular Science Monthly* was transformed from a the sober, text-heavy science journal it had been since 1872, routinely featuring articles by professional researchers, into a glossy oracle of the future, pitched at the mass market. The August, 1915 issue featured articles on "The Evolution of Stars and the Formation of the Earth," by the director of the Lick Observatory at the University of California and an ethnographic history of Fiji by a respected anthropologist. The November issue, lavishly illustrated and wrapped in a full-colour Rotogravure cover, reported on a seventy-ton gear wheel and a dozen exciting new inventions, including an electric dentist's drill and an automobile-mounted electric grill. *Popular Science* had found a popular audience more interested in novelty than research.

The magazines that proliferated after the First World War, copying *Popular Science's* format in search of a mass market, shared an obsession with invention, progress and the future. They celebrated the machine and the rational-scientific industrial and social ideology that it symbolized. The August, 1931 issue of *Popular Mechanics* featured a full-colour cover illustration of a futuristic bullet train; the inside copy enthused "[m]onorail connections that will make possible speeds of 150 miles per hour between cities, and materially reduce traveling costs, will be in operation in America

soon, according to plans now being formed."¹¹⁸ *Popular Science* reported on a rocket plane that could travel from "New York to San Francisco in thirty minutes; from San Francisco to Hongkong, China, in an hour and a half; around the world in five hours!" Such amazing speeds were predicted for only "a dozen years hence."¹¹⁹

Perhaps most representative of what Train called the "atmosphere of times in which we live" was *Everyday Science and Mechanics*, published and edited by Hugo Gernsback beginning in 1929. Offering the same kind of breathless technophilic copy as his competitors *Popular Science* and *Popular Mechanics*, Gernsback served up a steady diet of speculation, hard science articles by respected researchers like Nicola Tesla and capsule reviews of exciting new inventions already available as products – all leavened with the occasional dash of science fiction. *Everyday Science* reported on vacuum tube-powered machines – "now actually being evolved" – that could "not only think in some respects as well as the human mind, but in others think 'thoughts' and answer problems which no human mind can solve."¹²⁰ In December 1931 the magazine forecast the planned, scientifically organized super-cities that Americans would inhabit by 1981.¹²¹ Moreover, the cities would certainly be illuminated by gleaming skyscrapers made entirely of structural glass bricks. The "glass building is no idle dream of the future," Gernsback informed readers, the future had already arrived.¹²²

That much was evident in the exciting new technological products that *Everyday Science* promoted in its capsule reviews section in the back pages of the magazine. Some

¹¹⁸ "Monorail Flyer to Put Thrill in Travel," *Popular Mechanics*, August 1931, 191.

¹¹⁹ George Lee Dowd, jr., "Can Men Pilot Rocket Planes at 5,000 Miles an Hour?" *Popular Science Monthly*, February 1931, 42.

¹²⁰ Hugo Gernsback, "The Mechanical Super-Brain," *Everyday Science and Mechanics*, May 1932, 5.

¹²¹ Hamilton M. Wright, "No Traffic problems in the Super-Cities 50 Years Hence," *Everyday Science and Mechanics*, December 1931, 10-11.

¹²² Gernsback, "The Glass Skyscraper," *Everyday Science and Mechanics*, December 1931, 17.

of the featured inventions were, at very least, bizarre and of dubious real utility. The magazine announced a head-mounted pain-relieving device employing an infrared lamp under the heading "Radiation Relieves Pain," but it is worth wondering if it caused burns in the process.¹²³ The electric waffle iron and sun-lamp which provided "artificial sunlight of a healthful nature," were more probably more successful. Whatever their uses, however, from the pocket stereoscope and automatic egg-cooker, they were actually commercial products that any reader could buy, and their streamlined chromed-steel and shiny Bakelite designs seemed to validate Gernsback's larger and more unlikely prognostications.

It was as a consumer that most Americans could really experience progress. Predicting the shape of things to come fifty years in the future himself, Train chided the popular technology magazines' flights of fancy, noting that the true picture of the future "concerns itself with the everyday things with which common men and women surround themselves."¹²⁴ And the everyday things that one could buy *were* exciting, novel and futuristic even in 1938. Everything was streamlined; even the egg cooker looked like it could travel from New York to San Francisco in 30 minutes, with the right amount of thrust.

VII. Eutopian Visions

The reality, however, was the continuing economic crisis, aggravated by the drought years of 1935 and 1936, technological unemployment in the wake of industrial automation and rationalization and persistent poverty in American towns, cities, and rural

¹²³ "New Devices for the Home, Kitchen, Parlor, Bedroom and Bath," *Everyday Science and Mechanics*, March 1932, 337.

¹²⁴ Train, 367.

areas. Yet the contrast between technological fantasy and socio-economic reality only seemed to emphasize the sublime nature of the machine. Modernity held out a utopian promise of humanity's triumph over its environment, history, even its own "nature," and deliver "the good life" to everyone; technology held out the promise of almost limitless power (Steinmetz, like a god "made a toy thunderstorm"). These promises had clearly not been fulfilled, but historians like Beard and, above all, visionary experts like Lewis Mumford assured Americans that the future was almost in their grasp.

Mumford expressed both the hope and awe and the existential terror that underpinned the technological sublime. Modernity was beset with glaring contradictions, he wrote. Rational industry, mass production and a revolution of transportation had disunited solving social bonds and creating urban squalor worse than since the Black Death. The machine had promised to elevate and liberate humanity, but it also threatened to dehumanize humans. "[S]cientific knowledge has not merely heightened the possibilities of life in the modern world," he noted in 1922, "it has lowered the depths."¹²⁵

Yet for Mumford, the problem was not modernity, nor science and technology themselves, but balance. "Knowledge is a tool rather than a motor," he wrote, "and if we know the world without being able to react upon it, we are guilty of that aimless pragmatism which consists of devising all sorts of ingenious machines and being quite incapable of subordinating them to any coherent and attractive pattern."¹²⁶ Eutopia, the "good place," was possible, and liberation was at hand. For, while "the machine increased the servitude of servile personalities, it also promised the further liberation of released personalities," he observed in 1934's *Technics and Civilization*. "[I]t challenged thought

¹²⁵ Lewis Mumford, *The Story of Utopias* (New York: Boni and Liveright, 1922), 276.

¹²⁶ Mumford, *The Story of Utopias*, 282.

and effort as no previous system of technics had done."¹²⁷ Mumford glimpsed the sublime. With humanity's technological advances, he wrote, "we have set before ourselves a positively inhuman standard of perfection."¹²⁸ Rather than turning away, however, Mumford called for an embrace of the technological sublime, a human equipoise that would define the next age of humanity: "our capacity to go beyond the machine rests upon our power to assimilate the machine. Until we have absorbed the lessons of objectivity, impersonality, neutrality, the lessons of the mechanical realm, we cannot go further in our development toward the more richly organic, the more profoundly human."¹²⁹

In the latter half of the Great Depression, this was far from a marginal opinion. Mumford's vision of a truly modern, humanistic civilization living in harmony with and enabled by technology had wide appeal. The *New York Times* hailed *Technics and Civilization* as a "brilliant historical and critical account of the effect of the artificial environment on man and of man on the environment."¹³⁰ Readers evidently agreed, as *Technics and Civilization* remained on the *Times* bestseller list for most of that summer. *The Culture of Cities*, published four years later, had an even more profound impact. It provided the programme for a seemingly attainable utopian and uniquely American modernity. Mumford appeared on the cover of the April 18, 1938 issue of *Time* magazine. In the cover story on urban planning and development in New York, the magazine extolled Mumford's vision of progress:

Against a perspective of city life as comprehensive as most current views are squinty, he has anatomized the old and young tissues of modern cities, diagnosed

¹²⁷ Mumford, *Technics and Civilization* (New York: Harcourt Brace, 1934), 323.

¹²⁸ Mumford, *Technics and Civilization*, 358.

¹²⁹ Mumford, *Technics and Civilization*, 363.

¹³⁰ Waldermar Kaempffert, "The Machine and Civilization," *New York Times*, 29 April 1934, 17.

their fevers and shown with fluoroscopic sharpness the outlines of cities yet unborn. Author Mumford's method is not Utopian but scientific; his faith is not so much in the Future as in a growing Present. His guiding principle is that the City is not only a form of life but, through its layout and architecture, a form of art — potentially the form of forms.¹³¹

It was a powerful vision of hope that traded in and deployed the brilliance of the technological sublime, but integrated with humanity and tempered by art. The promise held out by the technological future was no utopia – nowhere – but Eutopia, the "good place" of tomorrow built with the technologies of today.

The benefits of a rationally planned Eutopia seemed within reach by the end of the 1930s. An influential proponent of the "Garden City" movement, architect and urban planner Clarence Stein had already sounded the utopian note at a symposium on "New Towns for a New Age" at the New School for Social Research in 1932. According to Stein, "[h]ouses and their urban settings are the only antique equipment of modern civilization and they are grotesquely unrelated to modern life and aspirations." Citing his Radburn project in Fair Lawn New Jersey as a model, Stein noted that the "modern age has the means and the technical ability to develop the setting for a better life than has been known since the industrial revolution."¹³² And that "better life" would be lived, emphatically in the middle class suburb.

Indeed, *Good Housekeeping* magazine breathlessly reported to its homemaker-readers seven years later that "there is nothing more modern and more interesting than the way new communities are built today." Holding up Town of Mount Royal, a planned community northwest of the city of Montreal, with manicured lawns and stone mansions, a golf course and tennis courts, as the paragon of this vision, the magazine enthused that

¹³¹ "Form of Forms," *Time*, 18 April 1938, 48.

¹³² "Architect Visions City of the Future," *New York Times*, 21 February 1932, RE13.

"[b]est of all, these planned communities are restricted and zoned, so that they offer a fine environment in which to live." With endless descriptions of household appointments, "modern conveniences," and electrical appliances, the magazine gushed that a new home in the community, on one acre of land, could be had for a mere \$17,000 (\$276,000 in 2010 dollars)¹³³ at a time when the average American family income was \$1,524 (\$24,770 in 2010 dollars).¹³⁴ Apparently, Eutopia would be found in the homes of the suburban upper class.

VI. Enchanted Hill

Visitors to the "house on Enchanted Hill" were greeted by the sounds of progress. "Suddenly from the back depths of the basement, heard through the screen door, came a strange whirring noise rising and falling on the ear now dimmer, now louder which seemed to encircle the basement," E.S. Lincoln wrote in his self-published celebration of *The Electric Home* in 1934. "We pressed the buzzer again, and this time above the gentle din, our signal was heard for Mr. Day came to the door."¹³⁵ Excited and beaming with enthusiasm, Mr. Day explained that the strange sounds came from an electric toy-railroad that circled his basement, giving inexpressible joy to his children and their playmates. The electric home was "a marvel in modern comfort and convenience," whose every wonder was heralded by the sounds of progress.¹³⁶

¹³³ "Life in a Planned Community," *Good Housekeeping*, November 1939, 98.

¹³⁴ U.S. Department of Labor, *100 years of Consumer Spending: Data from the Nation, New York City and Boston* (Washington: Government Printing Office, 2006), 20.

¹³⁵ E.S. Lincoln, *The Electric Home: A Standard Ready Reference Book* (New York: The Electric Home Publishing Company, 1934), 358.

¹³⁶ Lincoln, 11.

From the electric buzzer on the front door in the place of a conventional knocker or mechanical bell, to the electric "'Telechimes' located in different parts of the house and... used for calling different members of the family to the telephone," the proof of progress was evoked by sound.¹³⁷ Electricity quieted disorder and streamlined domestic life; the electric home operated as an efficient machine. There was no need for raised voices or frayed nerves, with "mellow tones of pleasing musical variety tolling out their delightful cadence in happy summons to front, back or side door, telephone, dumb-waiter, or to meals and other family gatherings."¹³⁸ The sounds of electricity, whether they were the "Telechime" notes or the "gentle hum" of the electric motors that powered dishwashers, refrigerator compressors, and mixers, signaled efficiency and happiness. Should they be interrupted by "unfamiliar noise," the homeowner knew that something had gone amiss and could make "whatever correction is needed."¹³⁹ Yet noise, Lincoln wrote, was rarely heard in the efficiently run electric home, "a place of enchantment like the castle of your dreams where no drudgery exists to cloud your domestic happiness."¹⁴⁰

Celebrations of euphonious domestic technology illustrated a widely-held belief that the rewards of progress would be enjoyed most fully, or at least most intimately, in the home. Magazines like *Good Housekeeping* and *Ladies' Home Journal* devoted increasing swaths of editorial space to reviews and reports on the latest household machines "in accordance with the latest science and the most recent and complete achievements of the manufacturers of household apparatus" in order to "profoundly promote improvement in, and vastly greater use of, labor-saving devices, money-saving

¹³⁷ Lincoln, 63.

¹³⁸ Lincoln, 297.

¹³⁹ Lincoln, 169.

¹⁴⁰ Lincoln, 157.

apparatus and other conveniences for household use."¹⁴¹ In 1926, the newly formed *Good Housekeeping* "Department of Household Engineering" unveiled a model cottage and invited readers to take a tour, complete with advice on how to replicate its innovations at home. The centerpiece was the kitchen, illuminated with diffused fixtures and designed according to Taylorist principles, where appliances were arranged "in step-saving order."¹⁴²

The promotion of domestic rationality by women's magazines reflected a much broader modernist project that understood the home as "machine for living in,"¹⁴³ that needed to be fine-tuned for maximum efficiency. The "home of the future" articulated an increasingly dominant ideology of domestic efficiency of the kind signaled by the ordered sounds of the electric home, notes Brian Horrigan: "Humans were racing toward a future of rationality, freedom, and unity with their mechanized, industrial environment, and architecture would provide homes for them."¹⁴⁴ Writing in *Harper's* in 1938, Arthur Train imagined the home of 1988, complete with ionizing air filters, fluorescent lighting that automatically adjusted for seasonal conditions, and air conditioning, all operating with no more noise than an electric hum. "The large, custom-built house had long gone the way of the large custom-built automobile," Train wrote.¹⁴⁵ This ideal home of the future would be assembled to provide maximum efficiency out of pre-fabricated "panels of beryllium and magnesium alloys; low-grade silicas, or glasslike materials; sheet materials such as asbestos cement, and occasionally plastic, which had been developed to a point where its resistance to atmosphere was know." It was located in a "fully integrated

¹⁴¹ "The Good Housekeeping Institute," *Good Housekeeping*, January 1909, 742.

¹⁴² Katherine A. Fisher, "In Good Housekeeping Cottage," *Good Housekeeping*, February 1926, 78.

¹⁴³ Le Corbusier, *Toward an Architecture*, trans. John Goodman (London: Frances Lincoln, 2008), 164.

¹⁴⁴ Horrigan, 138.

¹⁴⁵ Train, 369.

suburb which had been carefully planned by a city planning board."¹⁴⁶ Best of all, Train constructed his home of the future using only technologies that were either available in 1938, or were being promised by prognosticators and corporations.¹⁴⁷

Home magazines enthusiastically promoted new appliances and enjoined their woman readers to serve their families better and more efficiently, *because* domestic technologies allowed women allowed them to. Mabel J. Stegner sang the praises of household technology in *Better Homes and Gardens*, noting that she had come to depend on her "electric-mixer or –beater as one depends on a good and trusted helpmate" to make "fluffy omelets, mixing soufflés, or whipping egg-nogs or malted drinks" and fudge for the family.¹⁴⁸ The mixer, in particular – but electric ranges, waffle irons and refrigerators as well – became a fetish object of femininity, and the subject of at least one domestic paen in Myrtle Vorst Sheppard's ode "To an Electric Mixer:"

Turn carefully
 And beat as light and as well as you can.
 Today we fashion a gingerbread man
 For a lad of three
 And a lass I love.
 Mix sugar and spice
 (That's everything nice
 little girls are made of).
 Cream butter that's yellow.
 We'll make a fine fellow
 All crunchy and browned
 With bright raisin eyes and a round
 Little tummy, a dot of a nose,
 And a smile that is chummy.
 (How the lass and the laddie
 Will beam on their "mummy"!)
 Beat wisely now, just enough and no more,
 For a gingerbread man must be
 Perfectly formed, you see,

¹⁴⁶ Train, 369.

¹⁴⁷ Train, 367.

¹⁴⁸ Mabel J. Stegner, "Save Your Muscle," *Better Homes and Gardens*, November 1933, 11, 49.

For one small lass who is half-past four
And a critical lad of three.¹⁴⁹

The well-recognized whirr of the electric motor beating gingerbread batter signaled juvenile joy and feminine contentment.

The National Resources Sciences Committee reported somewhat optimistically in 1937 that, with the recent proliferation of technological products "making contributions to domestic comfort and happiness... electrical appliances are not considered as luxuries but rather as necessities in efficient housekeeping."¹⁵⁰ That might have been the case, but for most Americans, efficient housekeeping would have to wait. The electric refrigerator, hailed by the report as one of the most significant innovations in home economics, was a prime example. While the Committee estimated that Americans had purchased more than 8 million electric household refrigerators since their commercial introduction in 1920, and that, by 1936 "34.2 percent (7,250,000) of our wired homes were using this convenient method of refrigeration," some 65.8 percent of American homes with electricity were not.¹⁵¹ And that did not even account for the 16 million American homes *without* electricity, and which could not use electrical appliances of any kind.¹⁵²

Moreover, although the Committee noted that the price of many of the "necessities" of efficient housekeeping had fallen to the point that millions of Americans could at least daydream about technologically-enabled domesticity, it would remain a fantasy. A refrigerator could cost as much as \$700 – more than an average family's

¹⁴⁹ Myrtle Vorst Sheppard, "To an Electric Mixer," *Good Housekeeping*, April 1938, 221.

¹⁵⁰ National Resources Science Committee, 325.

¹⁵¹ National Resources Science Committee, 316.

¹⁵² There were 20,736,000 residential customers for electrical power in the United States in 1936. See U.S. Census Bureau, *Statistical Abstract of the United States, 1937* (Washington: Government Printing Office, 1938), 354, with 37,438,714 total households reported in the 1940 Census. See U.S. Census Bureau, *Statistical Abstract of the United States, 1962* (Washington: Government Printing Office, 1963), 758.

annual food budget – at a time when the average American family income was \$1,524.¹⁵³ Access to domestic technology was, in fact, highly polarized along class lines, Train noted in 1938. Only 55 families in a thousand earning less than \$2000 annually owned an electric refrigerator at the time, compared to more than 300 per thousand earning \$10,000; only half of all families earning less than \$2,000 a year owned a radio, while every family earning over \$10,000 could gather around the receiver and listen to Orson Welles intone "the Shadow knows."¹⁵⁴

By 1938 Americans had endured almost a decade of depression and millions did not even have homes to equip with refrigerators and electric mixers. That didn't matter. Indeed, the promises of domestic modernization only seemed to become more elaborate the longer the crisis continued. By 1932, more than ten million Americans – 20 per cent of the workforce – were unemployed.¹⁵⁵ Even in 1938, following a year of recession, the unemployment picture remained almost as grim. The impact of the Great Depression on American families was profound. "Traditional patterns of family authority and status eroded," under the pressure, writes David Kennedy, "while in Seattle, Chicago, New York, and dozens of other cities men and women nightly scratched through dark alleys, grubbing for scraps of food in garbage cans."¹⁵⁶ Many Americans couldn't conceive of having a family, and a family home, at all, let alone an idealized one. The marriage rate was in free-fall, and couples were routinely postponing or abandoning plans to have children.¹⁵⁷

¹⁵³ U.S. Department of Labor, 20.

¹⁵⁴ Train, 365.

¹⁵⁵ David Kennedy, 85.

¹⁵⁶ Kennedy, 86.

¹⁵⁷ Kennedy, 165.

Progress, however, had always been a promise rather than an explicit program. The modern kitchen and the home of the future were just that – objects of desire to which Americans could aspire to tomorrow rather than acquire today. Already in 1935, *Good Housekeeping* announced that "America is Dreaming Again!" and if America was dreaming, it was fantasizing about bourgeois gentility. At the heart of all the celebration of the home of tomorrow was the promise of a road to middle-class comfort for all Americans. The *Saturday Evening Post's* prophecy of perfect, automated servants seemed almost within reach. In a *Better Homes and Gardens* feature on household appliances, Delight Trimble enthused that the modern homemaker's mechanical household staff was at the ready, whirring and "humming" with electricity, "always on the job, bright and shining."¹⁵⁸ As the Great Depression laid bare the socio-economic divisions in American society, left millions homeless and eroded the integrity of the family, Americans were invited to look forward to a classless world of tomorrow, bereft of want but full of desire.

This promise was woven together with narrative threads of progress and modernity – the enthusiasm for collectivist, rational planning embodied in the policies of the late New Deal, Mumford's utopian vision of the city, Taylorism and Fordism – in the theme of the largest and most significant public event in the United States since the First World War.¹⁵⁹ Some 45 million people attended the 1939-40 World's Fair in New York,¹⁶⁰ almost a third of the entire population of the United States.¹⁶¹ Even considering multiple visits, a phenomenal number of Americans were sufficiently mesmerized by its vision to pay the ticket price. The Fair was intended, in the tradition of World's Fairs

¹⁵⁸ Delight Trimble, "Your Silent Servants," *Better Homes and Gardens*, March 1934, 24.

¹⁵⁹ Marco Duranti, "Utopia, Nostalgia and World War at the 1939-40 New York World's Fair," *Journal of Contemporary History* 41, 664.

¹⁶⁰ Nye, 203.

¹⁶¹ 137,008,435 according to the U.S. Census Bureau, *Statistical Abstract of the United States, 1937*, 2.

since 1851, to showcase American innovation and, above all, Nye observes, to offer a promising roadmap to in "marketing visions of the future."¹⁶² Its theme, lifted almost verbatim from Mumford was "Building Tomorrow with the Tools of Today in the World of Tomorrow."

Over its two year run at Flushing Meadow, New York, the World's Fair became both a powerful symbol of the American promise and conduit for a national mania for the promise of a technological future. Its signature monuments, the Trylon and Perisphere, were commemorated on both licensed and unlicensed souvenirs and keepsakes and honored on a widely distributed postage stamp. Newspapers and magazines heralded the fair, not just as the potential high point of a summer holiday, but as a pilgrimage to one of the sublime wonders of the burgeoning modern world. In its "glamorous and dynamic vista," enthused *Harper's* magazine's Gardner Harding, "the American people with have an unforgettable opportunity this summer to see themselves as they would wish to be."¹⁶³

The organizers of the World's Fair, at any rate, believed that the American people wished that the hardships of the Great Depression would be washed away in a wave of rational urban planning and Fordist abundance. Terry Smith notes that the organizers had no doubt "that corporate state America embodied already all of the main elements of the desired World of Tomorrow."¹⁶⁴ Indeed, unlike previous world's fairs, which took the form of an international festival of nations and served as a showcase for the host country's innovations alongside displays of its allies and rivals, the New York World's Fair was explicitly designed to present the glories of a Fordist future, delivered by

¹⁶² Nye, 200.

¹⁶³ Gardner Harding, "World's Fair, New York," *Harpers* 179, June/November 1939, 193.

¹⁶⁴ Terry Smith, *Making the Modern: Industry, Art and Design in America* (Chicago: The University of Chicago Press, 1993), 408.

American manufacturers of consumer technologies. Uniquely in 1939, Nye notes, "the corporations did more than display their products; they took on the role of interpreting the future to the American people, telling them that the long depression and the danger of war could be overcome and that a utopian future for their children was achievable by 1960."¹⁶⁵

All problems, no matter how large – or small – would be solved through the introduction of one amazing technological product or another. Poverty, drudgery and social conflict would evaporate in two decades through the judicious application of technology. For the tens of millions of Americans who visited 1960 in 1939 and 1940, it was amazing, awe-inspiring – an encounter with the sublime.

VII. Sacred Noise

The approach of the modern millennium was announced with the sound of trumpets – or at least of their technological equivalent. Technological sounds were rarely narrated in inter-war American culture as either essentially problematic or disruptive. What disturbance they *might* cause could be easily and rationally mitigated with the deployment of more technology. More often, in fact, technological sounds were not something to be silenced or ignored, but noted as a signal of the onward march of progress, or embraced as a signal of the sublime, or at least of a thrilling liberation from the shackles of the past. The sounds of machines, motors and electrical devices had not yet become the plague that Knudsen would bemoan in 1961. The machine age was not an era of quiet, but its noises were not yet a problem.

¹⁶⁵ Nye, 204.

For one thing, technology could produce silence as well as sound. By the end of the First World War, acoustical engineers like Knudsen had developed a wide range of strategies and building materials that promised to discipline unruly sounds. Significantly, Emily Thompson writes in *The Soundscape of Modernity*, these technologies' principal aim was to dampen reverberation, the temporal displacement of sound in a specific space. "When reverberation was reconceived as noise, it lost its traditional meaning as the acoustic signature of a space," Thompson writes, "and the age-old connection between sound and space – a connection as old as architecture itself – was severed."¹⁶⁶ This was, she notes, an essentially modern project; "silence" was produced in the disciplinary silencing of space. Architectural space was thus extracted and, above all, insulated from time. Though initially applied to spaces where the aural discipline of silence was deemed necessary to the production of an attentive, listening subject – like in concert halls – "the techniques of architectural acoustics were deployed far more widely, to minimize noise wherever it occurred and to insulate people from noises beyond their control."¹⁶⁷

This was perhaps best embodied in the idealized home of the future, where rhetorics of control mandated a domestic hygiene that included – indeed, demanded – the silencing of noise. The great value of electrical household appliances, in addition to the benefits of domestic efficiency and the reduction of homemakers' physical toil, was their gentle, controlled euphony. Arthur Train prophesied the home of the future as a utopian sanctuary from the world, explicitly articulating a dialectic of technologically-constructed domestic serenity inside and bustle and excitement of the technological world outside. "The sounds of the city were filtered at the intake-ducts of the air conditioning

¹⁶⁶ Thompson, 172.

¹⁶⁷ Thompson, 171.

apparatus," he imagined, "and such few persistent discords and jangles as did penetrate into the room were deflected toward the ceiling by the walls which slanted gently upward, like the glass walls of radio broadcasting control rooms, where they were absorbed by special insulation."¹⁶⁸ Modern Americans would, it seemed, have it all: a refuge of pastoral domestic stillness within, and the benefits of surging modernity without.

Descriptions of technological noise clearly signified modernity in the literature of the 1920s and 1930s. If not always celebrated or embraced, it was rarely reviled. It was just there, as much as streetlights, movie palaces and skyscrapers, to be remarked upon as a signpost of historical change or as an evocation of the accelerating rhythms of the modern world. Even more than references to changes in fashion and the lights of Columbus Circle, for example, Dos Passos employs sound to mark progress in *Manhattan Transfer*. Early in the novel, a real-estate agent invokes New York's machine age promise to promote a property. "A great deal is going to happen in the next few years," he assures his skeptical client, sketching the novel's temporal arc. "All these mechanical inventions – telephones, electricity, steel bridges, horseless vehicles – they are all leading somewhere. It's up to us to be on the inside, in the forefront of progress..."¹⁶⁹ Dos Passos marks this passage with sound, from the "grinding rattle of wheels and scrape of hoofs on the cobblestones" to a veritable din of machine noise in the jazz age.¹⁷⁰ The sounds of modernity intrude, without comment or valorization, with an increasingly insistent rhythm in the later pages of *Manhattan Transfer*. Lawyer George

¹⁶⁸ Train, 368.

¹⁶⁹ Dos Passos, *Manhattan Transfer*, First Mariner Books Edition (New York: Mariner Books, 2000), 14.

¹⁷⁰ Dos Passos, *Manhattan Transfer*, 40.

Baldwin argues a case in his head "through the taxiwhirring gasoline gloaming."¹⁷¹ A boat passes under the Brooklyn Bridge, with "a humming whine of electric trains over their heads, an occasional violet flash from the wet rails."¹⁷²

Jazz Age oracle F. Scott Fitzgerald was even more specific, correlating the sounds of mechanized modernity to the social and cultural rhythms of the 1920s. The roar of an automobile engine and the din of the modern city were inseparable from the aesthetic of flappers, speakeasies, hope and remorse of his fiction. The stillness of a home "that had seemed whirring, buzzing a moment since" is broken by a breeze through the front door "carrying the noise of a passing motor" portending change in the story "The Cut-Glass Bowl."¹⁷³ Fitzgerald repeatedly connects musical and mechanical rhythm in his descriptions of the city. In *The Beautiful and the Damned*, socialite Anthony Patch relaxes at the barbershop as the barber pushes "a cool vibrating machine over his insatiable head" and muses on the dance hall, where a jazz band transformed mundane space into "an enchanted jungle of barbaric rhythms."¹⁷⁴ Arriving in New York, Patch's wife Gloria moves "up the steps of the Grand Central Station with the rhythm of the engine beating in her ears like a dream, and out onto Vanderbilt Avenue," into a tide of "gorgeously dressed girls."¹⁷⁵

Though less poetic, the association of modernity with technological sounds in the mass media of the 1920s and 1930s is even more explicit. Machines, motors, power and speed are inextricable from their aural context. Historian Elena Razlogova notes that,

¹⁷¹ Dos Passos, *Manhattan Transfer*, 238.

¹⁷² Dos Passos, *Manhattan Transfer*, 240.

¹⁷³ F. Scott Fitzgerald, "The Cut-Glass Bowl," in *Flappers and Philosophers* (New York: Charles Scribner's Sons, 1922), 151.

¹⁷⁴ Fitzgerald, *The Beautiful and the Damned* (New York: Collier Books, 1922), 336

¹⁷⁵ Fitzgerald, *The Beautiful and the Damned*, 357.

with the emergence of radio as a mass medium in the 1920s, non-verbal sounds rather than words became the principal signifiers in the era's radio narratives. "In presenting 'life with the dull bits left out,' [the radio serial] *Gang Busters* announced its own artifice," she writes. "Fans listened for sensational sound effects and plot twists rather than for an authoritative narrative defined by its conclusion."¹⁷⁶ Americans were invited to hear, rather than read, and textual descriptions owed much of their authority to the literary "sound effects" they employed.

Sound effects were as significant in text as they were on the radio. The *New York Times'* account of Charles Lindbergh's take-off from New York, en-route to Paris on 20 May 1927 is related in hushed tones, describing the young pilot's courage and "cool determination," at least until he starts the motor of the *Spirit of St. Louis*: "After idling it for a time, he opened the throttle and let it roar, the plane shaking and vibrating under him."¹⁷⁷ No description could capture the power and wonder of Lindbergh's flight quite like the sound of the engine. This had already become a recurring trope in American mass media where the airplane, in particular, was associated with liberation, possibility and a thrilling future signified by the sounds of a "motor roaring merrily."¹⁷⁸ Two months before Lindbergh's epic flight, *Popular Science* made the equation explicit. "There is no speed limit," reporter H.C. Davis wrote. "Half a mile below, the ground flits up behind you as you speed along to the accompaniment of the roaring motor, drinking in the thrill of riding in the air."¹⁷⁹

¹⁷⁶ Elena Razlogova, "True Crime Radio and Listener Disenchantment with Network Broadcasting, 1935–1946," *American Quarterly*, 143.

¹⁷⁷ Russell Owen, "Lindbergh leaves New York at 7:52 A.M." *New York Times*, 21 May 1927, 1.

¹⁷⁸ Cy Caldwell, "Tails Up! A Test Pilot's Thrilling Ride is a Bucking Plane," *Popular Science Monthly*, October 1927, 25.

¹⁷⁹ H.C. Davis, "Now – Traffic Rules for Aircraft," *Popular Science Monthly*, March 1927, 28.

Technological noise announced and was inseparable from the technological sublime. Murray Schafer notes in *The Soundscape* that sound, particularly jarring, exceptional sounds, have had a long association with the sublime. It is what he calls "sacred noise:" sounds that have "evoked fear and respect back to earliest times, and... seemed to be the expression of divine power."¹⁸⁰ Technological and technologically-mediated sounds and the noises of industry have been just that kind of "sacred noise" from the earliest days of the machine age. In this way, for example, Elektro the Motoman's appearance above the assembled multitudes in *The Middleton Family at the New York World's Fair* is announced by the sound of whirring electrical servos.

Whitman's invocation of modernity and the machine in "To a Locomotive in Winter" invoked the onrush of modernity and proclaimed the subject of his ode a "Fierce-throated beauty!" He proclaimed its "trills of shrieks" and "madly-whistled laughter" a "lawless music!" It probably wasn't a melody he could whistle in the shower but, for Whitman, the power and beauty of the locomotive — the very force of technological progress and the burgeoning machine age — was inseparable from its "fierce-throated" roar. Progress was a law unto itself, and its masculine puissance would always be heralded by its noise.

Like Dos Passos, poet Hart Crane had grave misgivings about the machine age as he looked from his Brooklyn Heights apartment at the span of the Brooklyn Bridge across the East River. However, his greatest poem, *The Bridge*, can be read as a dialogue that seeks to reconcile the human and the mechanical, the body and the machine. In Crane's imagination, the bridge is both a portal between mythic pastoral world of "Powhattan's Daughter" and the ambivalent future of the machine age, and the conveyance of the poet's

¹⁸⁰ Schafer, 76.

spiritual, or at least poetic journey of discovery through the machines of "Cape Hatteras" to Cathay and "Atlantis." The critic Gordon Tapper notes that, for all his ambivalence, "Crane is exhilarated by the machines of modernity, treating them as embodiments of the technological sublime."¹⁸¹

Crane evokes much the same wonder and excitement in the technological sublime as Whitman's "To a Locomotive in Winter." The Brooklyn Bridge conveys "Vast engines outward veering with seraphic grace" on "The Open Road – thy vision is reclaimed!"¹⁸² Tapper notes that the bridge itself embodies this heavenly grace, and "is joined by a catalogue of technological devices, including elevators, cinemas, traffic lights, sailing ships, skyscrapers, trains, subways and electric signs – many of them, like the bridge, connected with the mechanics of travel."¹⁸³ At the far end of the bridge, the poet arrives at his destination, carried through a lattice both of the bridge's structure and of sound:

Through the bound cable strands, the arching path
Upward, veering with light, the flight of strings¹⁸⁴

...

Bridge, lifting light to cycloramic crest
Of deepest day – O choir, translating time
Into what multitudinous Verb the suns
And synergy of waters ever fuse, recast
In myriad syllables,— Psalm of Cathay!
O Love, thy white, pervasive Paradigm...!

For Crane, indeed, the technology and its sound, and the journey that reconciles the poet's self to modernity and its song, are one and the same.

¹⁸¹ Gordon A. Tapper, *The Machine That Sings: Modernism, Hart Crane and the Culture of the Body* (New York: Routledge, 2006), 177-178.

¹⁸² Hart Crane, *The Bridge*, reissue (New York: Liveright, 1992 (1933)), 46.

¹⁸³ Tapper, 158.

¹⁸⁴ Crane, 73.

Crane unambiguously invokes Whitman in a poetic conversation in "Cape Hatteras" section of *The Bridge*, and it is here that his deployment of technological sounds as the signal of modernity and sacred noise is most explicit. "Cape Hatteras" is the poem's centerpiece, marking both the middle of the text and the midpoint of Crane's poetic journey. Tapper notes that "Cape Hatteras" is "imbued with the sense of a glorious future still to come."¹⁸⁵ Addressing both Whitman and the reader, Crane's aural evocation of the sublime force of a power house in the centre of *The Bridge* echoes Whitman's "fierce-throated beauty" while amplifying its significance to the level of demiurge:

The nasal whine of power whips a new universe....
 Where spouting pillars spoor the evening sky,
 Under the looming stacks of the gigantic power house
 Stars prick the eyes with sharp ammoniac proverbs,
 New verities, new inklings in the velvet hummed
 Of dynamos, where hearing's leash is strummed....
 Power's script, - wound, bobbin-bound, refined-
 Is stopped to the slap of belts on booming spools, spurred
 Into the bulging bouillon, harnessed jelly of the stars.¹⁸⁶

Technological power is the dynamo that drives the future in Crane's imagination, and this awesome power is embodied in its overwhelming, sublime sounds. What poetry evoked, music could invoke with all the aural excitement and rhythm of the machine age and, in the early years of the 20th century, composers shocked, startled and electrified audiences from Paris to New York. They announced the arrival of the modern age with a technological fanfare from the concert hall stage.

¹⁸⁵ Tapper, 158.

¹⁸⁶ Crane, 41

CHAPTER 2

MUSIC OF THE FUTURE

I. Riot at the Champs Elysées

The audience in the orchestra seats had already grown restless early in George Antheil's Paris debut recital at the Théâtre des Champs Elysées on the night of 4 October 1923. Over the dissonant, percussive chords of his *Sonata Sauvage*, the 22-year-old pianist and composer "noticed a steely silence creep over the audience."¹⁸⁷ This was a bad sign. The audience was tense, sitting still in a growing silent fury. Antheil played on. His *Airplane Sonata*, with its dissonant harmonies, shifting tempos and jagged rhythms that wandered between syncopated ragtime and savage pounding, was almost too much for Parisian music lovers. "Midway through the second sonata I suddenly noticed a sharp little wave rippling through the audience." Jeers from the front rows gave way to fisticuffs. Antheil felt for the .32 calibre automatic pistol that he habitually carried in a silk shoulder holster under his arm.¹⁸⁸ "We were now on the edge of a riot."¹⁸⁹

Antheil played on. *Mechanisms* began with a series of gently dissonant chords, followed with alternating sections of glassy precision and driving rhythms. This was the music of the Machine Age, a showcase for the pianist's formidable keyboard skill and control. In the final section, his right hand played a subdued, clockwork theme punctuated by the left hand's percussive thunder. By this time, people "were fighting in the aisles, yelling, clapping, booing! Pandemonium!" As the performance came to a conclusion, spectators in the galleries were tearing up their seats and throwing them into

¹⁸⁷ George Antheil, *Bad Boy of Music* (Garden City, NY: Doubleday, Doran & Co., 1945), 132.

¹⁸⁸ Antheil, 5.

¹⁸⁹ Antheil, 132.

the orchestra below. Composers Erik Satie and Darius Milhaud applauded enthusiastically from their box above the chaos. Gendarmes pushed their way into the theatre to arrest "any number of surrealists, society personages, and people of all descriptions."¹⁹⁰ At least that's how Antheil liked to remember it.

The son of German immigrant shopkeepers in Trenton, New Jersey, Antheil had arrived in Europe in 1922 with a \$6000 grant from publishing heiress Mary Louise Curtis Bok. She had funded his studies at Philadelphia's Settlement Music School the year before and, seeing promise in the young man, agreed to send him to Europe as a kind of finishing school "where you would be able to make connections for yourself - & then float yourself, financially." Europe was important. Art music *was* European music, and Antheil's early musical education, under Russian Constantin von Sternberg and the Swiss-born Ernest Bloch, had immersed him in the European tradition, and it was from Europe that he sought validation as a composer. A particularly revealing part of Antheil's 1945 memoir *Bad Boy of Music* relates an encounter with the German critic Hans von Stuckenschmidt and the conductor Shultz von Dornberg at the Donaueschingen music festival in 1921, as the moment where he believed that he was finally being taken seriously.¹⁹¹

However, Antheil had other plans as well; Europe was also the place where he would build a concert reputation and achieve a measure of celebrity not possible in the United States. Under the management of Martin H. Hanson, the impresario who had booked Leo Ornstein, the American "Wild Man" whose keyboard pyrotechnics had

¹⁹⁰ Antheil, 133.

¹⁹¹ Antheil, 22-25.

electrified audiences before the First World War, into European concert halls.¹⁹² The Old World provided an American with the opportunity to make a name for himself as a soloist and earn respect as a composer. Bok was not impressed. "If you go on, with the developing of a piano technique as your only *work*, I shall be disappointed," she wrote to her wayward protégé, "for you'll be failing, as a human being & a man."¹⁹³

Playing the warhorses of the classical repertoire as well as his own works in the music capitals of Berlin and Budapest before arriving in Paris, Antheil did achieve a certain level of fame, or at least notoriety. The French music press took notice. "George Antheil of New Jersey, a visionary pianist and composer, recently gave a recital of his works in Berlin," reported *Le Ménestrel*, Paris's leading music journal, in the spring of 1923. "It does not seem that the press has reviewed them very favourably."¹⁹⁴ A little more than a week before his Paris debut, the journal reported: "G. Antheil's music is extremist. These are the titles of some of his works: *Fireworks and the Profane Waltzes, Jazz Sonata, Death of the Machine, Etude for Ambitious Modernists, Sonata Sauvage*."¹⁹⁵ The audience at the Théâtre des Champs Elysées had known what they were in for and even the most casual music-lover could not have been surprised by an offense to his aesthetic sensibilities.

Surprise wasn't the point. The American *enfant terrible* was in Paris, and there were cameras on-hand to record the chaos. Antheil's recital was a featured part of an "Invitation-only Gala" dedicated to Actress Georgette Leblanc, under the auspices of

¹⁹² Antheil, 9-10.

¹⁹³ Mary Louise Curtis Bok, letter to Antheil, 19 March 1923, George Antheil Correspondence with Mary Louise Curtis Bok, Music Division, Library of Congress, Washington, D.C., Box 1, Folder 4.

¹⁹⁴ "Le Mouvement musical à l'Etranger," *Le Ménestrel*, 20 April 1923, 187. The adjective used was "fantaisiste," which suggested that the "visionary" might be slightly insane.

¹⁹⁵ "Le Mouvement musical à l'Etranger," *Le Ménestrel*, 21 September 1923, 394.

impresario Rolf de Maré's les Ballets Suédois. The announcement in *Le Figaro's* "Courrier des Théâtres" column two days before promised a constellation of silent movie-stars – and a camera crew under the direction of filmmaker Marcel L'Herbier, who would use the footage in his thriller *L'Inhumaine*.¹⁹⁶ There could be no better bait for rowdy Bohemians inclined to some displays of audience mischief. Antheil wrote to Bok that he had had a triumph, playing to "the most brilliant audience in Paris," and assuring her that the concert had not cost him a cent "because a great Parisian motion picture company making a great film of Parisian life, need one scene in which a full dressed audience broke into a great uproar..... not a lot of film people, but real concert goers, and a real concert flurry." Man Ray, Picasso, Jean Cocteau and Fernand Leger were among the celebrities in attendance. "The rest of the audience came because the celebrities came, and the rumor had gotten out that there was to be a novel evening of futurist music," Antheil wrote, "and that later the audience was to be in a motion picture."¹⁹⁷

This was Paris after all and, by 1923, the audience riot had become a vital ritual in the reception of modern music and theatre. The premiere of Igor Stravinsky's *Le Sacre du Printemps* had provoked a riot in the same theatre a decade earlier. Composed for Sergei Diaghilev's Les Ballet Russes, and calculated to appeal to the fin-de-siècle Parisian audience's taste for the exotic and the primitive, the score's dissonant, pulsing, percussive score drove choreography by Vaclav Nijinsky that dramatized and eroticized a narrative

¹⁹⁶ "Courrier des Théâtres," *Le Figaro*, 2 October 1923, 6. Alex Ross and Lynn Garafola contend that the announcement indicates the riot had been actually been staged for L'Herbier's cameras. The text of the announcement suggests only that disorder was expected, not necessarily staged: "Invitation-only Gala dedicated to Mrs. Georgette Leblanc, les Ballets Suédois of Rolf de Maré, with Jean Borlin, Jaque Catelain, Paul Poiret, George Antheil. Scenes filmed under the direction of Marcel L'Herbier. Invitations provided exempt from all taxes." (My translation.) See Alex Ross, *The Rest is Noise: Listening to the Twentieth Century* (New York: Picador, 2007), 149, and Lynn Garafola, *Diaghilev's Ballets Russes* (New York: Oxford University Press, 1989), 354.

¹⁹⁷ Antheil, letter to Bok, October 1923, George Antheil Correspondence with Mary Louise Curtis Bok, Box 1, Folder 4.

of human sacrifice by primitive Russian tribesmen on the steppes. The audience went wild that night in May, 1913, as the well-heeled patrons in the box seats let out "howls of discontent," while "the aesthetes in the balconies and the standing room howled back" and roared at "the whores of the *seizième*," Paris's tony, bourgeois quartier around the Trocadero Palace, to shut up.¹⁹⁸ The scene quickly dissolved into a violent riot. It probably wasn't the music, or at least the music alone, that had stimulated the audience's passions. Nijinsky's choreography, culminating in a scene where a young peasant girl dances herself to death in a pagan fertility rite, was more likely the cause.¹⁹⁹ Whatever the case, the performance was, according to Daniel Chua, "precisely what the doctor had ordered, judging by Diaghilev's comment after the performance: 'exactly what I wanted', said the impresario."²⁰⁰

By the beginning of the 20th century, the audience riot had become the *sine qua non* of success in modernist music and theatre. Although European theatres had long been unruly places, "beginning in the mid-nineteenth century, subdued norms of audience conduct—for music and opera performances as well as for theater—gradually but very firmly established themselves," notes Neil Blackadder.²⁰¹ The theatre had become a venue for genteel, bourgeois pleasure, complained Bertolt Brecht in 1927: staid, comfortable and "culinary" like a middle-class dinner.²⁰² To be modern was to spit in the face of tradition, and that included subverting the very norms of audience reception.

Indeed, Blackadder writes, the first decades of the 20th century was "a period punctuated

¹⁹⁸ Ross, 81-82.

¹⁹⁹ Daniel K. L. Chua, "Rioting with Stravinsky: A Particular Analysis of the 'Rite of Spring,'" *Music Analysis* 26, March-July, 63.

²⁰⁰ Chua, 59.

²⁰¹ Neil Blackadder, *Performing Opposition: Modern Theater and the Scandalized Audience* (Westport, CT: Praeger Publishers, 2003), 2.

²⁰² Bertolt Brecht, "Theatre for Pleasure or Theatre for Instruction," *Brecht on Theatre: The Development of an Aesthetic*, trans. John Willett (London: Methuen & Co., 1964), 71.

by a certain kind of encounter—between works which directly challenged their audiences, and spectators who defied predominant norms of behavior to express their opinion of those works."²⁰³ Audiences arrived at the theatre with a horizon of expectations that included defiance and outrage. To incite a riot was to provoke a scandal, and that meant a *succès du scandale*.

The riot at the *Sacre* was the standard by which all modern music success was judged and, by that standard, the American composer had done rather well in his Paris debut, with future scandals and outrages almost assured. "I am honestly getting the most tremendous following in Paris," Antheil wrote to Bok in 1926. "Practically all of the young French intellectuals are on my side, and I really have piles of enthusiasts of all kinds and nationalities. If this keeps up for several years I shall usurp Strawinsky's place..."²⁰⁴ The concert at the Théâtre des Champs Elysées, at least the furor surrounding it, had made Antheil a star of European modern music. Just a month later he made the gossip pages of the Paris celebrity magazine *Cinéa-Ciné*, which gushingly reported that he had been spotted out on the town in the company of Milhaud, movie stars Jaque Catelain, Pierre Bertin and Leblanc, Maré and his Ballets Suédois, among others.²⁰⁵ Antheil had truly arrived.

Antheil and his wife, Boski Markus, arrived in Paris that June after months in Berlin. Bok was not pleased that her protégé had gone off plan, and he tried to assure her that it was the right move, that Paris was the next obvious step in his rise to fame. "The reason I rushed to Paris was because of Strawinsky," he wrote, with a conscious note of

²⁰³ Blackadder, 2.

²⁰⁴ Antheil, letter to Bok, 12 October 1926, George Antheil Correspondence with Mary Louise Curtis Bok, Box 1, Folder 8. Antheil uses a common French spelling of Strawinsky's name.

²⁰⁵ "L'Activité Cinégraphique," *Cinéa-Ciné*, 15 November 1923, 22.

self-aggrandizement. "He wished to see me immediately about his appearance in America, (he wanted to go with Stokowsky) and I was the only one of his American friends whom he could talk like a brother to, he asked me for private counsel." The Russian composer doesn't mention Antheil in any of his autobiographical writings, suggesting that the American was probably spinning the story for his patron's benefit. However, Antheil idolized Stravinsky, and probably *did* follow him to Paris. In 1923 it was, indeed, the place to be.

"Here was a city as bright and sparkling as a whistle-blowing, pennant-flying ocean liner just home with the transatlantic record," Antheil recalled in his memoirs. The comparison with Berlin was striking, and one in which the grim, postwar German capital did not come off well: "It was the difference between black night and green tender morning!"²⁰⁶ This was, Malcolm Cowley wrote, the "Paris of the international revelers and refugees," like Pablo Picasso, Ernest Hemingway and James Joyce; the "Paris of le Bal des Quatz'Arts" put on every spring by the students of l'Ecole Nationale Supérieure des Beaux Arts; the "crazy Paris which, to its own people, seemed the innermost city..."²⁰⁷

Above all, this was the city to which Anglo-American modernists, "driven by a hatred of American dullness and Puritanism," were inexorably drawn in search of both liberation and inspiration.

Ever since 1920 there had been no break in the movement toward France. Artists and writers, art photographers, art salesmen, dancers, movie actors, Guggenheim fellows, divorcées dabbling in sculpture, unhappy ex-débutantes wondering whether a literary career wouldn't take the place of marriage – a whole world of

²⁰⁶ Antheil, 97.

²⁰⁷ Malcolm Cowley, *Exile's Return: A Literary Odyssey of The 1920s* (Harmondsworth, Middlesex: Penguin Books, 1994), 262-263.

people with and without talent but sharing the same ideas happily deserted the homeland.²⁰⁸

Antheil enthusiastically inserted himself in the community of artistic and literary exiles. Shortly after his arrival, he rented rooms from Sylvia Beach over her bookshop Shakespeare and Company at 12 rue de l'Odéon.²⁰⁹ Located in the St. Germain district between Café Deux Magots and the Sorbonne, the bookshop – and Antheil's Paris digs – was at the heart of everything. Luminaries of the "Lost Generation" – Ezra Pound, Gertrude Stein, Dos Passos, Fitzgerald – thumbed through the books on the shelves along with soon-to-be (but not-quite-yet) literary giants like T.S. Eliot and James Joyce. Shakespeare and Company became the headquarters of Anglo-American modernists in Paris, the capital of modernism.

II. Enter the Moderns

By identifying with futurism, though he never had any direct ties with the Futurist movement, Antheil was interpellated into the ideology of European modernism. Modernism in art, music and culture was never a monolithic movement, and its meaning shifted over time. It was a tendency that celebrated science and technology, and human rationality, while paradoxically evoking the spectre of the savage and primitive past that had been overcome.²¹⁰ It created and destroyed, unleashing the awesome power of human technology, while conversely disciplining that power with the precision of modern intellect. Most broadly, it signified change. Yet each novelty and innovation would be succeeded as modernity marched into the future.

²⁰⁸ Cowley, 240.

²⁰⁹ Antheil, 109.

²¹⁰ Matt K. Matsuda, *The Memory of the Modern* (New York: Oxford University Press), 12.

By the time Antheil made his chaotic Paris debut "modern music" had become imbricated in the same narrative of "progress" articulated in the social sciences and literature of the early 20th century. It was, in Wagner's phrase, the "Music of the Future;" music that had made a break with the past and was committed to constant, often revolutionary change. Yet it was not a linear progress; the trajectory of modern music in the 20th century was more of a polyvocal dialogue in which composers, their audiences and critics sought to reconcile contending forces of explosive change and rational discipline. At one extreme were partisans of radical innovation, for whom speed and the *noise* of machines – indeed machines themselves – were signals of the sublime. At the other were the forces of rationality, no less advocates of speed and discovery, but only when it was streamlined and controlled by rational order. The themes of modern music were less a melody than a fugue; the tropes interacted in complex ways with each other and with contending social and cultural forces. And in embracing modernism, American composers and their audiences were drawn into the conversation.

The forces of musical change had been gathering throughout the 19th century. The "old order," Carl Schorske writes, "had been conceived on the basis of a hierarchical tonal order, the diatonic scale, whose central element was the diatonic triad, the defined key."²¹¹ The triad – the basic major or minor chord – was the foundation of musical authority. Composers of the 18th century might experiment as freely as they wished, but only within the disciplinary boundaries of conventional forms like the sonata and accepted tonal and harmonic categories corresponding to the hierarchies of European political economy. As they changed, so did the music.

²¹¹ Carl E. Schorske, *Fin-de-Siècle Vienna: Politics and Culture* (New York: Vintage Books, 1981), 346.

The *anciens régimes* of Europe had been more or less consistent since the Congress of Vienna and remarkably resilient. Apart from the amalgamation of the Germanies into Germany and the Italies into Italy, the map of Europe at century's end was very much the same as it had been in 1815. By the turn of the 20th century, however, the flexibility of the old order seemed to be reaching its limits. In the Hapsburg Empire, particularist nationalisms were threatening to subvert the multi-national state. Most troubling was the rise of the pan-Germanism promoted by Karl Schönerer, "the first leader of centrifugality *à outrance* to arise in the era" of Austria-Hungary's liberal ascendancy, Schorske writes, embodying "every disruptive potentiality in the society."²¹² Russia's defeat by Japan in 1905 helped ignite a revolution that almost brought down the Czar and, in any event, left the crown critically weakened. And France was beset by almost constant discord, in a *querelle des anciens et modernes*, since the fall of the Second Empire.²¹³

Modernizing reformers had gained control of French cultural policy from traditionalists by 1880 and completely reformed the universities in 1896 and the classically-dominated secondary school system in 1902.²¹⁴ *Les Anciens* pushed back, claiming that reform would subvert the ties that held *La Patrie* together, and this seemed validated in the growing anti-military, internationalist proletarian movement that demonstrated its strength in the *Affiche Rouge* affair of 1905. Socialists and anti-militarists plastered Paris with propaganda in a single night. The French government reacted quickly, increasing repression of the left and imprisoning leaders like Gustave

²¹² Schorske, 130.

²¹³ Martha Hanna, *The Mobilization of Intellect: French Scholars and Writers During the Great War* (Cambridge: Harvard University Press, 1996) 44.

²¹⁴ Hanna, 44-45.

Hervé. Yet this only seemed to galvanize the Left and divide and increasingly destabilize the republic.²¹⁵

As social hierarchies were challenged, geographical boundaries rewritten, and the loci of economic and political power re-situated, the 19th century became, Schorske writes, ever increasingly "the century of dissonance—the medium of tonal movement—and the erosion of the fixed key, the center of tonal order."²¹⁶ The diatonic key was the crucial set of harmonic codes that defined the boundaries of European art music; it was what made a collection of pitched sounds intelligible *as* music. Every note in a key references the tonic – the root note of a major or minor scale – and a composer produces meaning by manipulating the harmonic relationships between notes.²¹⁷ The relationship of the triad is most fundamental expression of this.²¹⁸ In its most mundane expression, a *major triad* is the aural code for triumph and joy, while a *minor triad* is grave or sad. These harmonic relationships provide the codes with which music produces narrative and communicates emotional states that invariably resolve on the "home" triad of a key – say the A-minor triad in the A-minor key. The audience knows that a piece of music in A-minor has concluded, for example, when the melody resolves on the A-minor chord.

The problem is that purely diatonic music offers a fairly limited palette of meanings by itself. A major triad might be triumphant, but to narrate "triumph over

²¹⁵ Paul B. Miller, *From Revolutionaries to Citizens: Antimilitarism in France, 1870-1914*, (Durham, NC: Duke University Press, 2002), 65.

²¹⁶ Schorske, 347.

²¹⁷ A key is built on diatonic scales containing the seven notes of each octave at fixed pitch intervals. The chromatic scale contains all the possible twelve notes of an octave, each at a half-tone interval from the next in ascending or descending order of pitch, from which diatonic scales are derived.

²¹⁸ A diatonic triad consists of three notes – the root note, the third and the dominant – often struck simultaneously as a chord. The root note gives the name to a triad, so a C-chord (in the key of C) would consist of the notes C-E-G, while a G chord would be G-B-C. There are two kinds of diatonic triads; the *major* triad consists of the root and dominant, with a *major* third, pitched four half-tones higher than the root, and a *minor* third, three-and-a-half half-tones higher than the root. A G-minor triad consists of G-B-flat-C.

adversity" a composer must first evoke adversity. Since the 16th century, European composers accomplished this by adding instability by transgressing the boundaries of diatonic order to introduce notes and harmonies foreign to the fixed key. A listener would interpret the dissonance of a chord built with "accidental" passing tones as tension that had to be resolved by a return to the tonic and the security of diatonic hierarchy. Arnold Schoenberg noted that meaning in diatonic music was produced through contrasts with the work's tonal centre. The segue from the third to the fourth movements of Beethoven's *Symphony no. 5* is a classic example of this. The first three movements are in the grave, introspective key of C-minor, but the symphony modulates to C-major in what an audience in 1808 would have understood as a passage of tension and chaos before finally resolving triumphantly in the opening theme of the final movement.

Composers in 19th century began to increasingly exploit the potential of going outside of the key to produce more complex emotions and meanings. Inspired by, and practicing their art in the same cultural milieu as romantic artists and painters, many 19th century composers embraced their aesthetic philosophy.²¹⁹ The "rebellious intensity," individualism, and valorization of intense emotion expressed in Delacroix's broad brush strokes and the "violent nonconformity" of Lord Byron's poetry,²²⁰ found its aural expression in idiosyncratic dissonances and growing chromaticism, though always with a return to conventional harmonies to signal resolution. By the time he composed *Verklärte Nacht* 1899 – the musical evocation of a poem by Richard Dehmel – Arnold Schoenberg could confidently delay resolution for long periods to express suspended emotional states of pain, jealousy and regret.

²¹⁹ Frederic Chopin and Franz Liszt were intimates of Eugene Delacroix, George Sand and Heinrich Heine.

²²⁰ Daniel Shanahan, *Toward a Genealogy of Individualism* (Boston: University of Massachusetts Press, 1992), 90.

This chromaticism was transgressive, but it was authorized by that other romantic innovation: the uncontainable genius of the heroic artist. The most heroic of all was Richard Wagner, whose "*Tristan* chord," used as the *leitmotiv* of the eponymous hero of his opera *Tristan und Isolde*, signaled the start of a wholesale migration by European composers into the forbidden realms of chromaticism.²²¹ Already in 1874, German music critic Francis Hueffer wrote of the emancipation of European music from the straightjacket of tradition by Wagner's almost-godlike efforts. Wagner was, in Hueffer's mind, the touchstone of "the liberation of this music itself from the arbitrary limits of tradition."²²² By the beginning of the 20th century, these transgressions might not have been universal, but they had become pervasive.

But genius – particularly Wagner's genius – was both an invitation and a challenge. European composers looked on the works of the giants that preceded them as an "inspiration and an obstacle, both as a model to be emulated and a precursor to be overcome," notes musicologist Mark Evan Bonds.²²³ If Wagner's music was "the fulfillment of the [tonal] system regnant in Europe since the introduction of the principle of the equal temperament,"²²⁴ then subsequent composers had an obligation, authorized by his genius, to push beyond it. Schoenberg recalled that, upon being introduced to Wagner's music by his teacher Alexander von Zemlinsky, he became an "addict," and modeled the "thematic construction" of *Verklärte Nacht* "on Wagnerian 'model and sequence' above a roving harmony."²²⁵

²²¹ The "*Tristan* chord" consists of the root, augmented fourth, augmented sixth, and augmented ninth.

²²² Francis Hueffer, *Richard Wagner and the Music of the Future* (London: Chapman and Hall, 1874), 81.

²²³ Mark Evan Bonds, Sinfonia Anti-Eroica: Berlioz's Harold en Italie and the Anxiety of Beethoven's Influence, *The Journal of Musicology* 10, No. 4, Autumn 1992, 419.

²²⁴ Paul Rosenfeld, *Musical Portraits: Interpretations of Twenty Modern Composers* (New York: Harcourt, Brace and Howe, 1920), 10.

²²⁵ Arnold Schoenberg, "My Evolution," *The Musical Quarterly*, October 1952, 518.

French composers were also motivated to transcend the tonalities and forms of the past. Like his German colleagues, Claude Debussy had been profoundly influenced by the aesthetic example of Wagner. "We hear orchestral sonorities, unexpected and unique, strong and noble," he wrote of the opera *Parsifal* at the beginning of the 20th century. "This is one the finest aural monuments that has been erected to the unwavering glory of music."²²⁶ Yet, the Wagnerian idiom was also completely Teutonic, as Erik Satie explained to Debussy. French modernists had to free themselves from Wagner, as well as from the past, to express their national aspirations. "I also pointed out that I was in no way anti-Wagnerian, but that we should have a music of our own – if possible without any *Sauerkraut*." Satie recalled. "Why could we not use the means that Claude Monet, Cezanne, Toulouse-Lautrec and other had made known? Why could we not transpose those means into music? Nothing simpler."²²⁷

Debussy evidently agreed. He wanted to recapture the greatness, if not necessarily the forms, of the era of Jean-Philippe Rameau, whose music was "made of delicate and charming tenderness, precise accents, a disciplined statement in recital without this German affectation of profundity, nor the need to accent with their fists."²²⁸ Satie's music made a virtue of simplicity, while Debussy reached outside of the conventions of European aesthetics to alternative modes like the whole-tone scale to produce impressionistic harmonies as in his *Prélude à l'après-midi d'un faune* of 1894. Of the *Prélude*, one reviewer wrote approvingly that "the music of M. Debussy presents the

²²⁶ Claude Debussy, *Monsieur Croche: Antidilettante* (Paris: Les Bibliophiles Fantaisistes, 1921), 102.

²²⁷ Erik Satie, "Three Brief Epigrams," in Elliot Schwartz and Barney Childs, eds., *Contemporary Composers on Contemporary Music* (New York: Holt, Rinehart and Winston, 1967), 32.

²²⁸ Debussy, 79.

peculiarity of being almost beyond any tonality."²²⁹ Debussy produced music that seemed very much of its time, in step with the social and literary changes of *fin de siècle* France. Leon Botstein writes that his music "struck a chord, so to speak, with an audience that had, after all, embraced a way of seeing impressionism, neo-impressionism, and symbolist painting in the decades between the first impressionist exhibition of 1874 and the outbreak of World War I."²³⁰

Neither Debussy nor Satie were happy with the label "impressionism," though it stuck soon enough for E.M. Forster to have Margaret Schlegel in his 1901 novel *Howard's End* complain "If Monet's really Debussy, and Debussy's really Monet, neither gentleman is worth his salt – that's my opinion."²³¹ They had, however, innovated a distinctly modern and uniquely French idiom that would resonate with a generation of composers beginning with their near-contemporary Maurice Ravel.²³² As late as 1921, music critic Paul Rosenfeld could write that "the music of Debussy is proper to us, in our day, as is no other, and might stand for all time as our symbol."²³³ Listening to *Prélude à l'après-midi d'un faune* for the first time, Gustave Robert was conscious that he was listening to a future – if not *the* future – of music where, liberated from the constraints of tonality, composers might finally be able to represent the un-representable. "Some will follow," he wrote, "and one must give credit, without distinction, to the innovators, and M. Debussy is undoubtedly one of those."²³⁴

²²⁹ Robert, "Musique," *Revue Illustrée*, 15 November 1895, 1.

²³⁰ Leon Botstein, "Beyond the Illusions of Realism," in Jane F. Fulcher, ed., *Debussy and His World* (Princeton: Princeton University Press, 2001), 142.

²³¹ E.M. Forster, *Howard's End* (New York: Alfred A. Knopf, 1921), 46.

²³² Maurice Ravel, "An Autobiographical Sketch of Maurice Ravel," in Arbie Orenstein, ed., *A Ravel Reader: Correspondence, Articles, Interviews* (New York: Columbia University Press, 1990), 30.

²³³ Paul Rosenfeld, "Debussy," *Musical Portraits*, 119.

²³⁴ Robert, 2.

III. A Season of Outrages

More often, the abandonment of traditional tonality and form was met by audiences and critics with a combination of befuddlement and scorn. Writing in 1911, Arnold Schoenberg found conventional harmony impossibly restrictive. Noting that harmonic innovations that once inspired and amazed composers and their audiences had, throughout the 19th century, become debased and "banal," he looked toward the future. "The future brings the new," he wrote, "and that is perhaps why we so often and so justifiably identify the new with the beautiful and the good."²³⁵ Just what that would be, Schoenberg could not exactly say, though he advocated for a broad expansion of tonality from conventional harmonies that, to a modern ear "sound too cold, too dry, expressionless."²³⁶ Just as Satie had recommended the application of the Impressionists' brushstrokes to French music Schoenberg, an amateur painter inspired by his friend Oskar Kokoschka, brought the explosive aesthetic of expressionism to German music. "Kokoschka and Schoenberg recognized each other as engaged in the same dangerous, lonely work," Schorske writes, "at once of liberation and of destruction."²³⁷ Schoenberg envisioned compositions of "tone-colours" (*Klangfarbenmelodie*) that would bring a new dimension to music. "I firmly believe it is capable of heightening in an unprecedented manner, the sensory, intellectual, and spiritual pleasures offered by art."²³⁸

Not surprisingly, perhaps, an audience at the London Proms in the summer of 1912 disagreed. They "tittered and laughed outright" at the searching, chromatic and often dissonant harmonies and shifting timbres of Schoenberg's *Five Orchestral Pieces*.

²³⁵ Schoenberg, *Theory of Harmony*, tr. by Roy E. Carter, paperback edition (Berkeley: University of California Press, 1983), 239.

²³⁶ Schoenberg, *Theory of Harmony*, 420.

²³⁷ Schorske, 362.

²³⁸ Schoenberg, *Theory of Harmony*, 422.

Never resolving, and embodying the post-Wagnerian aesthetic of liberation, neither the audience, nor the reviewer from *The Musical Standard* knew quite what to make of the performance. "Mr. Schönberg is one of those unfettered persons who will not hear of rules," he wrote. "No form, no lay-out, no development of ideas, no ideas that can be distinguished from the crudest, uncontrolled sensation, can be discerned in these 'works.'"²³⁹ In 1913 a review in the *Revue Française de Musique* complained that Stravinsky "has had the unfortunate idea to write a final chorus based on themes from Mussorgsky, but unfortunately in the manner of Stravinsky, which has a painful and discordant impression on the listener."²⁴⁰ By reaching beyond the conventional tonality, both composers had passed into the realm of "uncontrolled sensation" and discord; implicitly, their music was noise.

The season of 1912-1913 was a season of outrages in Europe's music capitals. Bookended by the Berlin premiere of Schoenberg's *Pierrot Lunaire* on 16 October and the *scandale* of Stravinsky's *Le Sacre du Printemps* on 29 May, the season seemed to herald the utter collapse of European music. A setting of 21 poems by Belgian symbolist poet Albert Giraud, *Pierrot Lunaire* was a radical work. "It abounds in the most extraordinary sounds, and is said to exceed Schönberg's previous works in 'advancement,'" *The Musical Times* sniffed. "Serious critics state, however, that it has made an absolutely novel (if somewhat baffling) impression."²⁴¹ It certainly was a novel piece. Scored for an unconventional chamber octet and a vocalist performing in a novel part-sung, part-declaired style called *Sprechstimme*, *Pierrot Lunaire* seemed well outside the boundaries of music.

²³⁹ Douglas Donaldson, "The Proms: A Disjointed Diary," *The Musical Standard*, 14 September 1912, 167.

²⁴⁰ "'La Kovanchina' aux Champs Elysées," *Revue Française de Musique*, June-July 1913, 597-598.

²⁴¹ "Foreign Notes," *The Musical Times*, 1 November 1912, 742.

William Ritter, in *Revue Française de Musique*, had a hard time giving the work a favorable review. "I am perplexed by the evolution of this disconcerting music," he wrote, "and I come at it with very few clear ideas."²⁴² It was groundbreaking to be sure, and Schoenberg was one of the new heroes of modern music, but "is it beautiful? I don't know," Ritter almost audibly sighed. "Does it have *its* beauty. I am convinced, but I cannot yet define it."²⁴³ J.H.G. Baughan in *The Musical Standard* disagreed, claiming that "Schönberg has thrown overboard all the sheet anchors of the art of music. Melody he eschews in every form; tonality he knows not, and such a word as harmony is not in his vocabulary." Baughan wasn't alone, citing a New York critic who described *Pierrot Lunaire* as "the greatest musical monstrosity that has been perpetrated during the present generation upon a long suffering public." Otto Taubmann reportedly wrote that "if this is the music of the future, then I pray my creator not to let me live to hear it again."²⁴⁴

Seven months later, the scandal of *Le Sacre* dominated the music press, but reviewers were horrified more by the riot and the choreography than the music. "Massacred, as well, because it seemed monstrous to more than one art lover to celebrate spring with Mr. Nijinsky's epileptic convulsions and the painfully discordant music," a reviewer wrote in the *Revue Française de Musique*. While condemning the "ridiculous" choreography, the reviewer made a supreme effort to appreciate Stravinsky's "extraordinary" music. "It is certainly far beyond the ordinary limits of discord," he continued. "It is sometimes terribly ugly, I would say it certainly seems so to us people of

²⁴² William Ritter, "A Propos du 'Pierrot Lunaire' d'Arnold Schönberg," *Revue Française de Musique*, 15 December 1912, 177.

²⁴³ Ritter, 181.

²⁴⁴ J.H.G. Baughan, "Comments and Opinions," *The Musical Standard*, 30 November 1912, 335.

1913.²⁴⁵ Carl Van Vechten agreed, denouncing Stravinsky as a brutish primitive who used "barbaric rhythm, without any special regard for melody or harmony."²⁴⁶ Primitive, perhaps, but the *Revue Française de Musique* reviewer wasn't sure if that was such a bad thing. Could it be a "premature specimen of the music of the future," he mused? "Yes, if the current evolution towards increasing complexity must continue, both rhythmic polyphonic and instrumental complexity." At least, he wrote, the music might not seem so strange by 1940.²⁴⁷

IV. The Bacchae

The evolution of art music toward chromaticism, atonality and amorphous forms was bad enough, but by 1914, European culture seemed about to split at the seams. Since the publication of F.T. Marinetti's "Futurist Manifesto" in 1909, artists, writers and dilettantes in Milan, London, Berlin and, above all, Paris had been engaged in verbal – and occasionally, physical – battles over art. Writing in London's *Fortnightly Review* in the spring of 1914, poet Henry Newbolt observed "that the presentation of a new idea, the spreading of a new movement, causes the world of art precisely the same reactions as a similar event causes in the world of politics." Enthusiastic, vocal and often radical communities would form in both cases, and "in both the loudest cry is that of outraged and indignant feeling."²⁴⁸ Outrage was the point. What they all agreed upon was that the old art was finished.

²⁴⁵ L.V., "Le Sacre du Printemps," *Revue Française de Musique*, June-July 1913, 602

²⁴⁶ Carl Van Vechten, *Music and Bad Manners* (New York: Alfred A. Knopf, 1916), 205.

²⁴⁷ L.V., 603.

²⁴⁸ Henry Newbolt, "Futurism and Form in Poetry," *The Fortnightly*, May 1914, 804.

This was an age of manifestos, as one group of cultural revolutionaries after another adopted the forms and rhetoric of political militants to denounce the old and herald the new. Marinetti called on his Futurist comrades to "rattle the gates of life to force the hinges and locks! ... Let's go! This is the first sunrise on earth! ... Nothing equals the splendor of its red sword that cuts for the first time through our millennial darkness." Marinetti announced the dawn of a new art founded on the machine aesthetics of power, novelty and velocity. "We declare that the world's splendor has been enriched by a new beauty: the beauty of speed," he wrote. "... A roaring automobile which seems to run on shell-fire is more beautiful than the *Nike of Samothrace*."²⁴⁹ The noise of modernity had shattered the serenity of classical culture in the rush of progress.

Though initially conceived as a revolution in literature and the visual arts, Futurism soon developed a unique soundtrack. In 1910 composer Balilla Pratella called on young musicians to join his crusade against the "shame and filth" of a degraded Italian culture. "I scream with joy upon finding myself free of every chain of tradition, doubt, opportunism, and vanity," he wrote in the *Manifesto of Futurist Musicians*.²⁵⁰ Citing the work of composers in other countries, he enjoined Futurist composers to smash traditions and "ascend beyond the past."²⁵¹ Ironically, most of Pratella's examples of the future of music were already about to be superseded by the "painfully discordant music" of Schoenberg and Stravinsky. For all of his radical rhetoric Pratella's own music of the period, like the solo piano work *La Guerra*, was highly tonal, if rhythmically inventive, and reminiscent more of the virtuoso piano music of the 19th century than of the 20th.

²⁴⁹ F.T. Marinetti, "Fondation et Manifeste du Futurisme," *Le Figaro*, my translation, 20 February 1909, 1.

²⁵⁰ Balilla Pratella, "Manifesto of Futurist Musicians," in Lawrence Rainey, Christine Poggi and Laura Wittman, eds., *Futurism: An Anthology* (New Haven, Yale University Press, 2009), 78.

²⁵¹ Pratella, 80.

Critics had a hard time trying to delineate the contours of Futurist music. "It is rather hard to define a Futurist," D.C. Parker observed. "Is Ornstein a Futurist; or must we go to Pratella for a good example; and what about Schönberg?"²⁵² Luigi Russolo had a clearer idea. In a letter to Pratella, published in March 1913 as the manifesto *The Art of Noises*, the Futurist artist proposed "a new art." He traced the history of music as an expression of the human aural environment and reasoned that music before the machine age was exceptional sound, "a fantastic world superimposed on the real one."²⁵³ As technological development made the aural environment more complex, so did music – from simple monody in the silence of the ancient world, to polyphonic and symphonic music in the 18th and 19th century. "Ancient life was all silence," he wrote. "In the 19th Century, with the invention of machines, Noise was born. Today, Noise is triumphant and reigns supreme over the sensibility of men."²⁵⁴ Looking toward the future, Russolo argued that conventional music had lost its ability to excite listeners. "*This evolution of music is comparable to the multiplication of machines, which everywhere collaborates with man,*" he wrote. "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."²⁵⁵

The future required a new *kind* of music, and not one that merely mimicked the timbres and rhythms of machines on the piano keyboard or orchestra. "*We must break out of the limited circle of sounds and conquer the infinite variety of noise sounds,*" Russolo

²⁵² D.C. Parker, "The Future of the Musical Futurists," *The Academy*, 15 May 1915, 311.

²⁵³ Luigi Russolo, "The Art of Noises: Futurist Manifesto," *The Art of Noises*, tr. by Barclay Brown (New York: Pendragon Press, 1986), 25.

²⁵⁴ Russolo, "The Art of Noises," 23.

²⁵⁵ Russolo, "The Art of Noises," 24.

proclaimed.²⁵⁶ It was a daring proposal, and immediately attracted attention. Jules Ecorcheville, the editor of *Revue Musicale S.I.M.*, the journal of Paris's modernist-inclined Société Internationale de Musique, welcomed the project, "But in practice the difficulty is precisely how to *integrate* noise into music," he observed. "The Futurists could neglect this duty and like Tartarin, exclaim *fen de brut!* without worrying about the rest.... Russolo clearly tells us of his intention to use noises, not simply as randomly-employed noises, but as precise agents of musicality."²⁵⁷

It wasn't exactly clear what that musicality might be because "the Futurists are theorists," Ecorcheville wrote. "They do not represent themselves as innovators, and music is making a racket despite them, but as self-conscious reformers who wonder how they might serve the musical cause of Futurism."²⁵⁸ Russolo served the cause by developing a whole orchestra of *intonarumori*, or noise instruments. These included *ulilatori* (howlers), *rombatori* (roarers), *crepicatori* (cracklers), *stropicciatori* (rubbers), *scoppiatori* (burststers), *gorgoliatori* (gurglers), *ronzatori* (low hummers), *sibilatori* (high hummers). They were mostly "boxes of various sizes," Russolo wrote. "At the front end, a trumpet serves to collect and reinforce the noise-sound. Behind, there is a handle to produce the motion that excites the noise."²⁵⁹ By turning the handle, or activating an electric motor, the player engaged a mechanism that – in the case of the *ulilatori* and *rombatori* – spun a disc against a string that could be tightened or slackened to change pitch.

²⁵⁶ Russolo, "The Art of Noises," 25.

²⁵⁷ Tartarin was the boastful protagonist of Alphonse Daudet's fanciful 1872 novel *Tartarin de Tarascon*. His motto was *fen de brut*, "let's make noise." J. Ecorcheville, "Le Futurisme ou le bruit dans la musique," *Revue Musicale S.I.M.*, 15 January 1913, 12.

²⁵⁸ Ecorcheville, 12.

²⁵⁹ Russolo, "Noise Instruments," 75-76.

Music critics were unsure of what to make of the racket. *The Nation* speculated that Russolo might only be "a humorist poking fun at Schönberg, Ornstein & Co." The inaugural concerts – "noise spirals," Russolo called them – in Milan and Genoa in the spring of 1914 met with widely differing audience reactions. "In Milan, the band was received 'with unbounded enthusiasm,'" *The Nation* reported, "whereas at Genoa it 'aroused a spirit of the bitterest hostility, culminating in a battle worthy of an Irish political meeting of the olden times.'"²⁶⁰ However, the *ulilatori, rombatori*, and the other instruments produced unique and compelling sounds at a concert in London. Russolo's orchestra performed two works for the *intonarumori*, *A Meeting in Motor-Cars and Aeroplanes* and *The Awakening City*:

First came the breaking of dawn, followed by a realistic reproduction of the numerous kinds of noises heard about the time when shutters are opened and the sidewalks swept. The roar of the increasing traffic is heard, with the strident sound of the motor-horn. The factory whistle adds its shrill sound, and we hear also the bell calling the workmen to their tasks.²⁶¹

For all of Russolo's promise to liberate noise and create a new art, the repertoire for *intonarumori* was ultimately either mimetic and rigidly descriptive, or an accompaniment to otherwise conventional music, as with *Corale* by Russolo's brother Antonio.

Other cadres of cultural revolutionaries responded to the Futurist provocation, each one vowing to transform European art, often with the promise to first destroy it in the process. In practice, it was a fine distinction. For most people who paid attention to the artistic ferment – and, judging from the coverage in European and American magazines at the time, there were a considerable number of them – it was a question of splitting hairs. "I cannot here pause to distinguish minutely between Divisionists,

²⁶⁰ "Drama and Music," *The Nation*, 24 September 1914, 386.

²⁶¹ "Drama and Music," 386.

Pointillists, Intimists (who belong to the same group), Fauvists (savages), Orféists, Cubists, Expressionists, Vorticists, and Dynamists," the veteran war correspondent and political reporter Henry Nevinson wrote to American readers in *The Atlantic Monthly*. "In so far as all are in alliance against Passéists, despite violent and bloodthirsty disagreements among themselves, all may be called Futurists."²⁶² In 1914, the one thing they all agreed on was that the cultural *Ancien Régime* was due to be swept away – with a Futurist soundtrack. "As an accompaniment to the present European war, nothing could be conceived more appropriate than the music of the 'futurists,'" *The Nation* noted in September 1914.²⁶³

The eruption of the First World War that July was the answer to the prayers, the manifestation of the fears, and a fulfillment of the millennial prophecies of dissidents, Christians, revolutionaries, and "futurists" of all stripes. In exile in Switzerland, Vladimir Lenin saw the dawning of a new epoch.²⁶⁴ "This war spells the bankruptcy of much that we too lightly call Christian," the Religious Society of Friends wrote on 7 August. "Christ is crucified a-fresh today." Yet the Quakers held out the hope that the war would wash the world clean and pave the way for a new order: "We shall be able to make a new start and make it all together."²⁶⁵ Christian peace activist Frederick Henry Lynch, agreed, seeing the war as an object lesson that would motivate his less-Christian co-religionists to "turn to the new order with an eagerness not yet envinced..."²⁶⁶

²⁶² Henry W. Nevinson, "The Impulse to Futurism," *The Atlantic Monthly*, November 1914, 629.

²⁶³ "Drama and Music," 386.

²⁶⁴ Ecksteins, 209.

²⁶⁵ The Religious Society of Friends, "To Men and Women of Goodwill in the British Empire," in Frederick Henry Lynch, *Through Europe on the Eve of War* (New York: The Church Peace Union, 1914), 150-151.

²⁶⁶ Lynch, 65.

The war released centrifugal forces that had been gathering for at least a decade. Two years into the conflict, at the Cabaret Voltaire in Zurich, what remained of the *Anciens Régimes'* "Passéism" finally seemed to snap as Hugo Ball announced the latest revolutionary tendency: Dadaism. The celebration of artistic nihilism, Ecksteins writes, "was a spiritual counterpart to the war itself" that rejected meaning and embraced the creativity of chaos. Though condemning barbarism, the Dadaists, like the Futurists and Vorticists, welcomed the violent rupture of war. "As evocation, as an instrument of change, the war had a positive purpose," Ecksteins notes.²⁶⁷ The Futurists were only the most candid about it. "The Futurist destroys everything soft, gracious, effeminate, subdued, and moribund," just as did war, Nevinson wrote.²⁶⁸ It cleared the dead undergrowth for change. Describing a reading of Marinetti's poetry, he felt "the pestilence that walks in darkness, at work in the midst of gigantic turmoil making history. That is the very essence of war."²⁶⁹

After the Armistice in 1918, the old order was, indeed, washed away. The *anciens régimes* of Germany, Austria-Hungary and Russia had collapsed and the political map of the continent had been completely revised for the first time in a century. The economist John Maynard Keynes, Britain's treasury representative at the Versailles Conference noted that "an age is over," even if the rest of the British delegation failed to realize it. "In continental Europe the earth heaves and no one but is aware of the rumblings," he wrote, of "the fearful convulsions of a dying civilization."²⁷⁰ Keynes's warnings nonetheless

²⁶⁷ Ecksteins, 210.

²⁶⁸ Nevinson, 630.

²⁶⁹ Nevinson, 632.

²⁷⁰ John Maynard Keynes, *The Economic Consequences of the Peace* (New York: Harcourt, Brace and Howe, 1920), 4.

invoked a widely-held "eschatology of peace" that had emerged in the last year of the war, "of the triumph at long last of redeemed humanity over the forces of evil."²⁷¹

Europe's avant-garde artists, many of whom had celebrated the conflict as an expression of technology, power and speed and articulated a nihilistic rhetoric of cultural-renovation-through-erasure, found the slate wiped clean in a shattered Europe. Though they had "found inspiration in the spectacle of war," Stéphane Audoin-Rouzeau and Annette Becker write, "their perception of the conflict soon evolved along with everyone else's."²⁷² Even the Futurists, who had glorified war as "the world's only hygiene," found that the conflict had left a vast cultural vacuum that needed to be filled. Futurist artist C.R.W. Nevinson, the son of journalist Henry, had spent the war years painting scenes of movement and machinery. He noted that modernists had to adapt themselves to "the new conditions of peace and 'reconstruction.'" In the eerie cultural silence of postwar Europe, he said, "it will be found that the terrible violence of war has had an excellent effect. We shall be able to put into our work a meaning that it didn't have before."²⁷³

V. Ballet Mécanique

One tendency looked toward a technological future and found meaning in progress, marking a decisive break with the past. Musically, this was a machine age aesthetic that deployed the same percussive sounds as had Futurist composers and performers before the war, and embraced technology where possible. After the war, critics invariably signified this music as "futurist," whether or not the composer had any

²⁷¹ Stéphane Audoin-Rouzeau and Annette Becker, *14-18: Understanding the Great War* (New York: Hill and Wang, 2002), 157.

²⁷² Audoin-Rouzeau and Becker, 163.

²⁷³ "How the War Vindicated 'Modern' Methods in Art," *Current Opinion*, August 1919, 116.

connection to Marinetti's movement. A broad category, it was largely interchangeable with "modernist," according to the music scholar Ralph Dunstan, signifying composers and musicians who had broken away "from the classical traditions and conventions of musical composition, and have developed their music on novel or unusual lines of melody, harmony, and form."²⁷⁴ It enclosed a vast number of composers, ranging from the Futurists proper to Schoenberg and Stravinsky. What they had in common, wrote Kenneth Glendower Darling, was "cacophony" and a "chaotic formlessness."²⁷⁵ In a more restrictive sense, futurist music was an expression of the Machine Age for an audience "inured to the jostling and feverish haste, the raucous din of tramway cars and braying automobile horns..."²⁷⁶

American composers embraced the aesthetic possibilities of modern noise to evoke the technological sublime. Edgard Varèse, who had emigrated to the United States following a medical discharge from the French Army in 1915, was "determined that the random noise of New York City would be met head on and absorbed as is."²⁷⁷ His first major composition in his adopted country, an orchestral tone poem reminiscent of *Le Sacre du Printemps* entitled *Amériques*, exemplified the noise and cacophony of the modern city. Though composed in 1921, *Amériques* did not have a full premiere until 1926, under the baton of Leopold Stokowski in New York. Featuring percussion, wind machines and a phonograph recording of a roaring lion, it did not impress New York Times reviewer Olin Downes. "He employs an enormous orchestra and some dissonances

²⁷⁴ R. Dunstan, "'Futurist' and 'Modernist' Composers," *The Musical Herald*, 1 August 1919, 268.

²⁷⁵ Kenneth Glendower Darling, "'Futurism' in Music – What is the Basis of Its Appeal?" *The Sackbut*, October 1926, 72.

²⁷⁶ Darling, 73.

²⁷⁷ Bernard Holland, "Street-Smart Composers Turn Noise Into Art," *New York Times*, 11 January 2005, E7.

with a real bite in them to picture 'a mood of exhilaration engendered by the thought of the New World as it presented itself to the imagination of a young foreigner,'" Downes wrote. "As for the content, there is whistling and clanging, effects which seem inevitable in these days in any musical portrayal of civilization."²⁷⁸

Throughout the 1920s and into the 1930s, American composers made liberal use of non-musical, usually technological sounds as signals of modern urban life and progress. George Gershwin's tone-poem *An American in Paris* premiered to acclaim in New York during the 1928 Christmas season, complete with authentic taxi horns to evoke the bustle of the French capital.²⁷⁹ As Daniel Druckman notes, the "signature sound" of Varèse's 1931 composition *Ionisation* "is that of the two sirens, which Varèse apparently borrowed from the New York City Fire Department for the premiere."²⁸⁰ The only vocal part in Marc Blitzstein's 1932 ballet *Cain*, the voice of God himself, was deliberately mediated technologically to simultaneously evoke the technological and religious sublime. The performance notes specified one singer, "Jehovah, whose voice (baritone) is heard from an amplifier placed at the top-center of the auditorium, above the audience."²⁸¹

In Paris in the middle of the 1920s, however, Antheil was by far the most prominent American proponent of the machine age aesthetic. Carl Engel described him as "the rising luminary of a new day in music."²⁸² His music was at once jarring and metallic like the sounds of the city, at the same time articulating the rapidity and

²⁷⁸ Olin Downes, "Philadelphia Orchestra!" *New York Times*, 14 April 1926, 20.

²⁷⁹ Downes, "Gershwin's New Score Acclaimed," *New York Times*, 14 December 1928, 39.

²⁸⁰ Daniel Druckman, "French Modernism, Past and Present," *The Juilliard Journal Online*, March 2009 [journal on-line]; available from <http://www.juilliard.edu/journal/french-modernism-past-and-present>; Internet, accessed 30 May 2012.

²⁸¹ Marc Blitzstein, *Cain*, Performance Notes, typescript, 1932, Marc Blitzstein Collection, Reel 7.

²⁸² Carl Engel, "Views and Reviews," *The Musical Quarterly*, October 1926, 633.

precision of machines. "Machines are musical," Pound wrote in 1924, adding: "The lesson of machines is precision."²⁸³ Indeed, equating the United States with "an aesthetic of Machinery," Pound wrote that, as "[p]ossibly the first American or American-born musician to be taken seriously,"²⁸⁴ Antheil embodied the machine aesthetic, with his swift, precise and percussive music. The composer had made a beginning "in writing music that couldn't have been written before... His musical world is a world of steel bars, not of old stone and ivy."²⁸⁵

Yet the music that evoked the machine age inevitably invoked machines. "Noise is becoming organized, and its organization runs parallel with that of mechanical music,"²⁸⁶ André Coeuroy observed in 1929. The speed and precision of progress had come to exceed human limitations, and the "'solid craftsman' of old will suffice no longer," the influential German critic Hans Heinz Stuckenschmidt wrote. "We are at a stage when the composer's intuition is tempted to demand more than human technique can accomplish."²⁸⁷ Moreover, in signifying machines, futurist music deployed the machine itself as a signifier of progress. Russolo had trod that path before with his *intonarumori*, but many postwar composers raised the stakes by composing for machines themselves.

Stravinsky, in particular, had an early interest in automated mechanical instruments. Although he began composing the ballet *Les Noces* as early as 1914, the score went through a number of revisions before it was finally performed by Les Ballets

²⁸³ Ezra Pound, *Antheil, and the Treatise on Harmony*, United States edition, (Chicago: Pascal Covici, 1927), 51-52.

²⁸⁴ Pound, 61.

²⁸⁵ Pound, 62.

²⁸⁶ André Coeuroy, "The Esthetics of Contemporary Music," *The Musical Quarterly*, April 1929, 264.

²⁸⁷ H.H. Stuckenschmidt, "Mechanical Music," *The Sackbut*, June 1925, 332.

Russes in 1923. In 1919, the composer seriously considered using an array of unconventional instruments, including the Pleyel company's Pianola mechanical piano to allow him to compose music beyond the resources of human performers.²⁸⁸ Nevertheless, the technological solution raised its own challenges:

I began a score which required massed polyphonic effects: a mechanical piano and an electrically driven harmonium, a section of percussion instruments, and two Hungarian cymbaloms. But there I was balked by a fresh obstacle, namely, the great difficulty for the conductor of synchronizing the parts executed by instrumentalists and singers with those rendered by mechanical players.²⁸⁹

Stravinsky abandoned the 1919 score for *Les Noces*, in favour of more conventional instrumentation that included the percussion and eliminated the machines, but he did not give up his interest in mechanical instruments. In 1921, he published his *Etude Pour Pianola* – a piano roll that could be played on any Pianola – to considerable acclaim. "Other avant-garde musicians will follow suit," Maurice Léna wrote in *Le Ménestrel*. "They believe that an instrument 'which reproduces musical ideas without romantic textual comment' will be an invaluable benefit for modern music. They also believe it will take its place in the new orchestra."²⁹⁰

Antheil was one of the composers who followed Stravinsky's example. He had already begun work on *Ballet Mécanique* soon after his arrival in Europe.²⁹¹ Inspired, in part, by the technophilic modernism of American painters like Morton Schamberg and Charles Sheeler, Antheil hoped to capture the technological sublime. "I had no idea... of copying a machine directly down into music, so to speak," he recalled in his memoir.

²⁸⁸ Rex Lawson, "Stravinsky and the Pianola," in Jann Pasler, ed., *Confronting Stravinsky: Man, Musician, and Modernist* (Berkeley: University of California Press, 1986), 296.

²⁸⁹ Igor Stravinsky, *Stravinsky: An Autobiography* (New York: Simon and Schuster, 1936), 164.

²⁹⁰ Maurice Léna, "Le Mouvement Musicale à l'Étranger," *Le Ménestrel*, 29 July 1921, 313.

²⁹¹ Carol Oja, *Making Music Modern: New York in the 1920s* (New York: Oxford University Press, 2000), 78.

"My idea, rather, was to warn the age in which I was living of the simultaneous beauty and danger of its own unconscious mechanistic philosophy, aesthetic."²⁹² Antheil was also clearly influenced by *Les Noces*, whose premiere he attended in 1923. The following day, Antheil wrote, he met Stravinsky at Pleyel's Paris warehouse, where the composer played the version for Pianola. "I liked the second version even better than the one we heard last night," he wrote, "it was more precise, colder, harder, more typical of that which I myself wanted out of music during this period of my life."²⁹³

Ballet Mécanique was conceived as a multimedia extravaganza, accompanying a film of the same title produced by American photographer and filmmaker Dudley Murphy and artist Fernand Leger. It's not clear who initiated the partnership; Antheil wrote in his memoir that the idea was his, and that Pound enlisted Murphy and Leger to realize the film.²⁹⁴ Leger, however, claimed that his film was the inspiration for Antheil's music.²⁹⁵ In any event, the projects soon went their separate ways, as Antheil's music ran considerably longer than the film. Although the *Ballet Mécanique* film credited "synchronisme musicale de George Antheil," it was not shown with the music until 1935, when a reduction of the score for Pianola accompanied a screening at the Museum of Modern art in New York.²⁹⁶ Paul Lehrman finally presented a "restored" version of the film, with Antheil's complete score performed by a student ensemble, at the University of Massachusetts-Lowell in 1999.²⁹⁷

²⁹² Antheil, 140.

²⁹³ Antheil, 104.

²⁹⁴ Antheil, 134-135.

²⁹⁵ Oja, 89. Oja notes, however, that this claim "raises questions."

²⁹⁶ "Lecture by Leger," *New York Times*, 18 October 1935, 21.

²⁹⁷ Paul Lehrman, "Music for *Ballet Mécanique*: 90s Technology Realizes 20s Vision," in Bruce Posner, ed., *Unseen Cinema: Early American Avant Garde Film 1893-1941* (New York: Black Thistle Press/Anthology Film Archives, 2001), 72.

Antheil arranged informal performances of *Ballet Mécanique* throughout 1925, putting together an instrumental ensemble consisting, by year's end, of "16 Pianolas, 8 xylophones, 4 drums, 2 tin plates, 2 pieces of steel, 2 electric motors to produce noise, 1 siren, 1 set of electric bells."²⁹⁸ By the time it was premiered at the Théâtre des Champs Elysées on 19 June 1926, the instrumentation had been expanded to include the most sublime examples of early-20th century progress: airplane motors driving two wooden propellers and one large metal propeller.²⁹⁹ The music ran at breakneck tempo, with the percussion instruments and machines beating out a complex, driving rhythm that *Le Ménestrel* wrote was meant "to express the victory of American civilization, which is essentially scientific, over primitive and savage life: in other words, the triumph of 'steel' over the 'negro.'"³⁰⁰

The response to *Ballet Mécanique* was highly polarized. Antheil himself would recall that, at the opening chords of the premiere, "the roof nearly lifted from the ceiling!" from the force of the massed machines and percussion. "I have just given the most successful concert of my life," he reported back to his Patron. "Everyone was there, including [conductor Serge] Koussevitsky in a box, and there was standing room only in the enormous Champs Elysees Theatre which seats 2500 people."³⁰¹ A select group of audience members toasted the composer with champagne at a post-concert party. "I will say they were all greatly shaken and needed refreshment," Antheil wrote.³⁰² Engel was concerned that *Ballet Mécanique* was derivative both of Antheil's earlier works and

²⁹⁸ "Le Mouvement musical à l'Etranger," *Le Ménestrel*, 6 November 1925, 455.

²⁹⁹ Oja, 90.

³⁰⁰ "Le Mouvement musical à l'Etranger," *Le Ménestrel*, 6 November 1925, 455.

³⁰¹ Antheil, letter to Bok, Late June 1926, George Antheil Correspondence with Mary Louise Curtis Bok, Box 1, Folder 8.

³⁰² Antheil, 185.

Stravinsky's *Les Noces*. Yet he was inclined to give the American the benefit of the doubt. "It is the music of levers, gears, transmitters, motors, batteries," he wrote. "As such it certainly is the music of our time, something that could not have been written before." True to form, the audience at the Théâtre des Champs Elysées "lustily hooted and jeered," except for a contingent of Antheil partisans led by Pound. "That used to be a sign of something worthwhile happening, and on the strength of it cautious critics were safe in proclaiming the rise of a great prophet in Israel."³⁰³ Aaron Copland reported to a friend that Antheil "proceeded to out-sack the *Sacre* with the aid of a Pleyela and amplifiers, ventilators, buzzers and other what-nots... the *Ballet Mécanique* brought forth the usual near-riot and everyone went home content."³⁰⁴

Antheil was at the height of his celebrity and notoriety as an *enfant terrible* in Paris's avant-garde art scene. "These things are styles... perhaps next year I will be out of fashion," he wrote to Bok. "But I won't be."³⁰⁵ Even Parisians who hated his music knew his reputation, and the next step for the composer was a triumphant return to his homeland. In fact, the International Composers Guild, founded by Varèse and fellow French expatriate Carlos Salzedo in New York in 1921 to promote contemporary music, had agreed as early as November 1925 to present *Ballet Mécanique* in Manhattan. The work's American premiere on 10 April 1927 was widely anticipated and promoted. The *New York Times* even reported on Antheil's arrival aboard the Cunard liner *Ascania* a

³⁰³ Engel, "Views and Reviews," 634.

³⁰⁴ Aaron Copland, letter to Israel Citkowitz, July 12, 1926, in Richard Kostelanetz., ed. *Aaron Copland: A Reader* (London: Routledge, 2004), 311-312.

³⁰⁵ Antheil, letter to Bok, 12 October 1926.

month before the concert where he would "show his countrymen what their civilization sounds like when translated into modernistic music."³⁰⁶

The concert was anti-climactic. The *Times* reviewer didn't even venture an opinion on the music itself, and there was no riot although he did write, with a subtle note of mockery that "the audience didn't restrain itself too much." There were jeers and cheers, of course. "Some waved handkerchiefs to denote their pleasure, while one beleaguered man tied a particularly white handkerchief on a cane, hoisted it over his head and waved it from side to side in a token of surrender."³⁰⁷ The passions of Paris seemed almost comical in America. Despite his bravado, Antheil had already become passé in the fickle Paris music scene, and his name dropped almost completely out of the French music press after 1927. "I will not go over the works of Mr. George Antheil," *Le Figaro's* music critic huffed while the composer was in New York. "We honestly cannot stomach the tendencies of an aesthetic based on disorder and shock."³⁰⁸ At 26, the "bad boy of music" who embodied the explosive aesthetics of postwar modernism had found that music was already passing him by.

VI. Apollo

The explosive tendency released by the First World War was accompanied by another, contrary impulse that sought to restrain the centrifugal forces of modernism, what Jay Winter calls the "backward gaze." As Europe looked forward to a rebirth and a new order it also built monuments, both physical and artistic, to memorialize the past. It

³⁰⁶ "Composer Brings Electric Bells and Propellers To Play Here Music Europe Fought Over," *New York Times*, 8 March 1927, 27.

³⁰⁷ "Antheil Art Bursts on Startled ears," *New York Times*, 11 April 1927, 23.

³⁰⁸ St. Golestan, "Séances Musicales," *Le Figaro*, 28 March 1927, 4.

was a modernism that recast traditional language rather than rejecting it, Winter writes. It walked "backwards into the future, struggling to understand the chaotic history of this century."³⁰⁹ The same impulse pervaded European modern music once the noise of the Pianolas and airplane motors died away. Indeed, it was very much a conscious response and challenge to the forces that had brought *Les Noces* and *Ballet Mécanique* to the concert stage in the first place.

In France, this aesthetic impulse was enmeshed in wartime and postwar cultural politics. The *querelle des anciens et modernes*, in which cosmopolitan modernist reformers had been ascendant by the beginning of the 20th century, was temporarily suspended at the outbreak of war. All elements of French society rallied in defence of the motherland in the *union sacrée*. The publication of the "Manifesto of the Ninety-Three," in which many of the enemy's leading scholars, scientists and philosophers enthusiastically endorsed the Reich's war effort and aims, had delegitimized German arts and philosophy in France. The conflict was transformed into a culture war. Many of the signatories had in fact been the very scholars who reform-minded French intellectuals had cited before 1914 to authorize the modernist project, forcing the latter to draw a line between themselves and the scholars of despotism. Hanna writes that they "determined to remain true to the French cultural tradition of free inquiry and scholarly objectivity, thereby distinguishing their intellectual action from that of the enemy, and defining France as the cultural antithesis of all that prevailed in Germany."³¹⁰

Having once endorsed a modernism with a Germanic flavour, French modernist intellectuals faced the crisis of having to redefine themselves in Gallic terms. In a

³⁰⁹ Jay Winter, *Sites of Memory, Sites of Mourning: The Great War in European Cultural Memory* (Cambridge: Cambridge University Press, 1995), 223.

³¹⁰ Hanna, 105.

struggle for legitimacy, many looked backward to rediscover "the rich literary, philosophical, and cultural traditions of ancient Greece and Rome," particularly as expressed in the reign of the *Roi soleil* and the ideals of the French revolution at a time, Hanna writes, "when the nation affirmed the importance of order, the need for discipline, and the sanctity of sacrifice, the classical aesthetic, articulated in art, drama, and education, found a more receptive audience."³¹¹ Modernist republicans argued that classicism was the very essence of republican progress, evoking the values of the French Revolution and the Third Republic in the iconography of ancient Greece and Rome.³¹² Yet, in so legitimizing themselves, French modernists poured fuel on the fire of the *querelle* and inadvertently "bestowed an unprecedented authority upon the cause of cultural conservatism."³¹³ By 1923, cultural conservatives appeared to be in the ascendance, with the passage of the Bérard reforms that completely overturned prewar education reforms and installed classicism as the dominant force in French culture.³¹⁴

This was the political and cultural environment in which French composers found themselves. They had to embody Frenchness to be acceptable to French audiences, and that meant adopting the aesthetics of neo-classicism; above all, order and discipline. "The national consciousness of musicians distinctively German is expansive, while our French consciousness is one of reserve," Ravel wrote. "In virtue of the indissoluble ties binding each to his respective national consciousness, it is, of course, inconceivable that either one should be able to express himself adequately in the language of the other."³¹⁵

³¹¹ Hanna, 142.

³¹² Hanna, 154.

³¹³ Hanna, 211.

³¹⁴ Hanna, 230.

³¹⁵ Ravel, "Contemporary Music," in Orenstein, 43-44.

The poet Jean Cocteau, at times allied to Surrealists but always a champion of the avant-garde, called for a new school of explicitly French modern music. "In Paris, we secretly regret Wagner," he wrote in *Le Coq et L'Arlequin* at the end of the war.³¹⁶ What was required was a new music based on simplicity – not in the sense of poverty or commonness, but as refinement. It would be science made flesh.³¹⁷ "Simplicity is progressing on the same basis as sophistication, and the simplicity of our modern musicians is no longer that of our [baroque] harpsichordists," Cocteau wrote. "This simplicity comes in reaction to a sophistication cured of that sophistication; it frees itself, it concentrates the acquired wealth."³¹⁸ And the embodiment of this new French aesthetic was Satie, who "teaches the most daring idea of our time: be simple."³¹⁹

Le Coq et L'Arlequin galvanized a group of young French composers – Georges Auric, Arthur Honneger, Darius Milhaud, Germaine Tailleferre and Francis Poulenc were all then between the ages of 19 and 26, while Louis Durey was the old man at 30. Dubbed *Les Six* by Henri Collet, they defined the new French modernism. In what Jane Fulcher calls "a brilliant nationalist stratagem, Collet announced that they were the vanguard of a new golden age in music," thus justifying "the young composers' modernism as a new flowering of their own civilization."³²⁰ Cultural conservatives did not have a taste for their music of course but, embracing Satie's simplicity and cultivating personal and social ties with the elder composer, they were undeniably French.

³¹⁶ Jean Cocteau, *Le Coq et l'Arlequin – Notes Autour de la Musique* (Paris: Editions de la Sirène, 1918), 21

³¹⁷ Cocteau, 11.

³¹⁸ Cocteau, 10.

³¹⁹ Cocteau, 39.

³²⁰ Fulcher, *The Composer as Intellectual: Music and Ideology in France, 1914-1940* (Oxford: Oxford University Press, 2005), 168.

Their music was also aggressively modern. "They have turned their backs on Wagner on one hand (notably, no one yells "down with Wagner!" louder than Milhaud)," critic Paul Landormy wrote in *Le Ménestrel*, "and on Claude Debussy on the other, and have resolutely engaged in unexplored regions of polytonality." Unlike the atonality of Schoenberg's prewar modernism, French pantonality did not completely abandon diatonic keys and scales, so much as they used them simultaneously and interchangeably.³²¹ Moreover, while neoclassicism sought to evoke progress, and admired machine rationality, it did not evoke machine noise. "Machines and American building resemble Greek art, in the sense that utility confers on them a leanness and a grandeur shorn of superfluity," Cocteau had written. "But it is not art." Nevertheless, neoclassical composers like *Les Six*, and older musicians who were drawn to the idiom like Ravel, found ways to evoke progress without directly invoking its signals.

Most troubling to cultural conservatives was their *américanisme*. President Wilson had been hailed as the herald of a New Order and the United, embodying youth and promise, was thriving while European economies staggered under the after-effects of world war. In American industrial design, streamlining evoked speed even when an object stood still.³²² For many composers, progress was America, and America was jazz. French composers – and many of their German counterparts – often experimented freely with jazz. The slow movement of Ravel's neoclassical *Quartet no. 2 in G* explicitly announces itself. Anticipating his horrified critics, Ravel offered a neoclassical defence. "Indeed, these popular forms are but the materials of construction, and the work of art appears only in mature conception where no detail has been left to chance," he wrote.

³²¹ Paul Landormy, "Darius Milhaud," *Le Ménestrel*, 14 April 1925, 346.

³²² Terry Smith, 379.

"Moreover, minute stylization in the manipulation of these materials is altogether essential."³²³ It was an expression of the neo-classical avant-garde's sense of mission, whose classical roots "committed them to intellectual cosmopolitanism."³²⁴

The shifts in French cultural politics and the emergence of what Fulcher calls a conservative nationalist hegemony put Stravinsky in an uncomfortable position. Identified with explosive dissonance and a foreigner in a country intent on celebrating its cultural exceptionalism, Stravinsky found himself out of step by the early 1920s. He responded by reinventing himself as the prophet of neoclassicism. His 1923 *Octet* and subsequent works for piano marked a much-heralded "return to Bach." It was "sober music, using seventeenth- and eighteenth-century devices, spreading long lines in organic growth, tending towards a resumption of relations with the formal past."³²⁵ Within five years, Stravinsky established himself as the definitive composer of neo-classical music with a ballet, *Apollon Musagète* and an opera, *Oedipus Rex*, which not only encapsulated the aesthetic goals of the idiom, but also explicitly invoked the classical muses.

In German-speaking Europe, the dissolution of the tonal order and the challenge to esthetic convention was accompanied by a much broader social and economic collapse and the disintegration of political and cultural institutions. The German Republic was born in a miasma of confusion, undermining its legitimacy and setting the stage for a crisis of confidence from which it never recovered.³²⁶ If anything, things were worse in Austria, the tiny, German-speaking rump state left over from the Austro-Hungarian

³²³ Ravel, 46.

³²⁴ Hanna, 145.

³²⁵ Blitzstein, "Towards a New Form," *The Musical Quarterly* 20, April 1934, 215.

³²⁶ See Detlev J.K. Peukert, *The Weimar Republic: The Crisis of Classical Modernity*, tr. Richard Deveson (New York: Hill and Wang, 1989) and Mark Mazower, *Dark Continent: Europe's Twentieth Century* (New York: Vintage Books, 1998), 7.

Empire. The two Germanic states faced common economic and social challenges. Inflation became the economic reality of both countries during the war, when prices doubled.³²⁷ By 1922, saddled with unemployment and war-ravaged economies, both the mark and krone collapsed. "Unemployment, high prices and starvation led to serious riots in December," *Political Science Quarterly* reported in 1922. "In Vienna thousands of unemployed attacked the stock exchange, shops, restaurants and hotels."³²⁸ In Germany, hyperinflation reached fantastical levels the following year.³²⁹ The *Papiermark* was valuable only for kindling and personal hygiene.

Economic collapse and interminable social and political crises had a dramatic effect on culture and music in the Germanic republics. The aristocratic elites that had patronized the concert halls and opera had been displaced and impoverished. The cultural economy had, by necessity, opened up to a mass market and cultural producers and intellectuals "were in a fundamentally new situation now that they were having to work within a market society and mass culture."³³⁰ One manifestation was *neue Sachlichkeit*, the new realism, an art movement that sought to bring a "matter-of-factness" of technological objectivity to painting and literature.³³¹ Another trend was the politically-inclined *Novembergruppe* that sought to create a new, politically-engaged, socially useful and relevant art. The two tendencies were largely analogous, and soon encompassed music and theatre as well.³³²

³²⁷ Peukert, 62.

³²⁸ Harry J. Carman and Elmer D. Graper, "Record of Political Events," Supplement to *Political Science Quarterly* 37, 84.

³²⁹ Peukert, 64.

³³⁰ Peukert, 167.

³³¹ Peukert, 166.

³³² Stephen Hinton, "Weill: *Neue Sachlichkeit*, Surrealism, and *Gebrauchsmusik*," in Kim Kowalke, ed., *A New Orpheus: Essays on Kurt Weill*, (New Haven: Yale University Press, 1986), 62.

Like many of his colleagues, Ernst Krenek sought ways to bring the process to the concert hall and opera house. His 1927 opera *Jonny Spielt Auf!* aspired to be a "*Spiegel der Zeit*," a mirror of the times, one of a number of topical, unsentimental and thoroughly up-to-date *Zeitopern*. *Jonny* was self-consciously modern in a number of ways; from its liberal use of jazz – at least as the composer understood it – to a libretto that told the story of a despondent European composer who finds inspiration in the eponymous character's American music. The goal of *Zeitopern* was to relate to and connect with the new mass audiences using both the topicality of political cabaret and the aesthetics of opera.³³³

Other composers pursued a more direct and politically-charged route to the masses. "At the very moment when neo-classicism, in other words start Art for Art's sake, took the field," Brecht wrote in 1930, "the idea of utilitarian music, or *Gebrauchsmusik*, emerged like Venus from the waves."³³⁴ Both Paul Hindemith and Kurt Weill composed *Gebrauchsmusik* and collaborated on the music for the radio broadcast of Brecht's 1929 *Lehrstücke, Der Lindberghflug*. Weill considered much of his work in collaboration with Brecht, including *Die Dreigroschenoper* and *Mahagonny* means by which "the boundaries between 'art music' and 'music for use' must be brought closer and gradually eliminated."³³⁵ Schoenberg's erstwhile disciple Hanns Eisler was probably the most enthusiastic proponent of *Gebrauchsmusik* as the music of the future – a revolutionary future. "The all-embracing character of the bourgeois music business has been destroyed and finally removed," he wrote. "On the ruins of this music culture room has finally been

³³³ Ernst Krenek, "Music of Today," tr. Susan C. Cook and Conrad Henderson, in Cook, *Opera for a New Republic: The Zeitopern of Krenek, Weill, and Hindemith* (Ann Arbor: UMI Research Press, 1988), 200-201.

³³⁴ Brecht, "The Modern Theatre is the Epic Theatre," *Brecht on Theatre*, 42.

³³⁵ Kurt Weill, "Opera – Where to?" in Kim H. Kowalke, *Kurt Weill in Europe*, (Ann Arbor: UMI Research Press, 1979), 506.

made for the struggle of the workers for a new music culture corresponding to their class situation which, today, is already beginning to take on a clear shape."³³⁶

Schoenberg disagreed. Years later, he wrote "it's really too stupid of grown-up men, musicians, artists, who honestly ought to have something better to do, to go in for theories about reforming the world... If I had any say in the matter I'd turn [Eisler] over my knee like a silly boy and give him 25 of the best and make him promise to never open his mouth again..."³³⁷ Unlike his former pupil, Schoenberg did not consider himself to be a radical, either politically or aesthetically. If anything, he was a conservative. "I personally hate it to be called a revolutionist, which I am not," he wrote to American conductor and music critic Nicolas Slonimsky in 1937. "What I did was neither revolution nor did it fall into anarchy. I possessed from my very first start a thoroughly developed sense of form... protected by a strong aversion to exaggeration." The *Five Orchestral Pieces* and *Pierrot Lunaire* helped unleash the postwar orgy of what Stravinsky called "cacophony," but Schoenberg had been working since the end of 1914 to put the genie back in the bottle.³³⁸

"With the renunciation of the formal advantages inherent in tonal cohesion, presentation of the idea has become rather harder," he wrote in 1923, "it lacks the external sounding-off and self-containedness that this natural and simple principle of composition brought about better than any of the others used alongside it."³³⁹ In conventional composition, the idea – a musical concept as clear as a melody, or as

³³⁶ Hanns Eisler, "The Builders of a New Music Culture," *Hanns Eisler, A Rebel in Music: Selected Writings*, ed. Manfred Grabs, trans. Marjorie Meyer (London: Kahn & Averill, 1999), 38-39.

³³⁷ Schoenberg, letter to Josef Rufer, 18 December 1927, in Erwin Stein, ed., *Arnold Schoenberg: Letters* (London: Faber and Faber, 1964), 252.

³³⁸ Schoenberg, letter to Nicolas Slonimsky, 3 June 1937, Nicolas Slonimsky Collection, Music Division, Library of Congress, Washington, D.C., Box 158, Folder 4.

³³⁹ Schoenberg, "Hauer's Theories," *Style and Idea: Selected Writings of Arnold Schoenberg*, ed. Leonard Stein, tr. By Leo Black. 1st paperback edition (Berkeley: University of California Press, 1984), 209.

fleeting as a Wagnerian *leitmotiv* – invariably referenced tonality. It was interconnected with its own harmonic environment and *went* somewhere, and could be developed in relation to a known reference point, and consequently had identity and meaning.

Schoenberg had embraced the unfettered expression and tonal liberation that had culminated in the years before the conflict and, though he was unwilling to give that up, he was equally anxious to restore musical coherence and logic. The solution was atonality restrained by modern rationality. With his "twelve-tone composition method," Schoenberg seemed to have it both ways. He began composing in the idiom as early as 1919, publishing his method in 1923. Later called serialism, the method builds compositions around a single "tone-row" containing all twelve notes of the chromatic scale without repetition. The composer states the tone-row in a number of different variations – reversed, inverted, reversed-and-inverted, and transposed to different pitches – subjected to a rigorous contrapuntal logic.³⁴⁰ The tone-row is not exactly a theme, however, as listeners are not expected to recognize the melody. Schoenberg's goal was to liberate music from the limitations of conventional tonality, while preserving the "musical idea" in a strict compositional framework. Indeed, Engel concluded that "Schoenberg is at bottom an unbleached German Romantic who has taken it into his head to remake the universe in a test-tube."³⁴¹

Serialism was an austere and profoundly cerebral idiom that would have a profound impact on American modern music in the years following the Second World War. Initially, it was embraced by only by Schoenberg's students Webern and Alban

³⁴⁰ For example, the tone-row "D-A-E-G#-C-G-B-F#-A#-D#-F-C#" can be stated in 48 ways, including "D#-G-F-C-G#-C#-A-D-A#-F#-B-E" (reversed, transposed two semitones), "A#-D#-G#-E-C-F-C#-F#-D-A-G-B" (inversed, transposed eight semitones), and "C-G#-A#-D#-G#-D-F#-C#-F-A-E-B" (reversed-inverted, transposed nine semitones).

³⁴¹ Engel, "Harking Back and Looking Forward," *The Musical Quarterly*, January 1928, 10.

Berg, but it soon became the defining style, albeit briefly and incompletely, among many academically-minded German-speaking modernists. "Behind Schonberg's angular design, inscribed by a style dipped in a pot of somber color that conveys so peculiarly the stinging mixture of wisdom and suffering," raved American composer Lazare Saminsky in 1924, "one can perceive the heir to a great culture, a master of the ancient domains of art."³⁴²

While Schoenberg's twelve-tone music attracted a devoted, though limited following among German-speaking intellectuals and some of the musical cognoscenti, it often met hostility in the concert hall. Writing of the New York premiere of Schoenberg's exactly serialist *Variations for Orchestra*, Downes noted that part of the audience "had been hissing at the Schoenberg music and another smaller part applauding it, while most of the listeners who packed the hall sat in a kind of discouraged apathy." Downes shared the audience's disdain, judging the work "such paper music."³⁴³ According to his most passionate supporters, the greatness of Schoenberg's 12-tone music was just that it *was* difficult. For Teodor Adorno, Schoenberg's music was the aural manifestation and stimulus of dialectical critique. "The listener must sharpen his feeling for the forms," he wrote. "Nothing helps except to carry out, without reservation, the inner synthesis of the mutually contradictory."³⁴⁴

The other titan of 20th century music was unimpressed. "The term modernism is all the more offensive in that it is usually coupled with another whose meaning is perfectly clear: I speak of academicism," Stravinsky said in his Harvard lecture, obliquely

³⁴² Lazare Saminsky, "Schonberg and Bartok, Path Breakers," *League of Composers Review*, February 1924, 28

³⁴³ Downes, "Hisses at Concert Rouse Stokowski," *New York Times*, 23 October 1929, 25.

³⁴⁴ Teodor Adorno, "Toward an Understanding of Schoenberg," *Essays on Music*, tr. Susan H. Gillespie (Berkeley: University of California Press, 2002), 638.

referencing Schoenberg. "A work is called academic when it is composed strictly according to the precepts of the conservatory."³⁴⁵ For his part, Schoenberg expressed contempt for Stravinsky's turn to neo-classicism. "In all fields of thought there is an undeniable need to produce things to last longer than grease-proof paper and neckties," Schoenberg wrote in 1926. Maybe for Stravinsky, art belonged "among the fashionable materials and neckties. In that case; he is right in trying to satisfy the customers."³⁴⁶

Yet they had the same goal – to restrain what they perceived as the excesses of modern music – albeit with different means. This much had been clear to Marc Blitzstein. "In the Classicist field, I place both the 'neo-classic' Stravinsky and the expressionist Schoenberg – strange bedfellows," he wrote. A "welding with the past forms a characteristic feature of both composers."³⁴⁷ Though many composers would traverse between both idioms, Stravinsky's neo-classicism and Schoenberg's serialism represented two irreconcilable poles of European art music. The conversation dominated modern music in the years between the wars and supplied the aesthetic terrain for the work of a generation of American composers.

³⁴⁵ Stravinsky, *The Poetic of Music: In the Form of Six Lessons* (Cambridge, MA: Harvard University Press, 1970), 82.

³⁴⁶ Schoenberg, "Igor Stravinsky: Der Restaurateur," in *Style and Idea*, 482.

³⁴⁷ Blitzstein, "Towards a New Form," 215.

CHAPTER 3
NEW MUSICAL RESOURCES

I. Americans in Paris

Paris was a long way from Prospect Heights. That thought must have crossed Aaron Copland's mind several times a day as he surveyed his new surroundings on the way to and from Fontainebleau every day. Yet it wasn't the sights that impressed him so much as the music. The first two pages of his *My Trip Abroad* journal are crammed with a detailed list of all of the concerts he attended in Paris in 1921-1922. His handwriting gets smaller and more cramped as he runs out of space: Saint-Saens at the Hotel Majestic, Berlioz at l'Orchestre de Paris, Milhaud at Le Théâtre de Vieux-Colombier... Copland's nights were filled with a quantity and variety of music unlike anything he would ever have heard in Brooklyn.³⁴⁸

His days were filled with study. Copland had come abroad to become a composer. He had had piano lessons with Leopold Wolfsohn, a "competent instructor" but a "*routinier* kind of man: Chopin was the highlight of his life, and Stravinsky was a madman."³⁴⁹ Composition lessons with composer Rubin Goldmark followed, but these could take Copland only so far. "As far as I can remember no one ever told me about 'modern music,'" he later recalled. "It was Goldmark, a convinced conservative in musical matters, who first actively discouraged this commerce with the 'moderns.' That was

³⁴⁸ Copland, *Journal of European Trip 1921-1922*, Aaron Copland Collection, Music Division, Library of Congress, Washington, D.C., Box 243, Folder 5.

³⁴⁹ Quoted in Howard Pollack, *Marc Blitzstein: His Life, His Work, His World* (New York: Oxford University Press, 2012), 33.

enough to whet any young man's appetite."³⁵⁰ It was an appetite that could not be sated in New York; in the late summer of 1921 Copland's parents arranged to send their son to France.

"It was a forgone conclusion around 1920 that anyone who had serious pretensions as a composer would have to go abroad to finish his studies," Copland wrote.³⁵¹ Art music *was* European, a notion constantly reinforced by music educators, orchestras and music societies that invariably programed Mozart, Beethoven and Brahms for their concerts. The giants of European music came not to learn from America, but to teach it. Antonín Dvořák assumed the direction of New York's National Conservatory of Music in 1892 at the phenomenal salary of \$15,000 per annum.³⁵² Mahler arrived in New York in 1908 amidst great fanfare, and already acclaimed as a genius, to take over direction of the Metropolitan Opera.³⁵³ There were few, if any available examples of "serious" American composers and ambitious artists like Copland, who "had only an inkling of the existence of the music of Charles Ives," inevitably sought their futures in Europe.³⁵⁴

Copland arrived in Paris at the right time. The Ecole Normale de Musique saw a golden opportunity in the growing numbers of Americans thronging Bohemian Paris. In 1921 it established a summer program for American students at the insistence of Damrosch.³⁵⁵ With an advisory committee including Ravel and Gabriel Fauré, the American Conservatory opened in a wing of the Palace of Fontainebleau in the summer

³⁵⁰ Copland, "Composer from Brooklyn: An Autobiographical Sketch," in *Aaron Copland: A Reader, Selected Writings 1923-1972*, ed. by Richard Kostelanetz (New York: Routledge, 2004), xx-xxi.

³⁵¹ Copland, "Composer from Brooklyn: An Autobiographical Sketch," xxi.

³⁵² "What Dvorak has Done," *New York Times*, 16 October 1892, 17.

³⁵³ Richard Aldrich, "In the Musical World," *New York Times*, 5 January 1908, X4.

³⁵⁴ Copland, "1949: The New 'School' of American Composers," in *Copland on Music*, (Garden City, NY: Doubleday & Co., 1960), 166.

³⁵⁵ Copland, "The Teacher: Nadia Boulanger," *Copland on Music*, 83.

of 1920.³⁵⁶ Composer Nadia Boulanger was on the faculty and Copland was in the first class. "I arrived, fresh out of Brooklyn, aged twenty, and all agog at the prospect of studying composition in the country that had produced Debussy and Ravel," Copland later recalled. "A fellow-student told me about Mademoiselle Boulanger and convinced me that a look-in on her harmony class would be worth my while."³⁵⁷

Described by Copland as "a phenomenon for which there was no precedent,"³⁵⁸ Boulanger had had an illustrious career as a concert pianist, conductor and composer, winning the Prix de Rome in 1908. *Le Ménestrel* described her prize-winning composition *La Sirène* as "a charming cantata which, at the beginning of last century, would have been one of the glories of the Opéra Comique."³⁵⁹ She began taking on her more talented students from Fontainebleau for private instruction in shortly after joining the faculty of the American Conservatory. Copland was soon joined by Virgil Thomson, who had met Boulanger during the Harvard Glee Club's successful tour of Europe that summer, funded in part by the French government.³⁶⁰

Thomson made a good impression on Boulanger, and returned to Paris to study with her privately during his junior year in 1921-1922. Returning to the United States to complete his degree in the fall of 1922, however, Thomson had begun to feel constrained by Harvard's conventional music pedagogy. He maintained a regular correspondence with Boulanger, eagerly sending scores for her comment and approval.³⁶¹ He arranged Boulanger's *Prière* – though "taking some small liberties with the notes" – and her sister

³⁵⁶ "The American Music School at Fontainebleau," *The Outlook*, 3 August 1921, 523.

³⁵⁷ Copland, "The Teacher: Nadia Boulanger," *Copland on Music*, 83-84.

³⁵⁸ Copland, "The Teacher: Nadia Boulanger," 86.

³⁵⁹ "Nouvelles Diverses," *Le Ménestrel*, 11 July 1908, 223.

³⁶⁰ Virgil Thomson, letter to William G. Dakin, 30 April 1955, The Papers of Virgil Thomson in the Irving S. Gilmore Music Library of Yale University, New Haven, CT, MSS 29, Box 48, Folder 3.

³⁶¹ Thomson, letter to Nadia Boulanger, 7 October 1922, Site Richelieu-Louvois, Bibliothèque National de France, Paris, France, Microfilm VM-BOB 28217.

Lili's song *Les Funerailles d'un Soldat* for the Glee Club's concerts in Boston, New York and Philadelphia that spring. Finding Harvard "stuffy" and limiting, Thomson dreamed of Paris. "I am nostalgic for your lessons, so enthusiastic, so intelligent, so empathic," he wrote to Boulanger shortly after the New York concert. "My plans for the future are not yet definite, but I hope to rejoin you maybe in August, or maybe October."³⁶²

Thomson's American teachers had their doubts. Although he passed his exams, the Harvard Music department declined to recommend a degree with distinction, finding his work "so mediocre in harmony, counterpoint and fugue that on the evidence submitted no other verdict was possible."³⁶³ Boulanger had no such reservations, and was happy to take him on as a student when he returned to Paris in 1925, taking an apartment at 17 Quai Voltaire, just across the Pont Royal from the Louvre and equidistant to Boulanger's apartment in the 9e and Antheil's on rue d'Odéon. His Harvard classmate Walter Piston soon joined what they called *La Boulangerie*. Roger Sessions, Roy Harris, Blitzstein and many others would follow over the years, cementing Boulanger's reputation as the pre-eminent European mentor of American composers.³⁶⁴ By 1926, many of her most illustrious students had begun to make names for themselves in the concert hall. Copland was one of the first American composers to be admitted to contest the Prix de Paris in 1921.³⁶⁵

It was not Boulanger's own compositional skill as much as her close association with Stravinsky that sealed her reputation as the modern composition teacher par excellence for young American composers in the 1920s and 1930s. She had first met the

³⁶² Thomson, letter to Boulanger, 25 April 1923, BNF, Microfilm VM-BOB 28217.

³⁶³ W.R. Spalding, letter to Thomson, 31 May 1923, The Papers of Virgil Thomson, MSS 39, Box 48, Folder 4.

³⁶⁴ "La Boulanger," *Time*, 31 March 1947, 55.

³⁶⁵ "Concerts Divers," *Le Ménestrel*, 23 December 1921, 513.

Russian composer at the premiere of *The Firebird* in 1910.³⁶⁶ Admitted to the faculty of the Ecole Normale at its founding in 1919, Boulanger was an ardent French nationalist whose pedagogy, writes Jane Fulcher, was self-consciously modernist but emphasized "the roots of French classicism in the Ancien Regime... thus stressing proportion and balance."³⁶⁷ Boulanger's classes invariably focused on an analysis of the works of French composers, to exclusion of all else.³⁶⁸ Of half-Russian parentage herself, she championed Stravinsky – a foreigner – as the "paragon of Frenchness," particularly in opposition to Germanic modernists whose work articulated a "restrained modernity, a socially conservative but aesthetically liberal stance."³⁶⁹ This was not simply an aesthetic preference, but a strong philosophical and political position. In the chauvenistic cultural politics of inter-war France, an inclination to French or German flavours of modernism was less a question of style than an existential choice. The members of *La Boulangerie* had unwittingly chosen sides in a culture war they day they entered Boulanger's salon in at 36 rue Ballu.

II. A Missed Opportunity

Antheil had overslept. He had had an appointment that morning in 1926 at Boulanger's apartment, but "my wife and concierge simply did not wake me, and I have been dead with sleep for several weeks," he wrote in a letter delivered later that day by *poste pneumatique*, "I trust you will forgive and understand."³⁷⁰ Antheil had never been

³⁶⁶ Léonie Rosenstiel, *Nadia Boulanger: A Life in Music* (New York: W.W. Norton & Co., 1982), 91.

³⁶⁷ Fulcher, 117.

³⁶⁸ Rosenstiel, 208.

³⁶⁹ Fulcher, 170.

³⁷⁰ Antheil, letter to Boulanger, 1926 (A), Site Richelieu-Louvois, Bibliothèque National de France, Paris, France, microfilm VM-BOB 26310.

Boulanger's student, but they moved in the same circles. They were evidently on good enough terms for Antheil to send Boulanger a ticket to the premiere of *Ballet Mécanique*, and to invite her to attend the dress rehearsals earlier in the day.³⁷¹ Antheil planned a concert series featuring the work of American composers, including himself, in the that summer. Even if Boulanger couldn't attend the *Ballet Mécanique* concert, he insisted that she come "to a series of later ones I am organizing this summer of young composer's work" in which "We hope to represent all of the really talented young composers living, and there is a concert every week this summer."³⁷²

By 1926, Antheil was living largely on Bok's patronage and, though his recitals and concerts had reinforced his notoriety, he had not presented a new work in Paris in over a year. The *enfant terrible* reassured Bok that he was the indisputable leader of the Americans in Paris: "the most talented of the young American group of composers, Virgil Thomson, a frank disciple and imitator of Satie and the modern French school has come out openly in my van."³⁷³ There might even have been some truth to this. Thomson's confidence was evidently nourished by Antheil's approval. "Antheil has been the chief event," he wrote to a friend. "For the first time in history, another musician liked my music. For the first time since I left your society, somebody said hello. Somebody recognized what I was all about. Or recognized that I was something worth looking at."³⁷⁴

Boulanger's five students and Antheil had collectively become known as "the American Six," a reference to the *Les Six* that seemed to confer an aura of French-ness on

³⁷¹ Antheil, letter to Boulanger, June 1926, Site Richelieu-Louvois, Bibliothèque National de France, Paris, France, microfilm, VM-BOB 26310.

³⁷² Antheil, letter to Boulanger, June 1926.

³⁷³ Antheil, letter to Bok, 1 June 1926, GAC, box 1.

³⁷⁴ Thomson, letter to Briggs Buchanan, May 1926, The Papers of Virgil Thomson, MSS 39, Box 28, Folder 16.

the expatriate composers. The morning he overslept, Boulanger had expected Antheil to join Copland, Thomson, Piston, Herbert Elwell and Theodore Chanler in her salon for a group photograph to promote the American composers in Paris. Yet Antheil was already feeling estranged from the group, and threatened by composers whom he evidently considered rivals. "I wanted specially to appear with Virgil, whose sensibility and talent I admire," he wrote to Boulanger, assuring her that his absence was not due to any enmity with Copland.

... only I consider that he wrote an article explaining me away in a diminutive fashion in which he deliberately patronized and belittled a certain green young and growing reputation in the United States, and which his letter to me saying that he wanted to "defend" me, did not quite explain. However this would not be enough to keep me out of the picture of the American six, nor will it keep me from being friends with Copland if he makes some adequate explanation.³⁷⁵

Antheil was clearly piqued. In his mind, Copland was an upstart rival. Antheil gave full expression to his fury in a letter delivered to Boulanger by regular post shortly thereafter. One of his works had been included in a New York concert and had not been well-received. Antheil wrote that it was a very immature piece and had "no idea that it was ever to be played in public, let alone a REPRESENTATIVE modern concert."³⁷⁶ It was not well-received. Copland, who had temporarily returned to New York late in 1924, wrote in the *League of Composers Review* an article which professed to present "Antheil as he really is," an "extremely talented young composer who has been cleverly concealed by a welter of words from the most varied sources."³⁷⁷ Copland was being disingenuous; the article was a finely-worded, thinly veiled attack.

³⁷⁵ Antheil, letter to Boulanger, 1926 (A).

³⁷⁶ Antheil, letter to Boulanger, 1926 (B), Site Richelieu-Louvois, Bibliothèque National de France, Paris, France, microfilm VM-BOB 26310.

³⁷⁷ Copland, "George Antheil," *League of Composers Review*, January 1925, 26.

Copland noted that Antheil "sees himself as a modern Mozart, experimenting in disjointed rhythms and ear-splitting dissonances, hopelessly misunderstood by the music critics of Berlin, Paris and London."³⁷⁸ Copland assured his readers that the *enfant terrible* was, in fact, "a born musician if ever there was one." Yet he went on to note that, although Antheil had composed a great number of infamous works, "few of them withstand close examination."³⁷⁹ Copland could not say what kind of music Antheil would compose in the future, but "certain passages in the *Piano Concerto*, in the two *Sonatas for Violin and Piano*, and especially in the *Symphony for Five Wind Instruments* make us confident that an enviable future is before him."³⁸⁰

By the time Antheil and the rest of the American Six were due to sit for a group photograph, he could not stand to be in the same room with Copland. He had been at the League of Composers concert in New York, and Antheil was outraged that Copland did not come to his defence. "He pretended to be a friend of mine when he was here," Antheil wrote. "It was his duty to rise up and say "this music is NOT George Antheil's music which Europeans are listening to and writing about." Hastily scribbled in the margin of the letter he added: "this man is *dishonest* – because he insinuated this *was* my work, and the rest like it. 'Opinion' has nothing to do with this sly trick!" Antheil was insulted that Copland had based his criticism on early works "NEVER performed in public, which I had shown him in fun, and in the sanctity of friendship." Above all, he objected to Copland's patronizing tone. "He stated baldly that my European reputation was more or less of a joke."³⁸¹

³⁷⁸ Copland, "George Antheil," 26.

³⁷⁹ Copland, "George Antheil," 27.

³⁸⁰ Copland, "George Antheil," 28.

³⁸¹ Antheil, letter to Boulanger, 1926 (B).

With his status as a leader of American modernism undermined and anticipating his first concert appearance in the United States in more than three years, Antheil was deeply concerned. He was finding it difficult to outrun his reputation as the *enfant terrible* whose barrages of futuristic noise had become stale to a fickle Parisian audience now more attuned to neoclassicism. Even when he did compose in the more restrained idiom, audiences simply did not find his music credible. Sessions damned Antheil with faint praise in a review of his *Quartet* at the end of 1926. He praised Antheil's "fine ear, his rhythmic gift, his fine sense of the sonorities of the string quartet." But Sessions also noted that he was young, "his magnificent abilities yet uncoordinated and his development, one hopes, still before him"³⁸²

The spring of 1927, which Antheil had hoped would provide a triumphant validation with his appearance in Manhattan, was demoralizing. Less than a week after he disembarked in New York, Thomson wrote a disturbing report of the Paris premiere of his decidedly neo-Classical *Suite for Orchestra*. The audience did not seem to get it. "It fooled them," Thomson wrote. "They were still expecting noise and fury from you. Never mind. It's the right thing. You are going to have some trouble from now on living down Ezra's advertising. That you might some day write quiet music was a contingency that he didn't foresee."³⁸³ A week later, Thomson added a note of reassurance. "It is the little suite that remains in my mind," he wrote. "It is the expression of something very real in you, and consequently it is beautiful. People are dumb. They don't see it. But no matter. It is authentic. It is the beginning of something that will grow."³⁸⁴

³⁸² Roger Sessions, "An American Evening Abroad," *Modern Music*, November-December, 1926, 25.

³⁸³ Thomson, letter to Antheil, 13 March 1927, The Papers of Virgil Thomson, MSS 39, Box 22, Folder 7.

³⁸⁴ Thomson, letter to Antheil, 22 March 1927, The Papers of Virgil Thomson, MSS 39, Box 22, Folder 7.

Despite Thomson's encouragement, Antheil's musical career was already waning. He began an ambitious project to compose an authentic American opera – something none of his rivals had yet attempted. His letters to Bok are full of assurances that he was creating a true masterwork. "I have just finished the first American grand opera that takes place in the present day.... a huge score, taking two and a half hours to play," he informed her in 1928. "It is, as all opera must be, essentially melodic; but, more than this, I think that it is the great American opera that America has talked and awaited so eagerly for now so many years."³⁸⁵ The opera *Transatlantic* finally opened in Frankfort in 1930, to savage reviews. "If complication is the goal of opera," one critic wrote, "then *Transatlantic*, the mad farrago by the young American composer, George Antheil, which was mounted at the Frankfort Opera on May 25 with no very hesitant flaunting of the American flag, is opera at its zenith."³⁸⁶

Antheil was no longer a celebrity and by 1930, even his longtime patron had reached the limit of her patience and good will. He continued to promise that his *next* work would be the masterpiece, but his career and reputation were already in decline. Shortly before Antheil returned home permanently in 1930 Blitzstein, himself a new member of *La Boulangerie*, visited the now-bitter composer at his home. "The encounter was unfortunate – miserable for me," Blitzstein reported to Copland in a letter. "I know that consciously I had been expecting a great deal in the way of a contact, because I had been having such violent reactions of incredulity and worry over various items about and by him in the recent news – incredulity that he could be quoted correctly, worry that he

³⁸⁵ Antheil, letter to Bok, 22 February 1928, George Antheil Correspondence with Mary Louise Curtis Bok, box 1, folder 6.

³⁸⁶ Oscar Thomson, "'Transatlantic' Brings Novel Variations on the American Theme," *Musical America*, July 1930, 12.

was being," he continued. "It's all true, and worse, it seems."³⁸⁷ There is no record of Copland's reaction.

III. American Classics

The characteristic sound of American modernism in the 1920s, as it was articulated by the composers who had found inspiration in Paris and instruction in Boulanger's salon, was neoclassicism. Boulanger's American students' work in the 1920s invariably bore the imprint of her aesthetic and cultural investments. "I heard Piston's piece for Flute, Clarinet and Bassoon at Harvard the other day," Slonimsky wryly wrote to Copland. "Rather clever: he reduced Stravinsky's Octet to a Trio most successfully!"³⁸⁸ Surveying "America's Young men of Promise" in *Modern Music* in 1926, Copland marveled at how many of them – seven of the seventeen – had studied with Boulanger in Paris.³⁸⁹ Copland was doubtless best acquainted with the work of his *Boulangerie* colleagues, though he modestly left his own name off the list. However, it also reflected the growing influence of *Modern Music* to shape the representation of American music in New York and, by extension the United States as a whole.

Other cities had thriving music scenes, but Manhattan, with the New York Philharmonic, Damrosch's New York Symphony Orchestra and the Metropolitan Opera had a critical mass of art music institutions. It was here that Diaghilev's Ballets Russes brought the scent, if not the reality of scandal during its residence in 1916, where the transatlantic liners conveying the representatives of European modernism on American

³⁸⁷ Blitzstein, letter to Copland, 19 August 1930, Aaron Copland Collection, Music Division, Library of Congress, Washington DC, box 246, folder 44.

³⁸⁸ Slonimsky, letter to Copland, n.d. (probably 1927), Aaron Copland Collection, Box 262, Folder 33.

³⁸⁹ Copland, "America's Young Men of Promise," in *Aaron Copland: A Reader, Selected Writings 1923-1972*, 175.

tours docked. It was in New York that the International Composers' Guild, the first organization for the promotion of modern music in United States, was formed in 1922. "A group of modern composers... have grown impatient of the ordinary routine process of bringing their works before the public," Alma Wertheim reported in the *New York Times*. "They have banded together... to facilitate the production of their own and other men's work in the immediate future."³⁹⁰

The Guild had global aspirations even if the organization itself never consisted of more than a small group of composers and enthusiasts that had coalesced around Varèse in New York. In addition to featuring works by American composers like Emerson Whithorne and Lewis Gruenberg, its concerts highlighted the music of Europeans such as Stravinsky, Ravel and Honegger. The Guild's greatest coup was probably the American premiere of *Pierrot Lunaire* in January 1923, a "momentous event," in the words of the *New York Times*.³⁹¹ Yet the organization was beset by internal squabbles almost from its inception. Varèse considered himself the Guild's undisputed leader, an unpopular proposition among a group of composers with strong personalities of their own. Founding member Carl Ruggles resigned his membership in 1926 because it had "degenerated into nothing but an advertising meidum (sic) for Varèse, and his henchmen,"³⁹²

Varèse's management style grated on many members of the Guild's governing board, particularly when, following the success of *Pierrot Lunaire*, he pressed for a repeat performance, despite his own no-repeats policy.³⁹³ More problematic was his open and virulent anti-Semitism which, Carol Oja notes, created divisions in an organization

³⁹⁰ Alma M. Wertheim, "World-Wide Guild of Composers," *New York Times*, 26 November 1922, 67.

³⁹¹ Aldrich, "Music," *New York Times*, 5 February 1923, 18.

³⁹² Carl Ruggles, letter to Henry Cowell, 26 November 1926, Henry Cowell Papers, Music Division, New York Public Library for the Performing Arts, New York, NY, Box 13, Folder 20.

³⁹³ Oja, 186.

and community with a disproportionate number of Jewish members.³⁹⁴ In 1923, two thirds of the Guild's board seceded to form the League of Composers, with Claire Reis as chairman. "The presentation in America of contemporary music is an undertaking that has rapidly outgrown the capacities of existing organizations," the new organization announced. Existing forums tended to serve aesthetically parochial interests. "No organization exists today which proposes to bring the entire range of modern tendencies before the public." Taking credit for the *Pierrot Lunaire* concert, the League's founders promised to "effect co-operation between composers of all nations, and it will give well planned performances of new music selected from every school."³⁹⁵ The programs for the first season of concerts beginning in November 1923 focused primarily on the works of Europeans like Stravinsky, Roussel, Poulenc and Béla Bartok.

In later seasons the League greatly expanded the representation of American composers, often commissioning compositions from the most prominent for the series. There was a short-lived but spirited rivalry between the League and the Guild, and it was unusual for any composer to be a member of both. Copland, who received a commission for the League's 1925-1926 concert season, noted in a letter to Boulanger that the inter-organizational competition extended as far as enlisting some of the marquee names of American classical music. "Because Stokowski conducts 2 concerts of the other guild, they wanted Koussevitsky for 2 concerts for their League," he wrote. "He is delighted and he accepted."³⁹⁶ However it was the League's journal *Modern Music*, more than its

³⁹⁴ Oja, 186.

³⁹⁵ The League of Composers, "Foreword to the Season of 1923-1924," League of Composers Records, Music Division, The New York Public Library for the Performing Arts, Box 5, Folder 39.

³⁹⁶ Copland, letter to Boulanger, 3 April 1925, Aaron Copland Collection, Box 248, Folder, 8.

concerts that established its influence in American modern music.³⁹⁷ Editor Minna Lederman recalled that, from the beginning, *Modern Music* featured articles by American composers and scholars, and never by critics. "But first, last, and always," she wrote, "the magazine would be about what composers of our time were producing."³⁹⁸

The Guild had nothing comparable, and *The Musical Quarterly*, which began publication in 1915, focused on the whole range of art music. *Modern Music* quickly became the principal forum through which composers and scholars – and occasionally their European colleagues – could share ideas, discuss theory, and build American modernism. This put Lederman in a position of enormous influence. She assigned articles and selected submissions, often from among the close-knit circle of composers resident in New York who participated in the League's concert series. Coverage of European music was invariably provided by those composers and scholars who studied abroad – usually in Paris with Boulanger. Sessions and Copland, in particular, became two of the magazine's most frequent contributors, and joined the League's Board in 1928.³⁹⁹ Copland and Lederman soon developed a close personal relationship, with the composer often referring to the latter by the pet name "Minsk" in his correspondence.

Copland had funded his residence and study in Paris in 1925 and 1926 on two consecutive Guggenheim fellowships and found himself back in New York in the fall of 1927 and out of work. He accepted a position at the New School for Social Research, teaching a course on "The Evolution of Modern Music" to a class largely composed of

³⁹⁷ Initially the *League of Composers Review*, it was renamed *Modern Music* in 1925.

³⁹⁸ Minna Lederman, *The Life and Death of a Small Magazine: Modern Music, 1924-1946* (New York: Institute in Studies in American Music, 1983), 5.

³⁹⁹ Copland, letter to Sessions, 15 April 1928, in Andrea Olmstead, ed., *The Correspondence of Roger Sessions* (Boston: Northeastern University Press, 1992), 105.

non-musicians.⁴⁰⁰ "My lectures are going brilliantly" he reported to Boulanger. "If I weren't a composer it would be very amusing. But as it is, it is even difficult for me to give up three months of the year to merely making money; and it is practically impossible to do any orchestrated work or composition unless I devote my entire energies to it."⁴⁰¹ While teaching placed new constraints on his time, Copland's new job, as well as performances of his work in League concerts, raised his profile in New York. His lectures attracted "hordes—literally—of people and make me feel terribly busy and important," he wrote to Sessions. He scheduled premieres of three new works in New York for the 1927-1928 season.⁴⁰² Copland was, at the beginning of the season, the most prominent American composer of his generation in New York.

This reputation was reinforced with the inauguration of the Copland-Sessions Concerts of Contemporary Music in the spring of 1928. Despite outward demonstrations of solidarity and fraternity, like the photo opportunity for "The American Six," the *Boulangerie* had always been subject to factions and clashes of egos – something of which the prickly Sessions was certainly conscious: "I think you & Teddy [Chanler] are likely to still think of me in a friendly manner – I'm not so sure about G. Antheil & Virgil Thomson, though I have no illusions of a very extravagant nature as to what may be their general attitude."⁴⁰³ Copland and Sessions had been particularly close in Paris, and with the latter returning briefly to the United States early in 1928 to teach at Smith College, Copland suggested that they put their efforts into a "Young Composers Society" and a

⁴⁰⁰ "Copland on Modern Music," *New York Times*, 28 August 1927, X6.

⁴⁰¹ Copland, letter to Boulanger, 16 October 1927, Aaron Copland Collection, Box 248, Folder, 8.

⁴⁰² Copland, letter to Sessions, 17 October 1927, in Olmstead, 86.

⁴⁰³ Sessions, letter to Copland, 1926, Aaron Copland Collection, Box 262, Folder, 15.

concert series independent of the League.⁴⁰⁴ Sessions embraced the idea as a "means of showing any talented young composers that in submitting works to us there is a chance of something more than a semi-private hearing." It also reinforced Sessions' self-image, as a leader among American composers: "Furthermore I think that the sooner a young composer is brought up against the real conditions of musical life – actual contact with an unselected public – the better for his development."⁴⁰⁵

The Society never materialized but, beginning in the spring of 1928, and continuing until 1931, the Copland-Sessions Concerts embodied the main stream of American modern music. The organizers were concerned that their initiative would alienate the League and went to great lengths not respectfully in its direction.⁴⁰⁶ "This series not in any sense designed to compete with the work of existing organizations already so admirably engaged in presenting modern music," Copland and Sessions noted in the first season's program. "But we feel that the youngest American composers have been, till now, without a proper vehicle, and institution explicitly devoted to the interests of the developing artist." They assured their audience among the New York cognoscenti that their "only wish is to stimulate composers to more prolific activity and to develop a stronger sense of solidarity among the creators of a growing American music."⁴⁰⁷

All but one of the composers whose work the Copland-Sessions Concerts featured in its first season were former or current students of Boulanger's. The first concert at New York's Edyth Totten Theatre on 22 April featured music by Mexican composer Carlos

⁴⁰⁴ Copland, letter to Sessions, 18 April 1927, in Olmstead, 79.

⁴⁰⁵ Sessions, letter to Copland, 3 September 1927, Aaron Copland Collection, Box 262, Folder, 15.

⁴⁰⁶ "If Mrs. R[eis] ever discovers this, my 'career' can be considered over!" Copland, letter to Sessions, March 1928, in Olmstead, 91.

⁴⁰⁷ Program, Copland-Session Concerts of Contemporary Music, 22 April 1928, and 6 May 1928, Edyth Totten Theatre, New York, NY, Aaron Copland Collection, Box 337, Folder 4.

Chavez, and Boulanger's students Chanler, Piston, Sessions and Thomson. The second concert on 6 May featured works by Elwell, Robert Delaney and Copland. Although supported with generous donations from socialite Mary Churchill, the concerts operated at a loss in the first season.⁴⁰⁸ Yet it excited a considerable amount of coverage in the New York Press. Not all of it was positive. "Music alone persists in opting for progress and the millennium through the sort of radicalism definitely abandoned by the other arts," the New York *World* reported. "A striking example of the sanguine seriousness with which a certain contingent of musicians still cling to this toppling fetish was afforded by the concert given last night at the Edyth Totten Theatre."⁴⁰⁹ Negative or not, the concerts had captured New York's attention, and the organizers, now with the League's support continued the following year – though also at a loss.

Copland continued largely alone. Sessions returned to Europe in the summer of 1928, offering repeated apologies for being an "irresponsible partner," and apparently doing little to help. The piano sonata Sessions had promised for the concert series since 1928 was not completed until the end of 1930.⁴¹⁰ Although uninvolved in the planning and management of the concert series that bore his name after the first season, Sessions nonetheless frequently expressed his disapproval. He was horrified by Copland's plan to organize a concert in Paris in 1929. The "whole thing would be received a good deal in the spirit of another piece of 'arrivisme' – not very important but rather like the 'Festivals

⁴⁰⁸ It brought in \$447 in ticket sales and subscriptions to cover more than \$1,600 in expenses. Copland-Sessions Concerts, Financial Statement, 1928-1929, Aaron Copland Collection, Box 337, Folder 3.

⁴⁰⁹ "Realm of Music," *The Evening World*, 7 May 1928, unknown page.

⁴¹⁰ Sessions, letter to Copland, 25 December 1930, Aaron Copland Collection, Box 262, Folder 18.

Antheil' (or, if you like, Virgil Thomson, or Edmund Pendleton. Et al.)?"⁴¹¹ Copland obligingly responded to his absent partner's objections by leaving his name out of it.⁴¹²

The two composers' relationship remained cordial, but disagreements over the management of the Concerts, increasing creative differences and, above all, Copland's growing celebrity and influence in the American modern music scene added strains. The aesthetic differences had emerged as early as 1926, when Copland called on his colleagues to explore the liberating rhythmic possibilities of jazz, something he had begun to do in his own works.⁴¹³ "This startling new synthesis has provided the American composer with an instrument he should appreciate and utilize."⁴¹⁴ Sessions fairly bristled at the thought. While he congratulated Copland for giving "the final word in a tiresome and useless controversy," Sessions was "not sure that I entirely agree with you as to the possibilities of jazz."⁴¹⁵ Sessions' aesthetic inclinations had begun to diverge from those of his colleagues in the *Boulangerie*. He wrote to Copland that he had become particularly enamoured of the music of German Paul Hindemith, as "for Honneger & Milhaud – and Poulenc: They have disappeared from my world..."⁴¹⁶ Copland, Thomson and the rest of the *Boulangerie* continued to stress their connections with Boulanger, but Sessions wanted to make it clear that "neither I or, I am sure, Nadia, ever dreamed of my being her disciple."⁴¹⁷

The two composers had radically different ideas about their relationship to their audiences and the public. Sessions had begun to see himself as a composer of "absolute

⁴¹¹ Sessions, letter to Copland, 22 March 1929, Aaron Copland Collection, Box 262, Folder 17.

⁴¹² Sessions, letter to Copland, 29 March 1929, Aaron Copland Collection, Box 262, Folder 17.

⁴¹³ Stanley V. Kleppinger, "On the Influence of Jazz Rhythm in the Music of Aaron Copland" *American Music* 21, Spring 2003, 74.

⁴¹⁴ Copland, "Jazz Structure and Influence," *Aaron Copland: A Reader*, 87.

⁴¹⁵ Sessions, letter to Copland, 25 February 1927, Aaron Copland Collection, Box 262, Folder 15.

⁴¹⁶ Sessions, letter to Copland, 26 June 1928, Aaron Copland Collection, Box 262, Folder 16.

⁴¹⁷ Sessions, letter to Copland, 8-9 November 1928, Aaron Copland Collection, Box 262, Folder 16.

music," unencumbered by any direct responsibility to his audience. "Roger Sessions writes a music as independent of extra-musical considerations as could be wished," he wrote in an autobiographical note for Nicolas Slonimsky. In a "profession of faith," Sessions rejected "any kind of dogma or platform. I am not trying to write 'modern', 'American' or 'neo-classic' music. I am seeking always and only the coherent and living expression of my musical ideas." His greatest interest lay in an Almost Aristotelian "achievement of perfect form."⁴¹⁸

In contrast, Copland sought to engage directly both with the listening public and critics, publicly chiding the latter in a *Modern Music* article for their neglect of living American composers. "What on earth are you up to with our 'traditional enemies' the critics?" Sessions demanded in a letter. Music did not need to be nurtured by an attentive public: "Too much 'nurturing' has placed American in an entirely false, self-conscious category, just as it has too often placed "modern" music in a false category – and not only in America."⁴¹⁹ For Sessions Copland had become *too* concerned with the public, and he objected what he considered his partner's "trumpet-blowing." Was it worth all the publicity, he wondered. "I was surprised to see the full page articles in the commercial weeklies, with our pictures and biographies; I had understood, first of all, that we were to keep in the background and to make the things as impersonal as possible."⁴²⁰

IV. The Banshee

⁴¹⁸ Sessions, letter to Slonimsky, "Autobiographical Note," 1930s, Nicolas Slonimsky Collection, Box 158, Folder 45.

⁴¹⁹ Sessions, letter to Copland, 1932, Aaron Copland Collection, Box 262, Folder 20.

⁴²⁰ Sessions, letter to Copland, 22 March 1929, typescript, Aaron Copland Collection, Box 262, Folder 17.

One hundred-thousand people visited the International Exposition of Art in Industry at Macy's department store in New York in its first week in May 1928.⁴²¹ Organized by the retailer and the Metropolitan Museum of Art, the show occupied the entire fourth floor of Macy's 5th Avenue store and featured five thousand exhibits by three hundred exhibitors representing six countries. The exhibits were all "modernistic and international," celebrating the arrival of modern art and design as a product within the reach of the discriminating consumer, and the United States' connections with a burgeoning, transatlantic modernism. They were arranged in fifteen "completely furnished rooms, arranged with glassware, rugs, ceramics, jewelry, fabrics, silverware, metalwork and furniture, all illustrating the basic theme of the exhibition."⁴²² The highlights of the show, however, were eighteen showcases of the most significant triumphs of modern decorative art. The most impressive, wrote *The Times*, was the showcase of "modern decorative art" designed by the German architect-designer Bruno Paul that evoked "a cosmopolitanism which the styles of the old days with restricted communications only partly achieved."⁴²³ Two copies of the magazine *New Music* lay open on the black-lacquered piano at the centre of the showcase.⁴²⁴

New Music was a unique, audacious project, a quarterly magazine edited and published by Henry Cowell "containing not articles on music, but music itself." Beginning with the inaugural issue in October 1927, Cowell intended it to be "the only magazine in the world devoted to the publication of modern music," specializing in the works of living American composers. There was a pressing need for this. "There are very few

⁴²¹ "Design Exposition Viewed by 100,000," *New York Times*, 20 May 1928, 25

⁴²² "Macy's to Exhibit Art in Industry," *New York Times*, 7 May 1928, 43.

⁴²³ Walter Rendell Storey, "Bruno Paul's Vision of Decorative Art," *New York Times*, 3 June 1928, SM8.

⁴²⁴ Claire R. Reis, letter to Cowell, 25 May 1928, typescript, Henry Cowell Papers, Box 132, Folder 8.

opportunities for the modern American composer to publish his works, as publishers are unwilling to risk losing money in such publications," Cowell wrote. "When modern works are published in America, almost no copies are sold." Composers needed an audience and, through his quarterly, Cowell hoped to provide them with one. "NEW MUSIC will offer a means of publication of ultra-modern works, and also insure their distribution among a number of subscribers."⁴²⁵ By the spring of 1928, the magazine had clearly become, at least to Paul and the organizers of the Macy's exhibition, synonymous with modern music.

Cowell announced *New Music* to composers, musicians and scholars across the United States with a handwritten note and a subscription form in the summer of 1927. Many of them wrote back with cheques and ecstatic letters. "Bravissimo for New Music! I think it is quite wonderful to get such a start," Dane Rudhyar gushed. "You will probably get 500 subscriptions by the first of next year and there is no reason why this should not be the start of a real publishing enterprise."⁴²⁶ Yet that enterprise needed money, and Cowell recognized that meant subscribers. He sent out hundreds of invitations but one, written as a formal letter rather than a quick note, had special significance. "I am hoping that you will be interested in in becoming a subscriber to 'New Music' of which I enclose an announcement," Cowell wrote to Charles Ives.⁴²⁷

Ives had been composing some of the most challenging, dissonant modern music since the turn of the century, but until the publication of his *Piano Sonata No. 2 "Concord, Mass. 1840-1860"* and *114 Songs* in 1920, his work was completely unknown

⁴²⁵ *New Music* Announcement, 1927, New Music Papers, Music Division, The New York Public Library for the Performing Arts, Folder 38.

⁴²⁶ Dane Rudhyar, letter to Cowell, 27 September 1927, Henry Cowell Papers, Box 13, Folder 17.

⁴²⁷ Cowell, letter to Charles Ives, 27 July 1927, typescript, The Charles Ives Papers, Box 28, Folder 1.

outside the small circle of his family and friends. He was never a professional composer, preferring instead to write music in his spare time while he built his New York insurance agency into a thriving business. The critical response to the *Concord Sonata*, however, raised him from the seclusion of a dilettante composer to the front-ranks of American modern music.

Critics celebrated Ives as a momentous discovery. "You will look in vain through publisher's catalogs or concert programs or the anecdotal columns of self-advertising," Henry Bellamann wrote in the literary magazine *The Double Dealer* in 1921, "you will not find the name of Charles Ives, composer of the monumental piano sonata which bears the unusual title, 'Concord, Mass., 1840-1860.'"⁴²⁸ But that, Bellamann wrote, should not discourage them from seeking out the score. "The music is broad and stately, the rhythmic arches are very wide," he wrote. "No fixed tonality, no rhythmic unity. It sways as freely as a tree top in the wind."⁴²⁹ The Sonata was an unprecedented work, "Conceived independently of any instrumental idiom, it must be regarded as an essay of lofty thought and feeling expressed in musical notation. One arises from a reading of it with much, much more of satisfaction than dissatisfaction. Its loftiness of purpose is evident; its moments of achievement elevating and greatly beautiful."⁴³⁰

His *Fourth Symphony*, composed in 1916, had its premiere in January 1927 as part of a program of "works new in America or played for the first time anywhere" organized by the New York Pro Musica Society. Milhaud was on hand to conduct his chamber opera *Les Malheurs d'Orphée*, and Ives' symphony was conducted by Eugene Goossens. *The New York Times* critic Olin Downes, who was notorious for rarely liking

⁴²⁸ Henry Bellamann, "Concord, Mass., 1840-1860," *The Double Dealer*, October 1921 (166-169), 166.

⁴²⁹ Bellamann, 167.

⁴³⁰ Bellamann, 169.

anything he heard, gave Ives the closest thing to a rave review. "This music is not nearly as compact, as finished in workmanship, as smart in tone, as that of Mr. Milhaud," he wrote, "but it rings truer, it seems to have something more genuine behind it." Ives' music shone alongside one of the giants of French neo-classicism. There was no need, it seemed, to learn modernism at the feet of European masters; there had been *American* modern music all along, only no one had known about it.

While it's impossible to say whether Cowell was thinking of Ives' long musical isolation when he came up with the idea for *New Music*, it could not have been far from his mind as he wrote the letter. "Charles E. Ives is the father of indigenous American music, and at the same time one of the freshest and most experimental composers today," he would write five years later.⁴³¹ Yet this musical genius, the founder of American modernism who Cowell so clearly admired, was only, in 1932, "beginning to get the recognition he so richly deserves."⁴³² He was eager to offer the elder composer the opportunity to distribute his work in *New Music*, and asked if Ives would consent to have his name listed on the magazine's advisory board.⁴³³

Ives was delighted to help. "Your idea of a circulating music library via a magazine of unsaleable scores is admirable – and a needed move," he responded two weeks later. "If the plan does nothing more than make possible a freer exchange of opinions, it will be of value, it seems to me."⁴³⁴ The composers developed a personal and professional relationship through the initial exchange of letters. Cowell intended to include one of Ives' works in an early issue of *New Music*, though that was delayed due to

⁴³¹ Cowell, "American Composers, IX: Charles Ives," *Modern Music*, November-December 1932, 24.

⁴³² Cowell, "American Composers, IX: Charles Ives," 32.

⁴³³ Cowell, letter to Ives, 27 July 1927.

⁴³⁴ Ives, letter to Cowell, 16 August 1927, typescript (copy), Henry Cowell Papers, , Box 9, Folder 26.

difficulties in having the complex score engraved.⁴³⁵ Ives soon became *New Music's* principal benefactor, providing \$500 of annual operational funding, as well as a \$25 honorarium for composers whose works were published in the magazine. His only condition was that "I would prefer to have only you know that it comes from me."⁴³⁶ They also became friends. On hearing that "Henry" would be visiting New York in 1928, Ives insisted "you must come and stay with us until you get located. Don't ever stay at a New York hotel while we have an extra bed."⁴³⁷

Cowell was as much as a maverick as Ives. He had developed a highly idiosyncratic and variable compositional idiom in comparative isolation from and independent of European modernism. Yet Cowell's isolation was aesthetic and intentional, rather than a function of social insularity. He was an active participant in and, after about 1925, the leading figure of a thriving community of ultra-modernist composers largely focused on the West Coast, and deeply engaged in the artistic networks of Los Angeles, San Francisco, New York and Europe.

The California ultra-modernists, including Ruggles, Charles Seeger, French expatriate Rudhyar, and Cowell had come together at about the same time that the *Boulangerie* gathered in Paris,. Largely isolated from European modernism, the West Coast composers developed a strong sense of solidarity and mission. They were, in the evocative words of Rudhyar, self-conscious radicals whose music represented a decisive break with the social, spiritual and aesthetic hierarchies of the past. Dissonant music is "the music of true and spiritual Democracy; the music of universal brotherhoods; music of Free Souls, not of personalities," Rudhyar wrote. "It abolishes tonalities, exactly as the

⁴³⁵ Cowell, letter to Ives, 7 March 1928, The Charles Ives Papers, Box 28, Folder 1.

⁴³⁶ Ives, letter to Cowell, 29 May 1929, Henry Cowell Papers, Box 9, Folder 28.

⁴³⁷ Ives, letter to Cowell, 3 December 1928, typescript, The Charles Ives Papers, Box 28, Folder 1.

real Buddhist Reformation abolished castes into the Brotherhood of Monks; for Buddhism is nothing but spiritual Democracy."⁴³⁸ Rudhyar called for a "real Sacred Music" that would destroy the "shells of the past culture, the crystallizations of this once living reality which has now become a corpse: today, shells of European tonality, shells of dilettantism, of virtuosism, of this artificial mental science which is a denial of the true spiritual life that harmonizes spirit and matter and never denies the latter."⁴³⁹

While it is difficult to gauge the extent to which Cowell endorsed Rudhyar's social and spiritual views, they were close friends and initiates in a Celtic-Theosophical mystical community headed by poet John Varian.⁴⁴⁰ Nevertheless, he certainly shared Rudhyar's sense of American – and particularly West Coast – exceptionalism as an antidote to what the latter called the "materialism, despotism and false intellectuality" of European modernism.⁴⁴¹ In 1925, Cowell spearheaded the creation of the New Music Society of California. "It is seldom that Los Angeles has the opportunity to hear presented the works of the most discussed composers of the so-called ultra-modern tendencies," the founding notice read, announcing a series of concerts "for the purpose of performing such works," to begin early in the fall of 1925.⁴⁴² Following the launch of *New Music* two years later, he focused his organizational energies on the creation of the Pan-American Association of Composers in New York in 1928, along with Varèse, Ruggles and others, to embrace and promote the work of "progressive" composers across all of the borders of the Americas.⁴⁴³

⁴³⁸ Rudhyar, *Dissonant Harmony: A New Principle of Musical and Social Organization* (Carmel, California: Hamsa Publications, 1928), 10-11.

⁴³⁹ Rudhyar, 19.

⁴⁴⁰ Oja, 128-129.

⁴⁴¹ Rudhyar, 22.

⁴⁴² New Music Society of California, Announcement/Subscription Blank, New Music Papers, Folder 38.

⁴⁴³ Oja, 193-194.

Very little about Cowell or his music is easily categorized. Something of an autodidact, he received his only formal musical instruction as Seeger's student at the University of California Berkeley, "but only after he had already systematized an individual style of his own," Slonimsky noted in 1933.⁴⁴⁴ More important was the musical and cultural environment in which he grew up during the early 20th century. Nancy Yunhwa Rao has documented an early exposure to Chinese music and opera in San Francisco that "constituted an important part of Cowell's early experience."⁴⁴⁵ Rao notes the composer's interest Chinese musical practices: "Throughout his entire musical life, Cowell was fascinated by the notion of the sliding tone, a musical element that he associated in particular with Chinese operatic singing as well as Chinese string-instrument technique."⁴⁴⁶

In transgressing the spatial and racial boundaries between Euro-American and Chinese culture – frolicking in the playground with Chinese-American and Japanese-American friends and attending Chinese opera performances with his parents as a child, or inviting Chinese musicians to perform in his classes at the New School for Social Research as an adult – Cowell found that boundaries were neither impermeable or absolute. Unlike the composers of the *Boulangerie*, he did not feel constrained by the conventions of European art music or the expectations of European modernism. "In particular," Rao notes, "he lamented the excessive emphases that the mainstream music establishment and institutions put on their European rather than their non-European

⁴⁴⁴ Slonimsky, 58.

⁴⁴⁵ Nancy Yunhwa Rao, "The Color of Musical Heritage" Chinese America in American Ultra-Modern Music," *Journal of Asian American Studies* 12, February 2009, 97.

⁴⁴⁶ Rao, 97.

ancestries."⁴⁴⁷ His own compositions and theoretical innovations invariably articulated a parallel impulse to test the limits of musical discourse in an immanent critique of aesthetic boundaries. "Harmony, rhythm, tone-color," Slonimsky wrote. "Henry Cowell submits them to a test as if they were mere human beliefs, not divine laws."⁴⁴⁸ Indeed, in 1927 Cowell wrote that the aesthetic impulse of new music "will force us to break the barriers. We are forced to depart from the historic tradition of development, but exactly where the barriers are to be broken, is the problem which confronts us to-day."⁴⁴⁹

Cowell had already begun to compose unorthodox music by the time he was admitted to the music department at the University of California, Berkeley at the age of 17 in 1914. "It is true that I wrote in 'modernistic' style when I had never heard of such music," he recalled a few years later, "in fact, as I look at my earlier works, I doubt whether there was, at that time, any such 'modernistic' style anywhere among recognized composers."⁴⁵⁰ Cowell was already being hailed as a "musical genius" at the age of 25, when he received an enthusiastic ovation at a concert of the Hollywood Community Chorus in a Los Angeles-area high school auditorium. "The majority of his auditors remembered that his was a new medium of musical expression, an original idea that was sincerely and artistically presented," a local reviewer noted. The program consisted primarily of his earliest compositions, which simultaneously articulated and subverted musical conventions. In *The Tides of Manaunan*, Cowell played a fairly conventional pentatonic melody in slow jig time with his right hand, evoking traditional Irish music,

⁴⁴⁷ Rao, 104.

⁴⁴⁸ Slonimsky, "Henry Cowell," in Henry Cowell, ed., *American Composers on American Music* (Stanford: Stanford University Press), 57.

⁴⁴⁹ Cowell, "The Impasse of Modern Music: Searching for New Avenues of Beauty," *The Century Magazine*, October 1927, 674.

⁴⁵⁰ Cowell, letter to Prof. Lerman, 9 July 1925, Henry Cowell Papers, Box 18, Folder 17.

though with occasional striking departures into dissonance. His left hand, however, provided a rumbling accompaniment of dissonant tone clusters in a contrasting rhythm, suggesting the "elemental and primordial motifs" of the Irish sea god. "He must have a remarkable ear, to be able to distinguish such a range of sound waves or vibrations," the reviewer wrote. "To register and to interpret them, are particular phases of his genius."⁴⁵¹

Indeed, Cowell's genius was largely focused on sound waves and vibrations. Begun in 1919 but not published until 1930, his treatise *New Musical Resources* sought to establish a "theory of musical relativity" based on the overtone series.⁴⁵² Cowell wrote that the relationships between overtones could also provide a framework for rhythmic explorations, based on "harmonic rhythm," the temporal shifting between harmonies and chords. He was confident that he had discovered "a way of logically co-ordinating many seemingly chaotic materials used in contemporary music, so that without that being its purpose, *New Musical Resources* throws an illumination on some difficult problems of 'modernism,' and shows that 'modern' music is not proceeding blindly."⁴⁵³

In that sense, Cowell's theory had a great deal in common with Schoenberg's serialism, but as a descriptive rather than a prescriptive framework. More importantly, however, Cowell sought a theoretical context for a music composed outside of what he considered to be the arbitrary constraints of conventional western music.⁴⁵⁴ In noting that the consonances of the diatonic triad are derived from the overtone series, he argued that similar logic lay behind tone clusters – dissonant chords composed of at least three

⁴⁵¹ Harriet Day. "His Music is Unique," *Holly Leaves*, 24 November 1922, 38.

⁴⁵² Tones produced by conventional musical instruments consist of the fundamental – the main note – and an ascending series of related harmonic tones – the dominant, octave, major third, etc. – at increasingly short intervals.

⁴⁵³ Cowell. *New Musical Resources* (New York: Alfred A. Knopf, 1930), ix-x.

⁴⁵⁴ Cowell, *New Musical Resources*, xii.

adjacent notes of the chromatic scale. "Tone clusters, then, are chords built from major and minor seconds, which in turn may be derived from the upper reaches of the overtone series and have, therefore, a sound foundation," he wrote.⁴⁵⁵

At Berkeley, Cowell had become Seeger's protégé. A respected pedagogue, Seeger was the co-author, with Edward Stricklen, of a composition textbook that sought to answer students' demands "for reasons and explanations instead of the dumb rules and empirical subterfuges which in no great living composer are regarded."⁴⁵⁶ Cowell himself may have been the inspiration, and the authors carefully explained the conventions of diatonic composition in increasing harmonic complexity. "The student should be familiar by now with the fact that all dissonance demands resolution," they noted.⁴⁵⁷ Yet from the outset, Seeger and Stricklen conceded –gleefully – that understanding the conventions of diatonic composition was a starting point for "the student of philosophic or scientific bent" to move beyond them "as the fitting together of the reliques of ancient tradition and modern thought becomes more and more difficult."⁴⁵⁸

Around 1913, Seeger had begun to formulate a radical theoretical framework of "dissonant counterpoint."⁴⁵⁹ Recognizing that conventional polyphonic music was based on melodic consonance, Seeger proposed a new polyphony that he called "heterophony" in which the melodic parts "must be so different in themselves and the relation between them (which makes their simultaneous sounding agreeable) must perforce be such that their difference rather than their likeness is emphasized." Music might be composed

⁴⁵⁵ Cowell, *New Musical Resources*, 117.

⁴⁵⁶ Charles Louis Seeger, jr. and Edward Griffith Stricklen, *Harmonic Structure and Elementary Composition* (Berkeley, 1916), 3.

⁴⁵⁷ Seeger and Stricklen, 27.

⁴⁵⁸ Seeger and Stricklen, 4.

⁴⁵⁹ Seeger, "On Dissonant Counterpoint," *Modern Music*, June-July 1930, 25.

around dissonant harmonies, using consonances in the same way that conventional composition employed dissonance for emphasis. "Just as the greatest music of the past was composed without fear of dissonance, so those who attempt the sublime in dissonant writing must not fear consonance."⁴⁶⁰ Cowell became one of the main exponents of this technique, writing that dissonant counterpoint was authorized by "the essential legitimacy of dissonances as independent intervals" demonstrated in the relation to the overtone series. The theory turned Bach on his head "not with the result of substituting chaos, but with that of substituting a new order."⁴⁶¹

Even then, composers were limited by the temperament of their instruments, harmonic and melodic convention and the limitations of conventional notation. These were issues of deep interest to Cowell. In 1927, he advocated for a new notation system, proposed by Seeger, to replace conventional notation rendered obsolescent by modern music. "Though we have managed to discover, in large measure which tones and rhythms the old masters desired, modern composers are forced to invent various appendages to this old system in order to get their work on paper at all," he wrote. Moreover, conventional notation inevitably imposed the discipline of European harmonic and melodic conventions, and cut off access to unconventional resources. "The printed examples of Indian music published by the Smithsonian Institute if sung purely as written, by one who has not heard Indians, become conventional tunes, no different in type from thousands of our own," he observed. "An Indian would not recognize them."⁴⁶²

Many of Cowell's own compositions defied received musical categories, sometimes to the extent that colleagues more invested in European conventions found his

⁴⁶⁰ Seeger, "On Dissonant Counterpoint," 28.

⁴⁶¹ Cowell, *New Musical Resources*, 39.

⁴⁶² Cowell, "Our Inadequate Notation," *Modern Music*, March 1927, 30.

music and ideas almost incomprehensible. Among Cowell's most radical innovations was to relocate the pianist from the keyboard to the strings under the instrument's open lid, reconfiguring the piano as a new kind of instrument. A number of Cowell's early compositions explored the sonic potential of the "string piano," none more thoroughly than *The Banshee* of 1925. The score prefigures, and perhaps contributed to the composer's frustration with conventional musical notation. It is more a series of directions, fully-notated in the bass clef, for the body of the performer than for the instrument. "The Banshee is played on the open strings of the piano, the player standing at the crook," Cowell's instructions specify. "Another person must sit at the keyboard and hold down the damper pedal throughout the composition." Cues, keyed to a list of specific instructions, are indicated by letters above the staves: "a. indicates a sweep with the flesh of the finger from the lowest string up to the note given," for example. "k. Sweep along in the manner of j. with the nails of both hands together, taking in all notes between the two outer limits given."⁴⁶³ Cowell not only subverted the instrumentality of the piano, but by embodying a performance of *The Banshee* in the performer himself, erased the boundary between player and instrument.

In parallel with his harmonic experiments, Cowell proposed a unique theory of rhythm. Reasoning that, like harmony and melody, rhythm was based on the principle of "the relation of tones to one another," he proposed a rhythmic scale built on the same foundation, rather than on the regular divisions of conventional cadence.⁴⁶⁴ A rhythmic scale derived from the harmonic series would take advantage of far more variable ratios

⁴⁶³ Cowell, *The Banshee*, score, Xerox copy of a photostatic copy, n.d., Henry Cowell Papers, Box 33, Folder 2.

⁴⁶⁴ Cowell, *New Musical Resources*, 46.

than the division of beats into whole, half, quarter, eighth and sixteenth notes.⁴⁶⁵ It would be enormously complex, though not necessarily unmusical. It cannot

be assumed that a complicated relationship is unrhythmical; if a group of nine notes is played against a group of eleven, the result may sound chaotic to a listener unfamiliar with such a procedure; but to musicians accustomed to cross-rhythms, or to certain peoples who use more complex rhythms, the combination is not only intelligible, but possibly moving.⁴⁶⁶

A set of rhythmic resources based on harmonic ratios like 14/15, 5/7 and 8/15 opened up vast possibilities for rhythmic invention. Cowell nevertheless conceded that "it is likely that until we develop further in rhythmic appreciation, only the simpler ratios of the scale will be used."⁴⁶⁷ Moreover, the variability of the rhythmic ratios made polyrhythms almost inevitable, though with "almost insurmountable complexity" in performance.⁴⁶⁸

An introduction through Slonimsky in 1928 offered Cowell a way to overcome the obstacles. "I have found another fellow-soul, just like yourself: Professor Leon Theremin, who is a marvel," Slonimsky wrote.⁴⁶⁹ Theremin designed and built a series of electro-mechanical devices called Rhythmicons at Cowell's request, capable of playing up to sixteen contrasting rhythmic patterns simultaneously. Cowell composed a *Concerto for Rhythmicon and Orchestra*, with radically innovative notation for the electronic instrument in 1931, though it was not performed until four decades later, a time, he might have suggested, when audiences had progressed "further in rhythmic appreciation."⁴⁷⁰

Cowell's relationship to New York City, the metropole of American modernism, was complex. A peripatetic cosmopolitan, he passed freely and frequently through the

⁴⁶⁵ Cowell, *New Musical Resources*, 98.

⁴⁶⁶ Cowell, *New Musical Resources*, 46.

⁴⁶⁷ Cowell, *New Musical Resources*, 101-102.

⁴⁶⁸ Cowell, *New Musical Resources*, 104.

⁴⁶⁹ Slonimsky, letter to Cowell, 2 October 1928, Henry Cowell Papers, Box 14, Folder 27.

⁴⁷⁰ Oja, 69.

modern music circles of both New York and Europe. He visited the East Coast in 1916, following Seeger's resignation from Berkeley and relocation to New York. Concert engagements brought Cowell across the country with some regularity. "Have met interesting folks," he wrote to his parents on one visit in 1925. "Four wealthy Jews give me a concert this coming Friday evening, each give \$25.00. They are Mrs. Moses, Mrs. Lowenthal, Mrs. Eisendrath and Mrs. Loeb - the latter the mother of the famous criminal boy. This is a delightful woman, and I think courageous to appear socially."⁴⁷¹

The New Music Society of California and *New Music* helped situate Cowell at the centre of the modern arts and music network based in New York. Already acquainted from earlier visits east, Cowell cemented a lifelong, though often contentious, personal and professional relationship with Varèse when he programmed the latter's *Octandres* for the first New Music Society concert in 1925.⁴⁷² Rudhyar, who had passed through Bohemian circles in his travels across North America following his arrival from France in 1916, eagerly introduced Cowell to his modernist and Theosophical friends. "The messenger of my welcome is my dear friend Henry Cowell," he wrote to modern dance pioneer Ruth St. Denis in New York. "I believe in his god within. It is a great tone-filled god and his songs have already power and life."⁴⁷³ *New Music* might not have even been possible had it not been for Lederman's support and cooperation. Lederman mailed Cowell the League's complete mailing list, as well as the *Modern Music* subscription list the summer before *New Music* began publication.⁴⁷⁴

⁴⁷¹ Cowell, letter to Olive and Harry Cowell, 24 November 1925, The Henry Cowell Papers, Box 18, Folder 18.

⁴⁷² Varèse, letter to Cowell, 7 June 1925, The Henry Cowell Papers, Box 16, Folder 10.

⁴⁷³ Rudhyar, letter to Ruth St. Denis, 24 November 1926 or 27, The Henry Cowell Papers, Box 13, Folder 17.

⁴⁷⁴ Lederman, letter to Cowell, 9 July 1927, typescript, Henry Cowell Papers, Box 132, Folder 8.

Yet Cowell was acutely conscious of factions and divisions within the community of American composers. Ruggles repeatedly warned his friend of the machinations of what he considered to be a self-satisfied East Coast musical elite. "I agree with Adolph [Weiss] and [Carlos] Salzedo that it is a great mistake to have that filthy bunch of Juillard (sic) Jews in the Pan American [Association of Composers]," he wrote of one controversy. "They are cheap, without dignity and with little, or no talent. That Berger is impossible. They will double cross you Henry, I'm sure, in every possible way."⁴⁷⁵ Nevertheless, Cowell had an uncanny ability to navigate the personalities and factions in the modern music world. Reis invited him to join the League of Composers' Advisory Board for this reason. "... I want to discuss with you the furthering of the spirit of good will amongst the various New York groups, and as you have managed so successfully to be party to all, I think you can well act as an ambassador of good will amongst various composers," she wrote to Cowell in 1928. "I have made a little progress myself in this direction this Spring, which I believe will prove successful in the future. It seems unnecessary to have a division of feeling regarding the cause for contemporary music."⁴⁷⁶

Yet not all of his colleagues were convinced. By the beginning of the 1930s, the aesthetic and theoretical differences, not to mention simple differences in attitude, between the ultra-modernists of the West Coast and the neo-classicists of the East Coast were still great. In his survey of "America's Young men of Promise" in 1926, Copland sniffed that "Cowell is essentially an inventor, not a composer."⁴⁷⁷ Sessions agreed. Finding his theoretical ideas incomprehensible, he peevishly complained that Copland had included Cowell's trio *Paragraphs* in the second season of their concert series. "I

⁴⁷⁵ Ruggles, letter to Cowell, 21 June 1933, Henry Cowell Papers, Box 13, Folder 21.

⁴⁷⁶ Reis, letter to Cowell, 25 May 1928.

⁴⁷⁷ Copland, "1926: America's Young Men of Promise," 174.

know nothing of Henry Cowell's music, but I have instinctive doubts," he wrote. "These doubts come entirely from various articles which I have read, or rather tried to read, in [*Modern Music*]; and these articles have seemed really unbelievable in their amateurishness."⁴⁷⁸

Cowell spent a considerable amount of time in New York after 1930, and was an energetic participant in the League of Composers, but he had doubts of his own, and was well aware of the continental divide. He found the neo-classicists of the East Coast lacking in originality and doubted the value of their work for advancing American modern music – an opinion he made clear in 1932.

The real division among the modern American composers now, a sharp one, is between those who regard music as something for the purpose of amusement, and those who regard it as a medium for expressing greater depths of feeling. The former group, that work together closely, is composed of men who have studied for the most part in Paris, and have become distinctly influenced by certain modern French philosophical trends. The latter group are, for the most part made up of men who have studied in America, and who, although often cruder in technique than the others, are building up a style distinctly rooted in the feelings and traditions of this country.⁴⁷⁹

Though East was East and West was West in the minds of many American composers at the beginning of the 1930s, the twain would soon, inevitably meet.

V. Music for Use

The First Festival of Contemporary American Music was held at the Yaddo artists colony in Saratoga Springs, New York, on the weekend of April 30-May 1, 1932.

Organized by the League, the festival featured works by American composers in three

⁴⁷⁸ Sessions, letter to Copland, 22 March 1929, ts., Aaron Copland Collection, Box 262, Folder 17.

⁴⁷⁹ Cowell, "American Composers," Proceedings of the Ohio State Educational Conference 1932, MSS 26, The Carl Ruggles Papers in the Irving S. Gilmore Music Library of Yale University, New Haven, CT, Box 1, Folder 17.

concerts. Copland, the festival director, selected them all.⁴⁸⁰ Since his full-time return to the United States in 1927, Copland had become the public embodiment of modern American music, through the Copland-Sessions Concerts, a steady stream of regular journal and newspapers articles, and an impressive list of compositions, including his first symphony, *Vitebsk: Study on a Jewish Theme* for violin, cello and piano, and his angular, technically demanding *Piano Variations*. By 1932, Copland's fame as a composer and advocate of modern music was nearing its peak. Of anyone in the League, he had the stature and authority to presume to represent modern American music.

Organizers expected the Festival to be the preeminent showcase of modern American music. Copland's selection articulated the dominance of the New York music scene and the importance of Europe to American modernism. Of the eighteen composers represented, nine had been Boulanger's students in Paris and seven others were fixtures in the New York music scene and regular participants in League events. Yet the roster also demonstrated how broad and cosmopolitan the modern music community had become. The concerts featured seven songs by Charles Ives, a rare sonatina by Oscar Levant and a suite for solo flute by the peripatetic Wallingford Riegger. Vivian Fine, known for her performances of music by Cowell, Rudhyar and Ives, performed her own compositions and the inclusion of Mexican composer Carlos Chavez demonstrated how expansive the definition of "American" had become, at least to the festival director.

The festival concluded with a conference on 2 and 3 May, attended by Copland, Blitzstein, Piston, Riegger, Fine, Delaney, Robert Russell Bennett, and Randall

⁴⁸⁰ Rudy Shakelford, "The Yaddo Festivals of American Music, 1932-1952," *Perspectives of New Music*, Autumn-Winter, 1978, 96.

Thompson.⁴⁸¹ Although the conference was called to address the future of the Yaddo festivals, discussions took an immediate detour into what made American music "American" and the need to create a new form. "It seems evident that there is a collective impulse in American music," Blitzstein opened the discussion. "And it may be more important to discuss the thing that American music has in common than, for instance, the economic situation of the American composer." With the full effects of the Great Depression felt across America, the economy was certainly on the participants' minds, but Blitzstein argued that the *identity* of American music took precedence. "I should like us to start discovering the distinctive qualities of American music. My proposal involves something in the nature of a school, and it concerns the problem of form."⁴⁸²

While his colleagues were less than enthusiastic about creating a school of American modernism – Riegger noted that the "formation of a school has always been the death-knell to creative vitality" – they were inclined to consider the necessity of establishing new forms.⁴⁸³ For those composers most invested in neo-classicism, musical experimentation had pushed aesthetic boundaries to the breaking point, necessitating a formal retrenchment. "I think there is a definite need for a new form because of the state of tonality today," Piston argued. Blitzstein agreed, noting that any "new form would certainly have to be created in conjunction with a more stable sense of tonality than we have now." Even composers with more tenuous connections to the stream of French modernism, like Fine and Riegger, conceded that American music needed greater formal

⁴⁸¹ The participants are identified by their initials in the minutes, and Fine is identified as La V."

⁴⁸² "Composers' Conferences – Yaddo, May 2 and 3, 1932," First Conference Minutes, typescript, 2 May 1932, 1, Marc Blitzstein Collection, Reel 7.

⁴⁸³ "Composers' Conferences – Yaddo, May 2 and 3, 1932," First Conference Minutes, 2 May 1932, 2.

discipline to evolve further and to evolve as an explicitly American art. "Form," Copland said, "is the expression of civilization."⁴⁸⁴

No broadly-embraced, uniquely American form emerged from this or any other conference. But the discussions at Yaddo were a high water mark of a unified community – indeed, a movement – of American modernism. Virtually all of the tendencies in American modernism were represented in the festival program and in the following conference, and the latter demonstrated that American modernism had become self-conscious as an *American* modernism. Yet the conference also reflected a growing consensus among a large group of composers that the time for experimentation, even that disciplined by neo-classicism, had passed. "It must be clear to everyone by now that composers are no longer testing new materials," Blitzstein wrote in 1934. The compositions of the radicals of the previous decade had become "a music of summing up, of distillation."⁴⁸⁵ Part of that, no doubt, was due to the maturity of the composers. A bigger problem, however, was the pressure of making a living as private patronage sources began to dry up. Earning enough of an income to eat, let alone continue composing, was an endemic problem for composers during the Great Depression. Thomson captured the situation in 1939. "They have engagements or they don't," he wrote. "If they don't, they take on pupils. If they can't get pupils they starve. If they get tired of starving, they can go on relief. Unemployed musicians of high quality and experience are shockingly numerous in America."⁴⁸⁶

⁴⁸⁴ "Composers' Conferences – Yaddo, May 2 and 3, 1932," First Conference Minutes, 2 May 1932, 3.

⁴⁸⁵ Blitzstein. "Towards a New Form," 213.

⁴⁸⁶ Thomson, "How Composers Eat," *Virgil Thomson, A Reader: Selected Writings 1924-1984*, Richard Kostelanetz, ed. (New York: Routledge, 2002), 19.

Some composers taught. Both Cowell and Blitzstein took engagements as lecturers at the New School, the latter also teaching at New York's Downtown Music School. Even Sessions, who had prized his professional and aesthetic autonomy during a decade of residence in Europe, turned to the classroom. His return to the United States was a shock. Sessions wrote to his protégé David Diamond that America "is a heartless place" and that patrons wanted quick and sound "returns on whatever [invest]ments they make."⁴⁸⁷ When Roy Dickinson Welch, a former colleague during Sessions' unhappy sojourn at Smith College, offered him a position at Princeton University in 1936, Sessions jumped at the opportunity.⁴⁸⁸

There were more composers than teaching positions and most took jobs where they could find them. Finding his concert career on the rocks, Antheil wrote a women's health column in *Esquire* magazine.⁴⁸⁹ He arrived in Hollywood in 1935 to score the Cecil B. DeMille western *The Plainsman*, beginning a two-decade career in motion pictures where he found he had to choose between art music and making a living. Once "you start you must continue, otherwise you're a has-been," he wrote, "and Hollywood is the place par excellence for cruelty to has-beens."⁴⁹⁰ The growing importance of the mass entertainment industry to American composers was already clear in a "Program of Music and Films" in one of the last Copland-Sessions Concerts in 1931, featuring works by Blitzstein, Sessions, Copland and Milhaud accompanying mostly experimental cinema.⁴⁹¹ There wasn't much money in experimental film scores, however, and Blitzstein was just

⁴⁸⁷ Sessions, letter to David Diamond, 10 August 1937, in Olmstead, 272.

⁴⁸⁸ Frederick Prausnitz, *Roger Sessions: How a "Difficult" Composer Got That Way* (New York: Oxford University Press, 2002), 152-153.

⁴⁸⁹ Antheil, 305.

⁴⁹⁰ Antheil, 294.

⁴⁹¹ Copland Sessions Concerts, "A Program of Music and Films," Program, 15 March 1931, Broadhurst Theatre, New York, NY, Aaron Copland Collection, Box 337, Folder 4.

"getting along on what Alma Wertheim gave me to do the film music, plus money from a lecture I just gave in Philadelphia."⁴⁹² The failure of a contract to perform his choral opera *The Condemned* in the Soviet Union, for which we has to receive a \$2000 fee, "was extremely trying" for Blitzstein.⁴⁹³

Blitzstein's opera, which was based on the trial and execution of Nicola Sacco and Bartolomeo Vanzetti, marked a political and aesthetic shift among American modernist composers. In *The Cultural Front*, Michael Denning notes that the execution of Sacco and Vanzetti was a definitive turning point for many progressive-minded Americans and a kind of foundation myth for the mobilization of the Left in the Popular Front of the 1930s.⁴⁹⁴ Even the normally apolitical Sessions wrote to Massachusetts governor A.T. Fuller to express his outrage, and his letter was printed in the Boston *Evening Transcript*. If "I had known that it would be, I should have used more picturesque language," he wrote to Slonimsky, who was then considering applying for American citizenship. "I can't tell you how this wretched business has affected me, and I can well understand hesitation in becoming an American citizen – only too well."⁴⁹⁵ For many Americans, the executions signaled a bankruptcy of American institutions made all the more evident by the expanding crisis of the Great Depression.

Many New York-based composers turned their energies to what Copland called the "cultural front," a mobilization of artists in the cause of proletarian revolution.

Together with Cowell, Seeger and Blitzstein, Copland helped formed the Composers'

⁴⁹² Blitzstein, letter to unidentified correspondent, 5 February 1931, Marc Blitzstein Papers, Reel 2.

⁴⁹³ Eva Goldbeck, letter to Eduard Goldbeck and Lina Abarnabell, 16 January 1933, Marc Blitzstein Papers, Reel 2.

⁴⁹⁴ Michael Denning, *The Cultural Front: The Laboring of American Culture in the 20th Century* (London: Verso, 1997), 59.

⁴⁹⁵ Sessions, letter to Slonimsky, 8 September 1927, Nicolas Slonimsky Collection, Box 158, Folder 45.

Collective of the Pierre Degeyter Club of New York, a Communist Party-affiliated organization named after the composer of the *Internationale*. The Collective's first project was *The Workers' Song Book 1934*. "Every participant in revolutionary activity knows from his own experience that a good mass song is a powerful weapon in the class struggle," Copland wrote. "No other form of collective art activity exerts so far-reaching and all-pervading an influence."⁴⁹⁶ Yet it was not necessarily a simple matter for modernist composers accustomed to testing aesthetic boundaries to compose for a mass, often untrained audience. Blitzstein's submission to the *Song Book* was rejected for just this reason. "I think you would be wise to try things for the concert stage until you come back," Seeger wrote. "The mass song, which is to be sung by large crowds not because it is taught to them, but because they have heard it and want to sing it, has some definite limitations that you must know about before trying again."⁴⁹⁷

Denning notes that this aesthetic activism can be understood as an uneasy alliance "of the *moderns*, the *émigrés*, and the *plebeians*."⁴⁹⁸ Copland, for one, was acutely conscious of the constraints that the demands of a political mass audience placed on his music. "Composers will want to raise the musical level of the masses," he wrote, "but they must be ready to learn from them what species of song is most apposite to the revolutionary task."⁴⁹⁹ His cosmopolitanism, already evident in his interest in jazz, led him to a lifelong fascination with the popular music of Latin America. American composers also had a model of politically-engaged music for a mass audience in the German composers who had begun to arrive following the Nazis' assumption of power in

⁴⁹⁶ Copland, "Workers Sing!" *Aaron Copland: A Reader*, 88.

⁴⁹⁷ Seeger, letter to Blitzstein, 18 July 1934, Marc Blitzstein Papers, Reel 3.

⁴⁹⁸ Denning, 58-59.

⁴⁹⁹ Copland, "Workers Sing!" 89.

1933. By 1935, both Eisler and Weill had come to New York, bringing their *Gebrauchsmusik* with them.

Ironically Blitzstein, the American soon to be most identified with political music theatre and *Gebrauchsmusik*, was not initially impressed. "... *Gebrauchsmusik* is apparently doomed," he wrote. "Once the theory was formed, look at the style of music it brought forth! Music which abjectly copied what the mob had *already learned* to like."⁵⁰⁰ He soon revised his assessment as his politics turned to the left., Eisler began to exert a strong influence on the members of the Composers' Collective following his arrival in New York early in 1935. The Pierre Degeyter Club sponsored a concert of his works that March.⁵⁰¹ Copland and Cowell shared the stage with Eisler the following December for a lecture-concert on "Music in the Crisis."⁵⁰² Copland enthusiastically embraced both the promise and limitations of *Gebrauchsmusik* for his first opera, *The Second Hurricane*, composed for a student performance in April, 1937.⁵⁰³

In his "Music Manifesto," published in *New Masses* in the summer of 1936, Blitzstein publicly announced break from modernism with savage attack on "ivory-tower, wish-fulfillment artists." He held up Eisler as the model of a new kind of composer, one "whose job carries him to the meeting hall, the street, the mill, the prison, the school-room and the dock." While he did not rule out the concert hall and opera house as appropriate venues, he announced that "the artist is not only an artist but worker, his responsibility to all workers shows itself in all his work."⁵⁰⁴ Blitzstein expressed this

⁵⁰⁰ Blitzstein, "Popular Music – an Invasion: 1923-1933," *Modern Music*, March-April 1933, 101.

⁵⁰¹ "Eisler Music Presented," *New York Times*, 3 March 1935, 29.

⁵⁰² "Activities of Musicians," *New York Times*, 24 November 1935, X7

⁵⁰³ Thomson, *American Music Since 1910*, (New York: Holt, Rinehart and Winston, 1970), 55.

⁵⁰⁴ Blitzstein, "Music Manifesto," *New Masses*, 23 June 1936, 28.

explicitly in his 1937 "political tract *singspiel*,"⁵⁰⁵ *The Cradle Will Rock*. Originally a production of the WPA's Federal Theater Project, *Cradle* was cancelled before its opening night, but a rogue production at the Venice Theatre turned it into a cause célèbre. Once Federal Theater had washed its hands of the show – "the government has decided to have nothing more to do with it," noted the *Times* – Orson Welles and producer John Houseman were free to mount a commercial production that opened on Broadway to rave reviews and brisk ticket sales. The *Times's* Brooks Atkinson wrote that Blitzstein had crafted "a remarkably stirring marching song by the bitterness of his satire, the savagery of his music and the ingenuity of his craftsmanship."⁵⁰⁶ It didn't make Blitzstein rich, but he made a living, and following the success of *Cradle*, he took Seeger's advice and concentrate his efforts on the Broadway stage.

Blitzstein also contributed scores for political documentaries like Willard Van Dyke's *Valley Town*; Copland provided the soundtrack music for Hollywood film adaptations of John Steinbeck's *Of Mice and Men* and Thornton Wilder's *Our Town*. In both cases, the composers eschewed challenging modernism for a more popular and populist idiom. Thomson, whose tuneful opera *Four Saints in Three Acts*, with an absurdist libretto by Gertrude Stein, was a smash hit of the 1934 Broadway season, found the financial rewards of theatrical success disappointing.⁵⁰⁷ He returned to France, remaining in his apartment on the Quai Voltaire in self-imposed exile throughout the early months of the Second World War. "As you read in the papers, there is more war just now than there was before," Thomson wrote to his mother a week after the German Army

⁵⁰⁵ Thomson, *American Music Since 1910*, 63.

⁵⁰⁶ Brooks Atkinson, "Marc Blitzstein's 'The Cradle Will Rock' Officially Opens at the Mercury Theatre," *New York Times*, 6 December, 1937, 19.

⁵⁰⁷ Steven Watson, *Prepare for Saints: Gertrude Stein, Virgil Thomson and the Mainstreaming of American Modernism* (New York: Random House, 1998), 317.

crossed into France. "Don't believe too much, however, because newspapers do exaggerate. I have not left Paris and I am not expecting to. I could leave on an hours notice if I thought it advisable, and I shall leave if I think that."⁵⁰⁸ Within the week, he was bound for a steamer that would take him to the United States.

Cowell ended the 1930s in San Quentin State Prison. The decade had been good to him in some ways. Cowell had established himself as a leading American composer with a prodigious number of experimental works throughout the 1930s. He supported himself with adjunct appointments at the New School, as well as at Stanford University and Mills College, dividing his year between residence in New York for the fall semester, returning to his native California for the spring. Through *New Music*, he cultivated his position among the community of American composers, and expanded the print magazine to include New Music Quarterly Recordings (NMQR) in 1934. Yet these successes brought unexpected challenges. His courses at the New School brought in progressively fewer students, resulting in the cancellation of one section in 1933.⁵⁰⁹ The recording venture attracted the predatory interest of Varèse and Salzedo. "How can V. and S. gain control of the NMQR?" an alarmed Seeger wrote. "For heavens sake keep it in your own hands."⁵¹⁰ And the venture was costly, adding to *New Music's* precarious financial situation. The magazine had become dependent on Ives's considerable largesse, and Cowell's letters to his benefactor invariably include pleas for more financial help. Joel Sachs notes that the "economic collapse had destroyed his performing career" which,

⁵⁰⁸ Thomson, letter to May Thomson, 23 May 1940, Virgil Thomson Papers, Box 87, Folder 4.

⁵⁰⁹ Joel Sachs, *Henry Cowell: A Man Made of Music* (New York: Oxford University Press, 2012), 205.

⁵¹⁰ Seeger, letter to Cowell, 14 March 1934, Henry Cowell Papers, Box 14, Folder 14.

combined with Cowell's inability to find a secure teaching position, made the economic strain almost unbearable.⁵¹¹

Cowell returned to California in the spring of 1936 to live in a cabin on his mother's property in Menlo Park, where he was arrested on 23 May for having sex with a 17-year-old boy. Awaiting arraignment, Cowell wrote several pages of notes to his father on his arrest and the accusations. Despondent, he declined release on bail, writing that "I am happy here." He was convinced that the prosecution had an open-and-shut case, and planned to plead guilty and throw himself on the mercy of the court. He simply wanted the ordeal to be over with as little fuss – and with as little public attention – as possible.⁵¹² Nevertheless, the case received considerable attention. Sachs notes that local newspapers gleefully descended on the story, publishing the lurid details extensively.⁵¹³

For the most part, Cowell's friends and colleagues closed ranks, offering their moral and, if necessary, financial support.⁵¹⁴ Even Copland, never a close friend, dashed off a letter shortly after returning from Mexico in the fall of 1936. "You must know -- because you know how you would feel if the situation were reversed," he wrote. "Whatever happens you must be brave -- the important thing is to triumph above every spirit-breaking experience. I hope our confidence and belief in you will help in some degree."⁵¹⁵ Ives was a different story. "Have you heard this hideous thing about Henry Cowell – that he has been guilty of Oscar Wilde practices – a crime in California, must stand trial & probably receive a long sentence?" Harmony Ives wrote to Ruggles' wife

⁵¹¹ Sachs, 271.

⁵¹² Cowell, "Some Ideas Concerning My Case," manuscript, Henry Cowell Papers, Box 127, Folder 6.

⁵¹³ Sachs, 278.

⁵¹⁴ Wallingford Riegger, letter to Cowell, 30 May 1936, Henry Cowell Papers, Box 125, Folder 5.

⁵¹⁵ Copland, letter to Cowell, 18 October 1936, Henry Cowell Papers, Box 3, Folder 12.

Charlotte. "If true I think it is the saddest thing in our experience."⁵¹⁶ Sadder still, after nine years of friendship and collaboration, the relationship between the two men was irreparably damaged. "A thing more abhorrent to Charlie's nature couldn't be found," Harmony wrote a week later. "He will never willingly, see Henry again – he can't – He doesn't want to hear of the thing."⁵¹⁷

Sentenced to a maximum of fifteen years, Cowell arranged to have *New Music* continue publication under the direction of Gerald Strang.⁵¹⁸ Clearly at a loss, Ives finally wrote to Cowell at San Quentin, assuring him that he would continue to support the magazine.⁵¹⁹ Cowell gave music lessons to his fellow inmates, continued to compose and directed concerts of the prison band. "I am doing a great deal of musical work here, now," he wrote to Lederman at the end of 1937. "In the winter term, the registration of music students in my classes has been 255, besides the many whose correspondence lessons I read. Today, I conducted a program of recorded music- the first one ever held here."⁵²⁰ He remained busy, received mail from colleagues and admirers and occasional visitors, but prisoner mail restrictions limited his ability to continue to participate in the main streams of modern music. He expressed his deepest gratitude to Lederman for her gift of a subscription to *Modern Music*. It was his "only contact, besides letters from friends, with the world of contemporary music in the country."⁵²¹

VI. Coda: John Cage

⁵¹⁶ Harmony Twichell Ives, letter to Charlotte Ruggles, 3 July 1936, photocopied transcript, The Charles Ives Papers, Box 31, Folder 11.

⁵¹⁷ Harmony Twichell Ives, letter to Charlotte Ruggles, 12 July 1936, photocopied transcript, The Charles Ives Papers, Box 31, Folder 11.

⁵¹⁸ Harmony Twichell Ives, letter to Charlotte Ruggles, 3 July 1936.

⁵¹⁹ Ives, letter to Cowell, undated, Henry Cowell Papers, Box 9, Folder 26.

⁵²⁰ Cowell, letter to Lederman, 24 December 1937, Modern Music Archives, Box 2, Folder 12.

⁵²¹ Cowell, letter to Lederman, 24 December 1937.

In 1937 John Cage enunciated his credo on the future of music. "Wherever we are, what we hear is mostly noise," he wrote. "When we ignore it, it disturbs us. When we listen to it, we find it fascinating. The sound of a truck at 50 m.p.h. Static between the stations. Rain. We want to capture and control these sounds, to use them, not as sound effects, but as musical instruments."⁵²² The 25-year-old composer's words were subversive; he proposed almost nonchalantly to transgress – indeed, erase – the boundary between music and its other that gave music meaning and authorized its aesthetic value in 20th century America. Even if, by 1937, the greatest champion of aesthetic transgression was behind bars and most American modernists had settled into idioms contained safely behind the boundaries of aesthetic order – either in the populist styles of Copland and Blitzstein or in the increasingly academic abstractions of Sessions – Cage certainly had the models of his predecessors to draw upon.

Cowell's example was particularly important. Cage had studied with him at the New School during the 1934 fall term.⁵²³ The younger man paid for his tuition by working as Cowell's Teaching Assistant and sound recording engineer.⁵²⁴ By the end of the semester, they were on good enough terms for Cage to accompany Cowell on the cross-country drive to their home state of California.⁵²⁵ Although the latter was not a direct mentor, they continued to correspond during the latter's imprisonment. Cage wrote Cowell shortly after his arrest to offer encouragement and ensure his friend that "you may know that I am stronger than ever your friend."⁵²⁶ They shared a desire to push beyond

⁵²² John Cage, "The Future of Music: Credo," *Silence*, paperback edition (Cambridge: MIT Press, 1966), 3.

⁵²³ The New School for Social Research, Enrollment Record, Course No. 80 – Primitive and Folk Origins of Music, Fall 1934, Henry Cowell Papers, Box 163, Folder 13.

⁵²⁴ Kostelanetz, *Conversing with Cage* (New York: Routledge, 2003), 7.

⁵²⁵ Leta E. Miller, "Henry Cowell and John Cage: Interactions and Influences, 1933-1941," *Journal of the American Musicological Society* 59, Spring 2006, 60.

⁵²⁶ Cage, letter to Cowell, 18 June 1936, Henry Cowell papers, Box 2, Folder 19.

conventional musical boundaries, and an interest in percussion and unconventional sound sources. Writing from prison, Cowell expressed his delight that Cage was as interested in percussion, and offered to lend him his considerable collection of percussion instruments – including the Rhythmicon – that he had scattered in various locations across the country. Indeed, Leta E. Miller notes a sustained "interaction between the two composers in nearly every area Cage explored during the 1930s and 1940s."⁵²⁷

For all that they had in common, however, Cage approached the boundaries from a different angle. He had studied with the masters – Schoenberg at Cowell's suggestion, and Cowell himself – but his aesthetic inclinations included a broad range of non-musical interests as well. He assisted and composed music for avant-garde filmmaker Oscar Fischinger, while "moving bits of colored cardboard hung on wires" for one of Fischinger's films, the filmmaker said something that made a great impression on Cage. "He said that everything in the world has a spirit which is released by its sound, and that set me on fire, so to speak."⁵²⁸ It was a revelation that seemed to open up a whole world of aural possibilities for the young composer. "I began to tap everything I saw," he recalled. "I explored everything through its sound."⁵²⁹ Schoenberg had taught Cage the importance of structure; Cowell introduced the possibilities of rhythm, percussion, recording technology and transgression. This new investigation opened up the whole world of sound.

By 1940, after organizing a series of West Coast percussion concerts and having established himself as a lecturer at Mills College, Cage set out to explore the world of sound by establishing an experimental music laboratory. He excitedly informed Cowell,

⁵²⁷ Miller, 49.

⁵²⁸ Kostelanetz, 8.

⁵²⁹ Kostelanetz, 43.

now released from prison, that Mills College president Aurelia Reinhardt "was very interested in the project and particularly in the development of electronic music. She has written a letter to RCA, Bell, and General Electric. And suggested letters to Guggenheim and Carnegie Corp. which I wrote." As interested as Reinhardt might have been, Cage drily added that "Mills wants the 'center' of experimental music but cannot pay for it." In the meantime, there was competition for what were, in 1940, still scarce resources for music research, with Laszlo Moholy-Nagy attempting to establish a similar center at the School of Design in Chicago, though he was just as unfunded.⁵³⁰ Cage continued to pursue the project through the summer of 1940, making proposals to C.G. Conn, Ltd., an Elkhart, Indiana-based band instrument company, Edsel Ford and even to Walt Disney.⁵³¹ By the end of the year, still waiting to hear from Stokowski and Iowa University, the prospects looked dim, and Cage was ready to abandon the project. "It is almost a month since I have heard from Iowa University," he wrote to Cowell. "They are really the only possibilities left. Otherwise it is a case of talking and playing the records more or less uselessly."⁵³² Twelve months before the United States entered the Second World War, Cage was determined to launch an assault on the boundaries of music and liberate sound. The means still seemed just out of reach, but he was already listening for noise.

⁵³⁰ Cage, letter to Cowell, 8 August 1940, Henry Cowell Papers, Box 2, Folder 19.

⁵³¹ Cage, letter to Cowell, 12 September 1940, Henry Cowell Papers, Box 2, Folder 19.

⁵³² Cage, letter to Cowell, 25 November 1940, Henry Cowell Papers, Box 2, Folder 19.

CHAPTER 4
AN AURAL PLAGUE

I. Farmer Causby's Chickens

The landing approach of a B-24 Liberator bomber was an awesome sight. It was also an overwhelming experience of sonic overload. With a 110-foot wingspan and a landing weight of more than 18 tons, the Liberator displaced a phenomenal amount of air as it sped toward the landing strip at 100 knots, with flaps down and every metal plate and rivet groaning from the strain. Each of the bomber's four 1000 horsepower Pratt & Whitney Twin Wasp engines produced more than 110 decibels of sound — a noise level that produces permanent hearing damage — at a distance of 300 feet. On this night in the spring of 1945, B-24s passed so low over Thomas Lee Causby's poultry farm outside Greensboro, NC that they "flicked leaves off the oak trees in the yard."⁵³³

The noise was deafening. The Causbys' farmhouse shuddered and windows rattled. The din shook the family from their sleep and the baby wailed. Out in the coop, Causby's terrified flock of Leghorns flew about wildly and "committed suicide by dashing into the walls of the henhouses."⁵³⁴ Nor was this the first time the noise of military aircraft landing and taking off at Greensboro-High Point Municipal Airport a half-mile away had disturbed the Causby's and scared the chickens literally to death. Ever since the United States Army Air Corps had taken out a lease on the facility in 1942 increasing numbers of larger and larger aircraft were flying at lower altitudes over the Causby farm. With the

⁵³³ Dillard Stokes, "Supreme Court Hears Story Of the Very Unhappy Chickens," *The Washington Post*, 2 May 1946, 1.

⁵³⁴ "Chicks Scared to Death so U.S. Must Pay," *The Washington Post*, 28 May 1946, 2.

war against Germany reaching a climax in 1944 and 1945, the Army had begun to use the Greensboro-High Point airport as a vital distribution point for ferrying military aircraft to Europe and transporting troops from the Greensboro Overseas Replacement Depot to the front lines.

The airport itself wasn't the problem. It had opened in 1927, with regular passenger service — the first in North Carolina — commencing in 1930. The Piedmont was hardly a hub of air traffic. At the prewar peak of civil aviation in the United States in 1930, there were only 600 commercial aircraft in operation in the whole country, each flying an average of 169 miles every day.⁵³⁵ And in the days before radar, when airports like Greensboro-High Point were little more than a grass field with a control tower, the vast majority of those flights took place during daytime hours. Like most Americans at the time, Tom Causby probably welcomed the occasional thrilling sound of a Ford Trimotor landing nearby as a signal of progress and American ingenuity. However, when the Army Air Corps took over the facility in 1942, everything began to change. The flights over his farm became far more frequent and the heavy military aircraft flew much lower than before. Moreover, they took off and landed at all hours. The Causbys lived "in a state of constant uneasiness and that they [were] unable to sleep at night due to the noise of the planes passing over their house and to the glare of their lights."⁵³⁶

By the spring of 1945, after more sleepless nights than he could count, and the mass suicides of his chickens, Causby had had enough. He sued the United States government in the North Carolina Court of Claims demanding compensation for taking an easement on his property. The Causbys testified that "the fertility of their chickens was

⁵³⁵ U.S. Census Bureau, *Statistical Abstract of the United States for 1937*, 403.

⁵³⁶ *Causby v. United States*, 60 F. Supp. 751 (N.C. Cl. 1945).

so decreased, and that so many of them were killed as a result of fright that their business became so unprofitable that they had to abandon it." Moreover, Causby's counsel, local attorney William E. Comer argued that the Army Air Corps had taken an easement by passing over the farm under the ancient common law doctrine of *cujus est solum ejus est usque ad coelum et ad inferos*: "a landowner not only owns the surface of his land, but also owns all that lies beneath the surface even to the bowels of the earth and all the air space above it even unto the periphery of the sky."⁵³⁷

The law does not conceive of property as a two-dimensional figure on a map, but as three-dimensional space. In practice, this doctrine allows property owners to build buildings into the space above their land, and claim rights to mineral and water resources contained beneath it. By flying over the farm, the Army Air Corps had transgressed the boundaries of Causby's legally-protected space and not merely his land. While the court recognized the necessity of allowing the Air Corps right of way – the airport was inaccessible *except* by passing through someone's space – it judged that the noise and inconvenience caused by low-flying aircraft was sufficient to justify compensation for the easement. Given that the government lease was due to run until 1967, and showed no inclination to reduce or redirect its overflights, the court found "that the defendant appropriated this easement unto itself permanently, not temporarily, and that the plaintiffs are entitled to recover, if at all, on this basis."⁵³⁸ Causby was awarded \$2,000 in damages.

The implications of the judgment were dire for the US government and for the growing commercial air transportation industry. After a slump at the height of the Great Depression and throughout the Second World War, civil aviation not only recovered, but

⁵³⁷ Causby v. US.

⁵³⁸ Causby v. US.

was enjoying a booming business. By 1946, there were 819 commercial aircraft in service in the United States, carrying 13 million passengers and almost 86,000 tons of cargo annually. The commercial air transport industry employed almost 70,000 people — including 5,712 pilots — at almost 4,500 airports around the country and raked in more than \$17 million on passenger flights alone.⁵³⁹ It was no secret that the industry was on a sharp growth trend, and with the enthusiastic adoption of jet propulsion by the military it was only a matter of time before commercial air carriers began using jets of their own. More and much noisier aircraft would be flying over American homes and farms in the very near future; the US government was somewhat less than thrilled at the prospect of having to compensate every property owner who might get annoyed by aircraft noise.

Washington dug-in and appealed, fighting a court battle that was heard by the Supreme Court in May, 1946. The seven justices were faced with a difficult dilemma. On one hand, they could not overturn the lower court decision without challenging the doctrine of *cujus est solum ejus est usque ad coelum et ad inferos*. On the other hand, the precedent set in *Causby v. US* promised to severely limit the expansion of civil and military aviation. In a landmark split decision, with Justice Hugo Black dissenting, the court noted that the common law doctrine

has no place in the modern world. The air is a public highway, as Congress has declared. Were that not true, every transcontinental flight would subject the operator to countless trespass suits. Common sense revolts at the idea. To recognize such private claims to the airspace would clog these highways, seriously interfere with their control and development in the public interest, and transfer into private ownership that to which only the public has a just claim.⁵⁴⁰

⁵³⁹ U.S. Census Bureau, *Statistical Abstract of the United States, 1947* (Washington: Government Printing Office, 1948), 549.

⁵⁴⁰ *US v. Causby*, 328 U.S. 256 (1946).

Nevertheless, the court found that Causby's claim did not rest only on the question of whether Army Air Corps aircraft *physically* trespassed his property. The real issue was *how* that trespass had occurred.

Even though the air had become "a public highway," the court found that, in order for a landowner to actually full enjoyment of his property "he must have exclusive control of the immediate reaches of the enveloping atmosphere." If he did not, then he would have no legal right to build a house, plant trees, set up a fence, or erect anything over the plane of his property. That would be true even if he built no structures at all, and any disruption of the immediate space over the property, whether or not it directly and physically interfered with the use of the space over the property, would constitute a "partial taking" if it did disrupt the owner's enjoyment and use of it. "We would not doubt that, if the United States erected an elevated railway over respondents' land at the precise altitude where its planes now fly, there would be a partial taking, even though none of the supports of the structure rested on the land," the decision read. "The reason is that there would be an intrusion so immediate and direct as to subtract from the owner's full enjoyment of the property and to limit his exploitation of it."⁵⁴¹ Although the compensation was reduced to \$2000, Causby had won.

Although it might not have been apparent to the parties in the courtroom, *US v. Causby* reflected a dramatic shift in the rhetorics of progress, technology and noise. The sound of one aircraft had been a cause for wonder and excitement before the Second World War. It had been an exceptional moment in which the listener would experience the technological sublime. But the proliferation of aircraft during the war had changed that. What had once been the occasional, isolated buzzing of progress, had become the

⁵⁴¹ US v. Causby.

roar of squadron after squadron of dun-brown machines. The airplane had become unexceptional, evacuated of the sublime. As they proliferated airplanes and other technologies became, in effect, the technological mundane, and their sounds became simple noise – an irritant to be ignored if possible, and silenced if necessary. The Causby decision also highlighted the understanding that noise had something to do with space. It was an invasion, a trespass, a transgression of an irritant into a specific space. The reality of noise was that it was all about boundaries.

II. The Volume of Volume

A peculiar property of sound is that it has volume, both in the sense of its amplitude and the space that it occupies, as Hermann von Helmholtz noted in 1862. In *On the Sensations of Tone as a Physiological Basis for the Theory of Music*, he observed the "spherical propagation of sound in all directions through the atmosphere which fills all surrounding space."⁵⁴² Helmholtz established conclusively that sound is a material phenomenon. "By each train of waves of sound, the density of the air and position of the particles of air are temporarily altered," he wrote.⁵⁴³ And that materiality is fundamentally a function of the space it inhabits. " All these causes give rise to systems of waves which dart through the mass of air in the room, are reflected from its wall, return, strike the opposite wall, are again reflected, and so on until they die out."⁵⁴⁴ Indeed, sound could not be understood – literally made no "sense" – outside of the space in which it was produced and transmitted. The medium was, certainly in this case, the

⁵⁴² Hermann von Helmholtz, *On the Sensations of Tone as a Physiological Basis for the Theory of Music*, trans. Alexander J. Ellis, third edition (London: Longmans, Green and Co., 1895), 9.

⁵⁴³ Helmholtz, 27.

⁵⁴⁴ Helmholtz, 26.

message, and the medium was atmospheric space. Although he did not say it outright, Helmholtz's research suggested that sound *is* space.

While the properties of sound in enclosed spaces had been a topic of considerable interest to musicians, impresarios and auditorium designers throughout much of the 18th and 19th century, it entered the modern age when in 1895 Harvard University engaged physics professor Wallace Sabine to improve the appalling acoustics of the lecture hall in the university's newly-built Fogg Art Museum.⁵⁴⁵ Eschewing the subjective and qualitative approach employed by his predecessors, Sabine mobilized all of the rational and technological tools then at his disposal to measure the acoustical properties of the hall with exacting precision:

The professor set up an organ pipe as a sound source of constant pitch and loudness and installed a suitable chronograph for recording duration. When the pipe was intoned in the empty lecture room and suddenly stopped, the chronograph showed that 5.6 seconds had elapsed before the sound faded to a millionth of its original strength—the point at which sound is rated inaudible. This period was defined as 'time of reverberation.'⁵⁴⁶

Carefully repeating his experiments in the lecture hall and other Harvard auditoriums, Sabine discovered that reverberation, the property of a sound to persist in a confined space even after its original source was silenced, was both measurable and predictable. Moreover, he concluded that this reverberation was "a factor of no little importance" to the acoustics of a given space.⁵⁴⁷ Indeed, it was of the utmost importance since, Sabine observed, it was the persistence of reverberation more than anything else that obscured subsequent sounds, making them less intelligible, and caused acoustic interference.

⁵⁴⁵ Thompson, 34.

⁵⁴⁶ George W. Gray, "The New Science of Sound," *Harper's Monthly Magazine*, June/November 1936, 426.

⁵⁴⁷ Wallace Clement Sabine. "Melody and the Origins of the Musical Scale," Vice Presidential Address to the American Association for the Advancement of Science, Chicago, 1907, in *Collected Papers on Acoustics* (London: Cambridge/Harvard University Press, 1922), 113.

Following additional experiments with sound dampening treatments and adjustments to the auditorium's interior architecture, Sabine concluded that, if reverberation was the culprit, then the space that contained it was the cause. "The duration of audibility of a sound depends on its initial intensity and on its pitch, to a small degree on the shape of the confined space," he later wrote, "and to a very large degree on the volume of the space and on the material of which the walls are composed."⁵⁴⁸ The acoustic properties of sound were, in effect, inseparable from the space that contained it. Sounds could thus be controlled by isolating and controlling the auditorium space.

Impressed by his success in taming Harvard's unruly Fogg Auditorium, the Boston Symphony hired Sabine as an acoustical consultant for the design and construction of Symphony Hall in 1897. Thompson notes that the new concert hall represented the ideals of late-19th century serious music. "Control was the key," she writes, "it was not meant to be fun."⁵⁴⁹ Music was meant to elevate rather than amuse, to excite the intellect rather than the passions, and Symphony Hall embodied nothing, if not cool-headed rationality. "So far as I have been able to learn," Frank Waldo wrote in *The World To-Day*, "in the construction of no other hall has the problem of acoustic properties of the hall been so systematically worked out as in the case of the new Boston Music Hall, which has been named Symphony Hall..."⁵⁵⁰ Whether or not Sabine's design was successful, the new concert hall was heralded across the United States as an achievement as sublime as the music it contained. "This splendid structure now becomes the temple in which Boston's music lovers bow in adoration before the works of the classic masters of orchestral music and the modern romanticist who are advancing along

⁵⁴⁸ Sabine, 114.

⁵⁴⁹ Thompson, 49.

⁵⁵⁰ Frank Waldo, "Acoustics of Music Halls," *The World To-Day*, Chicago, August 1902, 1627.

the art path opened by them," the *New York Times* gushed in a front-page story shortly after its inaugural concert.⁵⁵¹ Newspapers in other cities expressed envy. Following a glowing description of Boston Symphony Hall, the music columnist in the *San Francisco Call* ruefully noted that the "preceding concise and interesting account of the new Symphony Hall is pathetically suggestive of the present turn of affairs symphonic in San Francisco."⁵⁵²

By the time of Sabine's death in 1919, he had been acknowledged as the founder of an entirely new branch of physics, architectural acoustics.⁵⁵³ The excitement in popular media, as much as in the scientific and engineering journals, was palpable. Though scientists and natural philosophers had been theorizing about its nature since the time of Pythagoras, George W. Gray would note in *Harper's* in 1936, the science of acoustics had finally unlocked the secrets of sound – to the point where what had once been ephemeral and immaterial could now be brought under human control.

And in the last decade, with the swift rise of the radio and the talkies and their accelerating demands upon the laboratory, so much that is new has been discovered and so much that was old has been rescued from guesswork that acoustics to-day may be said to be one of the youngest of the sciences... Engineers are putting the more precise knowledge to work in new musical instruments, in new stratagems for enhancing the auditory characteristics of rooms, and in clever schemes for reducing the noise nuisance.⁵⁵⁴

Expressing the rationalist spirit of the machine age and unquestioning faith in progress, champions of the new science, and concert and theatre-goers alike embraced the promise of acoustics. And why not? Science and reason could tame sound as surely as it had tamed electricity and flight – a truth clear to the millions of Americans who marveled at

⁵⁵¹ "Boston's Beautiful New Home of Music," *New York Times*, 16 October 1900, 1.

⁵⁵² "Some Notes and Strains from the World of Music," *The San Francisco Call*, 4 November 1900, 22.

⁵⁵³ Clifford Melville Swan, *Architectural Acoustics* (New York: Johns Manville Inc., 1921), 3.

⁵⁵⁴ Gray, 421.

the new concert and theatre venues constructed in the 1920s and 1930s, including the "new Madison Square Garden, Radio City Music Hall, and Center Theatre in New York."⁵⁵⁵

Sound was equated with space, and acoustic space was invariably defined in a rhetoric of control. Acoustic scientists began speaking about "sound fields" in the early 1930s. The term first emerged in the proceedings of the Acoustical Society of America's 1933 conference, in a paper presented by RCA Victory Company researchers Irving Wolff and Francis Massa on "Direct Energy Measurement of Sound Density and Sound Energy Flux in a Complex Sound Field."⁵⁵⁶ However, the "sound field" had a highly-specific meaning; sound might have a spatial existence, but that space was explicitly enclosed and contained. Lamenting "the difficulty of obtaining a convenient location, sufficiently free from extraneous noise" in an uncontrolled environment outside of the laboratory, E.H. Bedell of Bell Telephone Laboratories designed a "free-field" laboratory to isolate the "sound field."⁵⁵⁷ In constructing a facility that would make the "sound field" intelligible, investigable, and therefore real, "the important thing is the degree of departure from open air conditions."⁵⁵⁸ Not only was sound inseparable from space, but the space – enclosed and controlled – defined the "sound field."

While sound needed to be contained, rational acoustical management and design excluded noise. External to acoustic order, there was no room for it in the sound field. In his original paper in *American Architect*, detailing the design of Symphony Hall, Sabine inveighed against what he called "confusion of sounds." Control of resonance in a sound

⁵⁵⁵ Gray, 427.

⁵⁵⁶ "Program of the Sixth Meeting," *Journal of the Acoustical Society of America* 4, 1932, 317.

⁵⁵⁷ E.H. Bedell, "Some Data on a Room Designed for Free Field Measurements," *Journal of the Acoustical Society of America* 8, October 1936, 113.

⁵⁵⁸ Bedell, 114.

field would only succeed, he wrote, if noise were kept at bay. "Confusion may arise from extraneous disturbing sounds – street noises and the noise of ventilating fans – or from the prolongation of the otherwise discrete sounds of music or the voice into succeeding sounds."⁵⁵⁹ Bell Telephone Laboratories built Bedell's laboratory to study free sound fields not only to isolate a given space of sound, but also to address the difficulties that had made free-field experiments impractical – namely obtaining a location "free from extraneous noises."⁵⁶⁰ And it wasn't only acoustical engineers who sought to erect barriers against noise. By the early 1920s, the control of noise – always characterized as "extraneous" – had become synonymous with modern rational management. Writing in the journal *Hospital Management*, R.V. Parsons noted that noise control "has been reduced to an exact science and may be controlled with mathematical accuracy" by the new acoustical science. Indeed, it was the development of architectural acoustics and the innovation of sound-controlled space that had highlighted the problem: "The acuteness of the noise problem is largely due to the evolution which has been going on in building materials," he wrote.⁵⁶¹

By the mid-1930s, the exclusion of "extraneous" noise had become a central trope in what Thompson calls the discourse of "modern sound." The modern science of acoustics sought to produce and maintain a coherent aural order – free, Sabine noted, of confusion – but noise interrupted that order. "It is a remarkable fact that our hearing, like our other senses, is affected only by shocks," Sabine's German contemporary Siegfried Hansing wrote. All sound is a sequence of "shocks," the physical compression of the atmosphere in sound waves, but at the correct frequency and regularity, they merge

⁵⁵⁹ Sabine, "Reverberation," 13.

⁵⁶⁰ Bedell, 118.

⁵⁶¹ R.V. Parsons, "Eliminating Noise in Hospitals," *Hospital Management* 14, July 1922, 41.

together in "pure tone," as long as order is maintained. However, Hansing noted, "The interruption of a motion makes us aware of its existence."⁵⁶² By interrupting the consistent, regular processing of sound waves, noise created a noticeable, and audible shock. While Americans might thrill to the exciting sound of an aircraft engine and celebrate the wonders of modernity, this was only on the proviso that noise was kept in its place. "Air passengers of the 1920's were accustomed to stuff their ears with cotton before beginning a flight," Gray wrote in *Harper's* in 1936. "[S]uch insulation is no longer necessary, and noise meters report that the new 'sound proof' cabins of the modern airplanes are not more noisy than a Pullman car."⁵⁶³

From an acoustical perspective, noise was sound inimical to and independent of coherent sound. A new term crept into the acoustical lexicon following the Second World War, the "noise field." Sound was ordered, safe from the confusion of "extraneous noise," and contained in the space of the "sound field" behind protective barriers of soundproofing insulation, but noise was understood as an "acoustic radiation pattern" emanating from a free-standing source.⁵⁶⁴ It was autonomous rather than contained, and it produced its own space. The phrase first appeared in *The Journal of the Acoustical Society of America* in an article addressing "the sound generating mechanism and the radiation properties of the jet engine,"⁵⁶⁵ which they believed to be "one of the most powerful sound sources known."⁵⁶⁶ The researchers measured the sound produced by a turbojet of "a standard type frequently used today in the Air Force. It was mounted on an

⁵⁶² Siegfried Hansing, *The Pianoforte and Its Acoustic Properties*, 2nd Edition (Schwerin: Siegfried Hansing, 1904), 6.

⁵⁶³ Gray, 426.

⁵⁶⁴ H.W. Ades et al., *BENOX Report: An Exploratory Study of the Biological Effects of Noise*, (Chicago: The University of Chicago, 1953), 24.

⁵⁶⁵ H.E. von Gierke, H.O. Parrack, W.J. Gannon, and R.G. Hansen, "The Noise Field of a Turbo-Jet Engine," *Journal of the Acoustical Society of America* 24, March 1952, 169.

⁵⁶⁶ Von Gierke et al., 173.

outdoor thrust stand under practically free-field conditions."⁵⁶⁷ Using sensitive microphones and recording equipment and octave band filters to measure air pressure starting at 37.5 Hz, the researchers mapped out the intensities and pattern of the jet noise.⁵⁶⁸ The pattern of air displacement measured at any given frequency was a "smooth envelope," a predictable space defined by the "directivity patterns" of the noise source.⁵⁶⁹ The article was accompanied with diagrams of the noise measured at different frequencies which, combined represent the contours of aural space.

This was a space of danger. Noting that noise "is an unavoidable by-product of the power of modern machinery,"⁵⁷⁰ University of Chicago researchers who conducted a study on the "Biological Effects of Noise, Exploratory" (BENOX) for the United States Navy in 1952 nonetheless listed a catalogue alarming effects. Some, like difficulties of verbal communication, "aural pain" and temporary and permanent hearing loss, were already well known. Others, however, were startling. Exposure to an intense noise field produced "[m]anifestations of equilibratory and postural disturbance [including] vertigo, nausea, nystagmus and visual field shifting, feelings of forced movement, staggering and falling."⁵⁷¹ Electro-encephalogram (EEG) experiments found that "high intensity noise can stimulate the reticular activating system," producing "cephalically directed effects on central integration and diffuse activity of the cerebral cortex."⁵⁷² The physical manifestations of these neurological effects were blurred vision, muscle weakness, lost

⁵⁶⁷ Von Gierke et al., 170.

⁵⁶⁸ Von Gierke et al., 170. Sounds between about 20 Hz and 20,000 Hz are audible to the human ear. The lowest C note on a standard, 88-key piano sounds at 32 Hz.

⁵⁶⁹ Von Gierke et al., 171.

⁵⁷⁰ Ades et al., 7.

⁵⁷¹ Ades et al., 71.

⁵⁷² Ades et al., 76.

coordination and the "activation of the adrenal stress mechanism."⁵⁷³ In addition to psychomotor deficiency, however, the researchers observed that exposure to an intense noise field could result in the "impairment of higher brain functions" in subjects and the emergence of "mild or severe neurotic symptoms."⁵⁷⁴

In the noise field, an otherwise competent, well-trained individual could be reduced to a disoriented, quivering mess, unable to accomplish any complex task, or even think coherently, and prey to neurotic terrors. Indeed, the Benox researchers did not approach their study as an exercise in theoretical science. The biological effects of noise on humans, they noted, had "become more acute and urgent because of recent increases in power and the consequent increases in noise produced by the powerplants of modern higher-performance aircraft."⁵⁷⁵ With rapid introduction of carrier-based jet aircraft in the United States Navy following the Second World War, researchers and naval officers alike were alarmed at the potential of the noise field to interfere with crewmen's "mental and bodily functions so seriously as to reduce his military efficiency and thereby cause delays and accidents."⁵⁷⁶

Managers in civilian industry expressed identical concerns. "One of the most disturbing problems in industry today is that associated with the effects of noise on the worker and his performance," warned Charles Barron and Fenn Poole in 1952. The industrial workplace had never been quiet place, of course, but the problem "is becoming more acute with the increased use of noise-generating machinery, engines and power

⁵⁷³ Ades et al., 77.

⁵⁷⁴ Ades et al., 108.

⁵⁷⁵ Ades et al., 12.

⁵⁷⁶ Ades et al., 7.

tools."⁵⁷⁷ Indeed, those tools were proliferating at a phenomenal rate after the Second World War as equipment expenditures by American manufacturers rose 64 per cent from \$3.5 billion in 1949⁵⁷⁸ to \$5.7 billion in 1954.⁵⁷⁹ "The trend in all industries is to automating in production," the Department of Commerce observed in 1953. "The fewer labor hours expended, the lower the cost; consequently, industry is searching for ways and means to reduce labor hours. This has led to the development of more and more new machines and methods..."⁵⁸⁰

These machines were employed in virtually every facet of American business, from resource extraction and materials handling, to manufacturing and distribution. Although technological noise had once heralded the promised "World of Tomorrow," it had become a serious problem when that world finally arrived on America's shop floors. "If noise can be thought of as a necessary product of civilization, then noise is wasted sound, a sort of audible garbage heap," David Anderson wrote in *Today's Health* in 1956. "With the pounding growth of modern American civilization, the slamming together of the great cities, the mammoth technological strides of steel, stone and iron, there has been a gradual stepping up in clatter and clamor," he wrote. "Men have improved the hammer, but they haven't soundproofed it."⁵⁸¹ As the noise fields produced by industrial technology increasingly colonized the mechanized workspace, researchers like Barron and Poole warned of severe consequences to employee health. "In any given sound field,

⁵⁷⁷ Charles I. Barron and Fenn E. Poole, "Industrial Noise: Its effect and Control," *American Journal of Public Health* 42, June 1952, 705.

⁵⁷⁸ U.S. Census Bureau, *Statistical Abstract of the United States, 1952* (Washington: Government Printing Office, 1953), 785.

⁵⁷⁹ U.S. Census Bureau, *Statistical Abstract of the United States, 1957* (Washington: Government Printing Office, 1958), 799.

⁵⁸⁰ U.S. Department of Commerce, *Report of the Thirty-Eighth National Conference on Weights and Measures* (Washington: Government Printing Office, 1953), 16-17.

⁵⁸¹ David Anderson, "Industry Tackles the Noise Problem," *Today's Health*, June 1956, 39.

hearing loss varies directly with the duration of the exposure," they noted. "Since the effects of acoustic trauma are cumulative, reëxposure prior to complete recovery may also lead to permanent loss."⁵⁸²

The longer industry took to deal with the problem of workplace noise, the more serious its consequences would be. And it wasn't just industrial workers who were at risk. Corporate offices, with swelling a swelling managerial workforce, were deploying typewriters, document sorting devices and punch-card machines at a furious pace. Between 1950 and 1960, the production of office machines in the United States, primarily for the domestic market, swelled 61.5 per cent.⁵⁸³ All of that clatter threatened to destroy the hearing of American blue and white-collar workers alike; more importantly, it threatened to be very expensive to their employers. For the first time, Frank Kleiler noted in *The American Mercury*, workers were successfully suing their employers for financial compensation for hearing loss, even in cases in New York and Wisconsin where the damage was not total and the workers were able to resume work despite their injuries: "Employers are becoming worried because of the increasing number of claims filed, although there has not as yet been a large volume of money paid out for loss of hearing under workmen's compensation laws."⁵⁸⁴

Other, less direct, costs proved to be even more troubling. The United States Navy, American businesses were quickly coming to the conclusion that the psychological and neurological effects of exposure to and immersion in a noise field could seriously undermine employee productivity. Sam Hooper, of business machine manufacturer

⁵⁸² Barron and Poole, 707.

⁵⁸³ U.S. Census Bureau, *Statistical Abstract of the United States, 1962* (Washington: Government Printing Office, 1963), 773.

⁵⁸⁴ Frank M. Kleiler, "Industry Attacks Noise," *The American Mercury*, December 1955, 147.

Remington Rand, Inc., laid out the financial calculus in black and white, noting that noise was "on every payroll, to the aggregate of \$2,000,000 a day."⁵⁸⁵ Citing a study by the Aetna Insurance Company, Hooper that a reduction of office noise would result in 29 per cent fewer typing errors, 52% fewer machine operator errors, and would reduce employee turnover by 47%, resulting in a \$58 operation cost saving for every employee in one year.⁵⁸⁶ While efficiency experts disagreed on the scale of the costs associated with workplace noise, Kleiler observed that the apocryphal evidence was conclusive. One company, he noted, increased the efficiency of its assembly operation by relocating it to a quieter facility. "Assembly output increased 37.5 percent, and rejections dropped from 75 percent to seven percent" he wrote. "Another company, with an exceptionally noisy ventilating fan in its shipping room, quieted the fan by installing new bearings and sound-absorbing material. The output of work increased 12 percent."⁵⁸⁷ The logic of noise control was inescapable, and if the efforts of postwar managers and engineers were any indication, "the modern music representing the Machine Age will need to be rewritten to substitute *pianissimo* for *forte*."⁵⁸⁸

Noise in the Navy and the military, in offices and the shop floor, was bad enough. What made noise so much worse to Americans after the Second World War was that noise fields were not always static. A noise field was understood to envelop the noise source and since noise was produced by the most dynamic and deafening technologies of the era – notably automobile and aircraft engines – some of the largest and most intense noise fields were highly mobile. This meant that noise fields would not only colonize the

⁵⁸⁵ Sam L. Hooper, "A Noisy Office Costs Money and Efficiency," *The American City*, January 1952, 97.

⁵⁸⁶ Hooper, 97.

⁵⁸⁷ Kleiler, 148.

⁵⁸⁸ Kleiler, 149.

spaces of industry and business, but they would overlap and invade spaces of controlled sound. Noting that the noise field of an aircraft in flight is just as expansive as when it is at rest, the BENOX researchers concluded that noise mobility could be a serious problem. "The community noise problem is important because of the large area over which neighbors and personnel are exposed to moderate intensities of noise while the problem exists because of the very high intensities that are encountered in certain small but important areas,"⁵⁸⁹ they wrote. Indeed, with that in mind, "the most troublesome noise situation is likely to occur in those residences which are directly in line with the takeoff direction since at takeoff the plane will be at full power and will be a minimum distance from the residences."⁵⁹⁰

The BENOX researchers had good reason to be concerned. The United States was awash in noise after the Second World War. The cities, of course, had always been noisy places, but Americans had become particularly sensitive to "the unnecessary blaring of automobile horns, the clatter and bang of garbage cans in the early morning, the merciless cacophony of late-hour radios—all of these discordant sounds and many more inflict a peculiar torture of their own."⁵⁹¹ The most merciless of the torturers was the automobile. Since "the beginning of the automobile age," wrote Frederick Lewis Allen in *Harper's* in 1954, "the metropolis has repelled a considerable number of those whom it drew to it: repelled them with its noise, soot, fumes, barren pavements, traffic tie-ups, nervous pressures, and inhuman dimensions, and especially with the apparent unsuitability of the life it imposes on small children."⁵⁹² Indeed, the number of automobiles registered in the

⁵⁸⁹ Ades et al., 16.

⁵⁹⁰ Ades et al., 26-27

⁵⁹¹ "Quiet, Please," *New York Times*, 11 April 1955, 22.

⁵⁹² Frederick Lewis Allen. "The Big Change in Suburbia, Part I," *Harper's*, June 1954, 21-22.

United States had more than doubled since Great Depression, growing from 23 million registered 1930 to 52 million in 1955, and the number of trucks and buses had almost tripled, from 3.6 million to more than 10 million in the same quarter century.⁵⁹³ This was, James Patterson notes, an "automobile age on an unprecedented scale. New car sales in 1945 totaled 69,500. In 1946 they leaped to 2.1 million, in 1949 to 5.1 millions, a figure that broke the record of 4.5 million set in 1929. Sales kept going up, to 6.7 million in 1950 and to 7.9 million in 1955."⁵⁹⁴

Moreover, there were places for motorists to go. The automobile age was, not surprisingly, an era of unprecedented road building. Expenditures on new road construction almost tripled between 1947 and 1955 alone,⁵⁹⁵ with federally funded highway mileage growing from 422,000 miles to almost 1.3 million miles in the same period, even before the Interstate Highway Act of 1956.⁵⁹⁶

Yet even the open road was part of the noise problem, the largest part, according to some commentators.⁵⁹⁷ In a 1948 study, California Institute of Technology researcher Peter Kyropoulos, found that "the large volume of traffic encountered today and expected in the future" on the superhighways and parkways sprouting across the United States constituted a serious problem.⁵⁹⁸ Using audiometer equipment for the first time to measure both the volume and frequency of traffic noise, Kyropoulos concluded that sound analysis had become necessary to make "a reasonable estimate of the adverse

⁵⁹³ U.S. Census Bureau, *Statistical Abstract of the United States, 1957*, 552.

⁵⁹⁴ Patterson, 70.

⁵⁹⁵ U.S. Census Bureau, *Statistical Abstract of the United States, 1957*, 542.

⁵⁹⁶ U.S. Census Bureau, *Statistical Abstract of the United States, 1957*, 544.

⁵⁹⁷ Howard A. Rusk, M.D., "Abatement of Urban Noises Essential to Man's Welfare," *New York Times*, Jul 10, 1949, 45.

⁵⁹⁸ Peter Kyropoulos, "Traffic Noise," *Traffic Quarterly* 2 (1948), 31.

effects" of highway construction.⁵⁹⁹ And even then, the volume of traffic and its attendant din vastly outstripped those estimates. Within four years of its inauguration in 1950, for example, the New Jersey Turnpike was "carrying traffic loads predicted for 1970."⁶⁰⁰ That kind of traffic overload produced unexpectedly high levels of noise.

III. The American Dream, Upper Middle Class Suburban Division

Paradoxically, the automobile, and the highways it drove on, was also a means of liberation from noise. For many Americans, it promised escape to a location where they could "live *by* the city and yet *in* the country: to enjoy the power and glory of the city and yet at the same time, by daily travel, to enjoy quiet in place of its noise..."⁶⁰¹ Increasing numbers of Americans made that escape to the suburbs, which grew at an astonishing rate in the immediate postwar years. The construction of new non-farm single-family dwellings rose from 184,600 in 1945 to 1,154,100 in 1950, an increase of more than 500 per cent.⁶⁰² By 1955, home ownership had reached historic highs.⁶⁰³

The growth of the suburbs and the suburban middle class, was the product of both chance and design. The mobilization of American industry during the Second World War to provide for the "Arsenal of Democracy" had stimulated phenomenal economic growth and the expansion of American industry. But already by the spring of 1944, a full year before the end of the war in Europe, James F. Byrnes, the Roosevelt administration's Director of War Mobilization was speaking about the necessity to begin a program of "reconversion," which would redirect the wartime capacity of American industry,

⁵⁹⁹ Kyropoulos, 42.

⁶⁰⁰ W. Carman Davis, "The Garden State Parkway," *Traffic Quarterly* 8 (1954), 224.

⁶⁰¹ Allen, 22.

⁶⁰² U.S. Census Bureau, U.S. Census Bureau, *Statistical Abstract of the United States, 1952*, 726.

⁶⁰³ Patterson, 71.

stimulated by Washington's \$15.5 billion investment in new manufacturing facilities and equipment, into peace-time use.⁶⁰⁴ Postwar reconversion was predicated on the expansion of the domestic consumer market, and Byrnes assured American industry that "its efforts to expand after the war will not be frustrated and stalled at the outset by unemployment and falling purchasing power."⁶⁰⁵ Despite a brief postwar recession, the American economy hit the ground running following the Second World War, gaining momentum from an expanded and constantly expanding consumer market.

That much of the equation was design. The Servicemen's Readjustment Act of 1944, or G.I. Bill, ensured that the 14 million American veterans who returned home following victory in Europe and Asia, would return as eager consumers. The G.I. Bill was, according to Margot Canaday, "One of the most far-reaching pieces of social policy legislation in the second half of the twentieth century."⁶⁰⁶ It was created to address what sociologist Willard Waller called, in 1944, "the major social problem of the next few years:" the return and reintegration of America's fighting men.⁶⁰⁷ Waller voiced a concern that many Americans had shared: "they are our boys whom we delivered to Moloch; our finest and bravest, a whole generation of our men-children. We must somehow find the way to win them back."⁶⁰⁸

With its generous package of loans, educational funding, health care and unemployment insurance, the G.I. Bill was clearly the means to do that. But whatever its benefits for veterans themselves, the program clearly had larger goals, right from the

⁶⁰⁴ James F. Byrnes, "Reconversion," Speech, 12 April 1944, *Vital Speeches of the Day 1944*, 435.

⁶⁰⁵ Byrnes, 437.

⁶⁰⁶ Margot Canaday, "Building a Straight State: Sexuality and Social Citizenship under the 1944 G.I. Bill," *The Journal of American History*, December 2003, 935.

⁶⁰⁷ Willard Waller, *The Veteran Comes Back* (New York: The Dryden Press, 1944), 13.

⁶⁰⁸ Waller, 13-14.

beginning. Americans, and particularly veterans, would not be satisfied with postwar conditions "which do not provide full employment, and a maximum of job opportunities on our home front," Veterans Affairs Administrator, and G.I. Bill Czar, Frank T. Hines told the American Legion's 1944 national convention. The G.I. Bill, with the cooperation of American business and labour, would help bring about "the greatest era of peacetime prosperity and happiness, which this fruitful land of our has ever known."⁶⁰⁹

Within five years, President Harry Truman could boast that the "history of the United States is a story of constant economic growth and expansion," even with the Great Depression still a fresh memory. Indeed, the president noted that a "little more than ten years ago, President Roosevelt called for a national income of 100 million dollars a year. This was a surprising figure when he mentioned it, but we have far surpassed it in the space of ten years. Our national income last year was 225 billion dollars."⁶¹⁰ American growth and the rise of the standard of living since the war had been extraordinary. The president had every reason to expect it to continue.

By almost any standards, Patterson observes, "the postwar economic power and affluence of the United States were indeed amazing. With 7 percent of the world's population in the late 1940s, America possessed 42 percent of the world's income and accounted for half of the world's manufacturing output."⁶¹¹ The United States produced more steel, oil, electricity and consumer goods than any other country – and 80 per cent of the world's automobiles. Americans enjoyed the highest per-capital income in the world, by a wide margin and unemployment was almost nothing more than a statistical

⁶⁰⁹ Frank T. Hines, "G.I. Bill of Rights" speech 19 September 1944, *Vital Speeches of the Day 1944*, 57.

⁶¹⁰ Harry S. Truman, "Our Economic Situation," speech, 13 July 1949. *Vital Speeches of the Day 1949*, 605.

⁶¹¹ James T. Patterson, *Grand Expectations: The United States, 1945-1974* (New York: Oxford University Press, 1996), 61-62.

anomaly, estimated at "1.9 percent of the civilian labor force in 1945 and slightly under 4 percent from 1946 through 1948."⁶¹²

Mass production, stimulated by the reconverted wartime economy and industrial expansion, and mass consumption, empowered by near-full employment and the G.I. Bill benefits enjoyed by more than 7 million veterans, converged in a euphoric narrative of American success. "The American Dream, Upper Middle Class Suburban Division," eloquently crystalized by *Harper's Magazine*, seemed attainable to most.⁶¹³ The Fordist millennium predicted by Charles Beard and Robert Douglas Bowden and promised in the pages of *Popular Science* and *Good Housekeeping* for a decade and a half had finally seemed to arrive. President Truman sounded the clearest note: "The American people, going their own way, confident in their powers, have achieved the greatest prosperity the world has ever seen," he announced to Congress in the 1949 State of the Union address.⁶¹⁴

Maintaining and ensuring America's continued prosperity was an obligation of citizenship, and Americans were enjoined to exercise their citizenship *as* consumers. Walter J. Matherly, the dean of the University of Florida's school of business administration, enumerated the economic duties of citizenship in postwar America. To be sure, the traditional values of thrift and restraint remained, but amending and "mellowing" Theodore Roosevelt's "Strenuous Life" for the new era he added consumption to the list of a citizen's duties: "To earn money adequately; to save it consistently; to invest it wisely; to spend it intelligently." After all, the market was not one-sided. "It does not belong wholly to the sellers," he wrote. "Buyers are necessary.

⁶¹² Patterson, 62.

⁶¹³ "After Hours," *Harper's Magazine*, November 1949, 100.

⁶¹⁴ Truman, "State of the Union Address," 5 January 1949, *Vital Speeches of the Day 1949*, 41.

Wealth is created to satisfy human wants."⁶¹⁵ If the growth of the economy was any indication, Americans were doing their duty and satisfying their wants at a phenomenal rate. These were, Patterson writes, "above all, years of nearly unimaginable consumption of goods."⁶¹⁶

The most glorious emblems of American prosperity, and the engine of much of American mass consumption, as *Harper's* had suggested in 1949, were the automobile suburbs that sprouted everywhere in the United States following the War. The postwar suburb was a kind of utopia, or "eutopia" (though Mumford would have shuddered at the suggestion that his neologism would be used in that way) equipped with all of the modern conveniences that had thrilled the Middletons at the World's Fair. The rhetoric of reconversion and the narratives of America's mushrooming postwar prosperity articulated a prescription for a return to normalcy that focused squarely on the patriarchal family. Sixteen years of depression and war had upset the natural order.

The years of economic crisis and unemployment had put a pall on consumer spending and while the war economy had stimulated created ten million new jobs and "created a glittering consumer's paradise,"⁶¹⁷ this had come at a cultural, social and economic cost. Much of America's industrial capacity had been turned toward war production as Ford, Chrysler and General Motors welded hundreds of thousands of tanks and aircraft rather than sedans and station wagons. American women entered the industrial workforce in unprecedented numbers. Yet the image of Rosie the Riveter was counterpoised with a growing popular celebration of the importance of family. "During

⁶¹⁵ Walter J.Matherly, "Teddy Roosevelt Was Right," *The Rotarian*, September 1952, 32-33.

⁶¹⁶ Patterson. 70.

⁶¹⁷ David M. Kennedy, *Freedom From Fear: The American People in Depression and War, 1929-1945* (New York: Oxford University Press, 1999), 644-645.

the war, popular discourse portrayed women as workers and homemakers, wives and mothers," Bilge Yesil writes. "Women were shown to be able to work outside the home, yet were bound by it."⁶¹⁸ Their economic enfranchisement was both provisional and temporary – an abnormal exigency of the war. With peace, things were expected to return to normal.

IV. A Happy-Go-Spending World

The veterans of 1945 returned to a changed country. There were new opportunities and growing prosperity but everything – particularly in the home – seemed a little out of whack. American women might have made great strides in the workforce and political access during the war years, but with peace, the girls should be sent home. Former Illinois Governor and two-time presidential candidate Adlai E. Stevenson made it official, in his commencement address to the 1955 Smith College graduating class. "Now, as I have said, women, especially educated women, have a unique opportunity to influence us, man and boy, and to play a direct part in the unfolding drama of our free society," he told the graduates. Certainly, the world outside the home had attractions. "But even more important is the fact, surely, that what you have learned and can learn will, fit you for the primary task of making homes and whole human beings in whom the rational values of freedom, tolerance, charity and free inquiry can take root."⁶¹⁹ The "gallant girls" of Smith were enjoined to answer the great calling of motherhood to save America.

⁶¹⁸ Bilge Yesil, "'Who Said this is a Man's War?': Propaganda, Advertising Discourse and the Representation of War Worker Women During the Second World War," *Media History* 10, Aug. 2004, 113.

⁶¹⁹ Adlai E. Stevenson, "Women, Husbands, and History," *The Papers of Adlai E. Stevenson, Volume IV: 'Let's Talk Sense to the American People,' 1952-1955*, Walter Johnson, Ed. (Boston: Little, Brown and Company, 1974), 499, 501.

Never mind if women like the Smith College graduates, with their educations and the memory of Rosie the Riveter, had hoped for a life more interesting and riveting than baby talk and spit-up, Betty Friedan noted in *The Feminine Mystique*. "For over fifteen years there was no word of this yearning in the millions of words written about women, for women, in all the columns, books and articles by experts telling women their role was to seek fulfillment as wives and mothers," she wrote. "Over and over women heard in voices of tradition and of Freudian sophistication that they could desire no greater destiny than to glory in their femininity."⁶²⁰ This was reinforced by the authoritative mostly-masculine voices of experts who promoted a kind of Taylorized science of femininity in technical manuals ranging from Dr. Benjamin Spock's *Baby and Child Care* (1946) to *the Modern Woman's Guide to Sexual Maturity* (1959) by Frank Samuel Caprio.

The same principles of rational management that had streamlined industry, disciplined the forces of production and delivered the bounty of the postwar modern Millennium could streamline the family and discipline the feminine domestic space in which the bounty was most evidently enjoyed. Henry A. Bowman's *Marriage for Moderns* is a typical example of both the rhetoric and practice of postwar gender discipline. First appearing in 1942 and published through eight editions until Bowman's death in 1977, Friedan observed in 1963 that "Girls have studied it as a college text for the past twenty years."⁶²¹ Beginning with an enumeration of gender codes and roles categorized as essential characteristics,⁶²² Bowman exhorts his readers to respect the natural, scientifically verifiable differences between the sexes. "[E]ach sex should be judged in terms of its own functions, not in terms of the functions of the opposite sex," he

⁶²⁰ Betty Friedan, *The Feminine Mystique* (New York: WW Norton, 1963), 15.

⁶²¹ Friedan, 128.

⁶²² Henry A. Bowman, *Marriage for Moderns* (New York: McGraw-Hill, 1942), 1-9.

writes. "[T]o say that women are inferior to men because there have been more male than female geniuses is absurd, because in fulfilling their traditional role women have had neither the need nor the opportunity for exhibiting the particular type of genius that men exhibit in science, invention and the arts."⁶²³

Rather, just as the parts of a sophisticated mechanism, like a finely-crafted timepiece, which are "neither identical nor interchangeable," the machine of marriage will only function properly if men and women know their places and work together in rational harmony. "So it is with men and women — together they form a functioning unit," he writes. "Each alone is in a sense incomplete. They are complementary. Though separate with the possibility of independent existence, they are at the same time mutually dependent parts of a functioning whole."⁶²⁴ If Le Corbusier's ideal modern home was a "machine for living," then postwar women were being taught, in effect, that the ideal, modern, suburban family was a machine *of* living.

Women's magazines that had celebrated the modern conveniences of the coming Millennium before the Second World War staked out their territory in the subdivisions. In a 1957 promotional film for *Redbook* magazine, the narrator comments on the challenges of suburban life over a scene of a young couple disastrously attempting to build a backyard barbecue pit. "Discouraged? Disgruntled? Heck no! They're glad to be here. Remember?" A feminine voice whines: "We've got to move" over black and white footage of urban congestion. Images of moving vans give way to a colour tracking shot of rows of bungalows on suburban streets. The good natured narrator returns: "And so they

⁶²³ Bowman, 20-21.

⁶²⁴ Bowman, 21.

joined the stream of family life in the suburbs."⁶²⁵ *Redbook* positioned itself as the ideal way for advertisers to reach America's most desirable and fecund consumer demographic. The magazine provided all kinds of expert advice on subjects as diverse as cooking and home economics, as well as child rearing in Dr. Spock's long-running column. But *Redbook* wanted its advertisers to that suburban families were, above all, consumers. "So hardly realizing it, they come into their purchasing stage and are off on a wild, non-stop ride," the promotion film's narrator intones over footage of the couple on a rollercoaster intercut with a scenes of a suburban strip mall. "It's a happy-go-spending world, reflected in the windows of the suburban shopping centers where they go to buy."⁶²⁶

Redbook's equation of family, femininity and suburban embourgeoisement and consumption was far from unique. It revisited the theme articulated sixteen years before in *The Middleton Family at the New York World's Fair* of feminine emancipation from domestic drudgery through modern technology. But while these technologies were the promises of a much-anticipated future in 1939, *A Word to the Wives* made it clear that the future had finally arrived. The film begins with housewife Alice trying to comfort her friend Jane over coffee in the model kitchen of her new suburban bungalow. Jane is overwhelmed by housework, to the extent that she cannot even afford the time to go shopping for a new hat. "I haven't got your dream kitchen to make things easier," she sighs to Alice. "Mine's strictly the nightmare type." Jane has not been able to convince husband George to move to a new, rationally-designed home equipped with all the modern conveniences. Alice responds that Jane should tell him about "The Fifth

⁶²⁵ *Redbook Magazine, In the Suburbs* (New York: On Film, Inc., 1957).

⁶²⁶ *Redbook Magazine*.

Freedom," the freedom from drudgery, "freedom to go shopping when the urge hits you, or when there's a sale going on."⁶²⁷

The middle class suburban home was both a space of nurturing femininity, where Woman could realize her power and discharge her "primary task" of making better homes and nurturing her family, and the site of the consumption and deployment of the technological products of masculine rationality in the name of household efficiency. However, these two rhetorical locations were not easily reconciled. Tranquility and femininity were closely linked in the bourgeois American family home. In a poem published in the *Saturday Evening Post* on the joys of walking "casually hand-in hand" in fallen autumn leaves with her children, Frances Higginson Savage concluded:

Vapor-drenched from bonfires burning.
Dry-shod we shall walk the foam.
In a tidal wave returning
To the quiet shores of home.⁶²⁸

Indeed, it was a woman's duty to maintain a quiet home for the well-being of her children and, above all, for the masculine efficiency of her working husband, wrote Fred DeArmond in *The Rotarian*: "At home, the little attentions from [the businessman's] wife serve his greater efficiency because they make his home a quiet refuge from the cares that infest the day."⁶²⁹ Women were motivated by the example of powerful men whose success was based, to a large extent, on the quiet exertions of their mates. *Life* magazine praised John Foster Dulles's wife Janet, who "provided him with encouragement and a tranquil home life."⁶³⁰

⁶²⁷ Norman Lloyd, dir., *A Word to the Wives*, Telamerica, Inc, 1955.

⁶²⁸ Frances Higginson Savage, "Leaf Song" *The Saturday Evening Post*, 5 November 1960, 45.

⁶²⁹ Fred DeArmond, "Are Men Better Secretaries?" *The Rotarian*, November 1940, 30.

⁶³⁰ "A Fighter for the Right is Mourned," *Life*, 8 June 1959, 35.

The ideal modern home of postwar America, however, was anything *but* quiet. As domestic technologies from washing machines to electric mixers proliferated in the bungalows lining the suburban landscape, they proved to be considerably noisier than the "silent servants" promised by women's magazines in the 1930s. What had been the signal of the technological sublime had become the irritant of the technological mundane. By the 1950s, American periodicals ranging from women's magazines to public health journals were, ironically enough, sounding the alarm in a flurry of articles about the domestic "noise problem" and what to do about it, invariably accompanied by illustrations of harried men driven to the edge of sanity by the din. "There are a great many sounds being produced in the average home, and a good many of them are unpleasant," a reporter for *The American Home* noted in 1954. "Unpleasant sounds are known as noise, and according to medical authorities, it's just plain and simple noise that makes a lot of us tense, irritable, gives us headaches, sleepless nights, and makes us difficult, if not impossible, to live with."⁶³¹ Noise disrupted domestic tranquility – and worse. "Some days, you think the noise around the house will drive you crazy," Kiplinger's *Changing Times* warned ominously in 1958, before assuring readers that it won't. But "noise can create stress and mental fatigue and contribute to neuroses. It can be as bad as a nagging toothache."⁶³² In *Reader's Digest*, Donald Culross advised readers that the time had come to take noise seriously and "tune in on quiet."⁶³³

That wasn't so easy. Noise seemed to be an inevitable part of postwar, modern family life. More ominously, it was produced within the very bosom of the family home. Writing in *Science Digest* in 1957, children's book author May Hall Thompson identified

⁶³¹ "Quiet Please!" *The American Home*, Vol. LI No. 2, January 1954, 80

⁶³² "Less Noise Around the House," *Changing Times*, February 1958, 37.

⁶³³ Donald Culross, "Tune in on quiet," *Reader's Digest*, June 1957, 79.

the kitchen, in particular, as the source of domestic noise.⁶³⁴ Just the month previously in *House and Garden*, Phyllis McGinley, also an author of juvenile fiction and an energetic champion of femininity, had bemoaned the din produced by the trappings of postwar domestic prosperity. She longed for the imagined tranquility of a time when no "Elvis bawled from the megaphone of Mr. Edison's gramophone. Mr. Bell's telephone hung sedately on the wall, out of reach of the sprawling teen-ager (who had not even discovered he was a 'teen-ager'). TV was a Jules Verne dream."⁶³⁵ Significantly, however, even though the home *itself* – and particularly feminine activities like cooking, cleaning and child rearing – was frequently identified as the source of the problem, noise was often described in a rhetoric of transgression and invasion. "Of all the invaders of privacy in the home," McGinley wrote, "noise is the worst offender."⁶³⁶

Nevertheless, the problem could be contained. Magazines of the period are packed with advice on how homeowners could apply the principles of acoustic science to return to domestic tranquility. "Homeowners can learn lessons from the facts now known about the laws of sound," Mary Hall Thompson wrote. By using products, like acoustic tile and insulation, developed for industrial applications, "People can take advantage of the 'do-it-yourself' trend in making rooms more quiet."⁶³⁷ The most annoying sounds should be, and could be, dampened at the source, advised *The American Home*. "Draperies, carpets, upholstered furniture, porous wall coverings, and acoustical tile are all fine for absorbing sound waves," it noted.⁶³⁸ Indeed, George Groh, writing in *American Mercury* found reason to hope for a better, quieter world: "The ever-growing

⁶³⁴ Mary Hall Thompson, "What You Can Do About Noise," *Science Digest*, February 1957, 85.

⁶³⁵ Phyllis McGinley, "Noise," *House and Garden* 111:1, Jan 1957, 32.

⁶³⁶ McGinley, 32.

⁶³⁷ Hall Thompson, 84-85.

⁶³⁸ "Quiet Please!" *The American Home*, 81.

awareness of the problem of noise together with better and better soundproofing methods make it seem likely that, in the not too far distant future, soundproofing will be as common as air conditioning is today."⁶³⁹ But the noise invasion did not only come from within but, increasingly from outside the home. In the oncoming roar of the Jet Age, farmer Causby's complaint was about to become a national issue.

V. Howl Like a Million Demons

RAF Air Commodore Frank Whittle came to Washington in the fall of 1946 to receive the Legion of Merit from the U.S. government for his pioneering work developing the turbojet engine. As he arrived, *Time* magazine observed that Whittle "was brimming (in a reserved, don't-spill-a-drop British manner) with enthusiasm for the jet age."⁶⁴⁰ The development of operational jet aircraft by Germany and Great Britain during the Second World War – the latter Whittle's turbojet – had revolutionized aviation. By 1949, the *New York Times* noted that the U.S. military had "made major strides in its transition to the jet age in 1948."⁶⁴¹ Indeed, the idea that America was entering a new age of modernity, the Jet Age, resonated widely and every new, modern and exciting technology, from new "metals and ceramics" to "new and revolutionary forms of power generation and transportation" was a part of it.⁶⁴²

Most exciting of all was the potential for human ingenuity and rationality to obliterate the limitations of geographical distance. Already in 1946 the British Avro company had begun testing a jet-powered airliner that Whittle described as "an almost

⁶³⁹ George W. Groh, "Quiet Please!" *American Mercury*, July 1955, 13.

⁶⁴⁰ "Jeticism," *Time*, 25 November 1946, 60.

⁶⁴¹ Hanson Baldwin, "Military Aviation Comes of Jet Age," *New York Times*, 3 January 1949, 45.

⁶⁴² See "Science Evolving Jet-Age Materials," *New York Times*, 3 September 1947, 37.

alarming success." Not only was a future of lightning-fast air travel in the offing, but it would arrive with even greater comfort and convenience than before; "[f]lying on jets alone, [the Avro test aircraft] was uncannily quiet."⁶⁴³ Within a decade, "U.S. commercial aviation... made its long awaited move to jet-propelled aircraft," with orders of \$269 million dollars by Pan American Airways for 45 Douglas and Boeing jetliners, reported *Time* magazine. "For the traveler, the jets will bring a new age."⁶⁴⁴ However, the arrival of that new age turned out to be quite a bit noisier than initially promised.

The roar of jets over American cities, towns and farms crystallized the central aural tensions of postwar modernity and transformed noise into a national political issue. The eponymous technology of the Jet Age was awe inspiring; travelers could fly from New York to Chicago and back in the same day, they could cross the Atlantic in one fifth the time it had taken Lindbergh, and the conquest of outer space was not only conceivable but finally practical. However, the jet came enveloped in a noise field, and while the sound of one aircraft, throttling up for a heroic solo transatlantic flight had been thrilling in 1927, the roar of turbojet engines at all hours of the day and night, from aircraft landing and taking off from the new, expanded airports being built in the suburbs, was simply intolerable noise. By the 1950s, Americans were becoming increasingly angry about the din. "We are nursing a nonproveable hunch that the next great popular revolt will be a rebellion against noise," wrote a *Saturday Evening Post* editorialist in 1950.⁶⁴⁵

Projects to expand airports in order to accommodate the longer landing and take-off runs of the new jetliners brought the citizenry into the streets across the country. Even

⁶⁴³ "Jeticism," 60.

⁶⁴⁴ "The Jet Age," *Time*, 24 October 1955, 96.

⁶⁴⁵ "A Crusade Against Noise May Stir the Grassroots," *The Saturday Evening Post*, 28 January 1950, 10.

before the first Boeing 707s entered service with Pan Am in 1958, airport expansions in the New York area had been met with "a flurry of protests," and officials braced for more to come. The *New York Times* predicted an immediate future where "it is easy to see jet-propelled planes with after-burners that howl like a million demons."⁶⁴⁶ It was all a bit too much for suburbanites, and despite the fact that aircraft manufacturers were "making an earnest search for adequate muffling devices for jets," McGinley wrote, the prospects didn't look or sound promising. "What noise abatement experts have been unable to do," she wrote, "an aroused public opinion may yet accomplish."⁶⁴⁷

Indeed, public opinion was being aroused. *The Washington Post* observed that "the enjoyment of concert patrons at the Watergate these days is not noticeably increased by the sputterings of planes about to land" at the just-expanded National Airport across the Potomac in Arlington, VA. "In fact, the flaps-down roar of planes hell-bent on the beam for National Airport often is so loud that it all but obliterates the National Symphony."⁶⁴⁸ Under pressure from residents, the city council and county board in neighboring Alexandria, issued strong protests endorsed by Virginia governor John Battle.⁶⁴⁹ In 1953, public opposition to the noise of an increasing volume of propeller-driven air traffic forced the Port Authority of New York to abandon plans to expand Newark airport and to consider expanding elsewhere, like in semi-rural Lakewood, NJ.⁶⁵⁰ Less than two years later, the Port Authority was forced to re-route aircraft flightpaths as far as possible from residential neighbourhoods in response to the growing public outcry

⁶⁴⁶ Frederic Graham, "Aviation: Ground Time," *New York Times*, Oct 7, 1951, 131.

⁶⁴⁷ McGinley, 62.

⁶⁴⁸ "Planes and Music," *The Washington Post*, 19 July, 1949, 8.

⁶⁴⁹ "Plane Noise Abatement is Promised," *The Washington Post*, 7 August 1951, B1.

⁶⁵⁰ "Auxiliary Airport to Newark Sought," *New York Times*, Jan 11, 1953, 42

over the noise levels produced by the surging traffic at existing airports.⁶⁵¹ The shriek of jets predicted by *The New York Times* didn't make things any better.

The aviation industry was sensitive to the challenge that aircraft noise posed to its public image, still shining somewhat in the light of the technological sublime. The Jet Age Conference organized by the Air Force Association in 1956, was held in an atmosphere of growing desperation. The AFA called the meeting to address, among other things, the noise problem "before an irate citizenry interferes seriously with the nation's defense and progress in air transportation." Delegates discussed various ways to deal with the problems. "They can move the noise away from the public, isolating airplanes from the people who protest against them," reported *Aviation Week*, the industry's primary journal, but that would require considerable expense and dislocation. The military was particularly opposed to controlling noise at the source through mechanical means because "the silencers developed so far spoil performance." At the top of the list, however, was the proposal that the military and the aviation industry "can sell noise, teaching the public to tolerate it in the best interest of national defense and technological progress." United States Air Force Chief of Staff Nathan F. Twining agreed wholeheartedly. "The American people will eventually understand this," he said. "We must do all we can to speed this understanding."⁶⁵²

That effort involved the somewhat surreal redeployment of a rhetoric of the technological sublime. The noise of an aircraft engine had to *mean* something heroic in the 1950s, just as it had in the 1920s and 1930s. The 1955 Hollywood film *Strategic Air Command* had already hinted at this in its opening scene, when baseball star and former

⁶⁵¹ Albert G. Maiorano, "Aviation: Airport Noise," *New York Times*, Oct 17, 1954, X25.

⁶⁵² "Noise Problem to Get Worse, Not Better," *Aviation Week*, 13 February 1956, 42.

bomber pilot "Dutch" Holland, played by actor and former bomber pilot James Stewart, pauses on the mound during spring training, called into wistful reverie by the sound of Convair B-36 bombers flying overhead. Convair ran a national magazine advertising campaign in 1955 to celebrate the introduction of its first supersonic jet fighter, the F-102 Delta Dagger, and to minimize the annoyance caused by its afterburning engines and sonic boom. The advertisement ran in the July 4 issue of *Newsweek*, featuring a Norman Rockwell-style illustration of a flight of F-102s flying at low level over a suburban neighbourhood in the early morning hours, while the milkman made his deliveries over the slogan "Freedom has a New Sound!" The copy continued, "All over America these days, the blast of supersonic flight is shattering the old familiar sounds of city and countryside." Americans were reminded, "The next time jets thunder overhead, remember that the pilots who fly them are not willful disturbers of your peace; they are patriotic young Americans affirming *your New Sound of Freedom!*"⁶⁵³

The campaign was a heady mix of Cold War patriotism and small-town values that invited Americans to identify with the heroic young men in G-suits in order to ignore the ear-shattering din that came along with the morning milk delivery. The noise was necessary to defend American freedom and, besides, it's not like the Air Force, personified by its flyboys, meant any harm. It's doubtful that kind of reasoning would have comforted Tom Causby on the death of his chickens in 1944, and it didn't seem any more convincing in 1956. Here was "the crux of the great American noise dilemma," McGinley noted in 1957. No one, "except for a sprinkling of willful malcontents," meant to cause a commotion. In fact, "planemakers urge us to think of the jet's sonic boom not

⁶⁵³ Convair Aircraft Corporation, "Freedom has a New Sound!" Display Ad, *Newsweek* 46, 4 July 1955, 22.

as a traumatizing shock bust as 'your New Sound of Freedom!'"⁶⁵⁴ Many Americans found that hard to believe.

The 278 children and ten teachers at Jackson Township Grade School in Lincoln, Indiana, could barely hear themselves think. Located less than two miles from Bunker Hill Air Force Base, the school was directly under the landing approaches of the USAF 323rd Fighter-Bomber Wing's F-86 Sabres and F-100 Super Sabres, and the 319th Fighter Squadron's F-94 Starfire interceptors. The base had originally been commissioned as a US Navy training facility in 1942, and had been closed four years later, following the end of the Second World War. It was reactivated in 1955, at the height of the Cold War, as a much larger, busier and noisier facility. Following complaints from parents and faculty, the school district superintendent and the Indiana Department of Public Education, sent a team to survey the situation. They found that the roar of the jets had made Jackson Township School completely unusable. "The jets give off considerable noise, reaching as high as 170 decibels up close," observed Raymond Trobough, a representative of the state public education department. "The fact that noise levels of approximately 130 decibels can start headaches leads us to believe that we would like to see the school buildings as far from the source of sound as practicably possible."⁶⁵⁵ Something had to give, since it was clear that the base was not going to get any quieter. If anything, noted Indiana senator Homer Capehart, "we have every reason to believe that it is going to get much larger than it is at the moment. It certainly will get no smaller."⁶⁵⁶

⁶⁵⁴ McGinley, 33.

⁶⁵⁵ Congress, Senate, Subcommittee on the Judiciary, Hearing Held Before the Subcommittee on the Judiciary, S. 807, Relief of Jackson School Township, 85th Cong., 1st sess., 5 June 1957, 11.

⁶⁵⁶ Congress, Senate, Subcommittee on the Judiciary, Hearing Held Before the Subcommittee on the Judiciary, S. 807, Relief of Jackson School Township, 85th Cong., 1st sess., 5 June 1957, 4.

Given the Cold War realities of national security, it was the school, rendered unusable by the noise, rather than Bunker Hill AFB that had to move. The problem was that that would cost money cost money – as much as \$300,000 – that the school district could ill afford to spend. Mr. and Mrs. Vance Cotterman, the parents of two children, aged six and eight, who attended the school, knew who should pay for the relocation. "We realize that Bunker Hill Air Base is a necessary part of the nation's defense program," they wrote to their congressman. "Also, we believe that since the whole nation benefits from this installation, that the nation's treasury should likewise stand the expense of damages incurred to nearby communities caused from the operation of this installation."⁶⁵⁷

Capehart and his senate colleague from Indiana William Jenner agreed. Late in 1956, they had introduced legislation to compensate the school district. It died on the order paper at the end of the congressional session, but they resubmitted it as S. 807, "A Bill For the Relief of Jackson School Township, Indiana" directing the Treasury to pay the school township \$300,000 "in such full satisfaction of such School Township's claim against the United States for compensation for loss of utility of its school at Lincoln, Indiana; and for costs to be incurred in relocating such school due to the noise and danger from Department of the Air Force aircraft using Bunker Hill Air Base." The bill was passed, but its implications, like *Causby v. US*, were dire, and in reluctantly signing the law, President Eisenhower announced that it would be the last of its kind: "Such questions of fact should more appropriately be determined by the Courts, and hereafter I shall insist that these disputed fact questions be determined by our Courts in the usual

⁶⁵⁷ Mr. & Mrs. Vance Cotterman, letter to Charles A. Halleck, 15 February 1957, facsimile, appendix to Congress, Senate, Subcommittee on the Judiciary, Hearing Held Before the Subcommittee on the Judiciary, S. 807, Relief of Jackson School Township, 85th Cong., 1st sess., 5 June 1957.

way."⁶⁵⁸ That didn't stop people from trying. In 1960, the Princess Anne County School Board sought \$345,000 for relief from noise of jets flying out of Oceana Naval Air Station in Virginia. The following year, the Prince George County School Board in Maryland sought compensation for the noise coming from Andrews Air Force Base. Both cases were referred to the Court of Claims.

Nevertheless, the United States Government, the military and the aviation industry found that it had a serious problem on its hands. *US v. Causby* had opened a can of worms by "suggesting that the property interest 'taken' by the Government is equal to an easement of passage over the surface."⁶⁵⁹ The decision had sought to clarify the meaning of *cujus est solum ejus est usque ad coelum et ad inferos* for a modern context in which the development of aviation made the conventional notion of property trespass untenable, "for under it an aircraft would commit innumerable trespasses while flying."⁶⁶⁰ The decision greatly limited a property owner's airspace rights and granted a general aviation easement similar to the concept of "privileged trespass." However, in granting Causby relief for the *nuisance* caused by aircraft flying at low altitude – that is, not for the trespass itself, but for how the trespass occurred – the Supreme Court decision deferred, rather than solved the problem. "If this view were correct," *The Harvard Law Review* observed, "any frequent flying through lower airspace would amount to taking of private property regardless of the actual degree of interference with the surface interests."⁶⁶¹

⁶⁵⁸ Dwight D. Eisenhower, "Statement by the President Upon Signing Bill for the Relief of Jackson School Township, Indiana, September 4, 1957," *Public Papers of the Presidents of the United States: Dwight D. Eisenhower, 1957* (Washington: Government Printing Office, 1958), 655.

⁶⁵⁹ "Airplane Noise: Problem in Tort Law and Federalism," *Harvard Law Review* 74, June 1961, 1584.

⁶⁶⁰ "Airplane Noise: Problem in Tort Law and Federalism," 1582.

⁶⁶¹ "Airplane Noise: Problem in Tort Law and Federalism," 1584.

Even though courts were disinclined to grant compensation without evidence of substantial interference, *US v. Causby* had established the precedent that aural interference was actionable even if aircraft had right of way through a property owner's airspace. "The compensable 'taking' in an action initiated by the landowner consists not in an appropriation of the landowner's property in a zone or column of airspace but rather in the creation of noise which substantially interferes with surface use and enjoyment."⁶⁶² The trespass was not physical, to be understood as the penetration of spatial boundaries by an individual or object, but aural – the intersection of the spatial boundaries of private property by the space of the noise field created by an aircraft's engines. The 'taking' was a trespass, but it was a unique *kind* of transgression.

The implications were formidable and the expected expansion and evolution of jetliner technology had brought the issue to a critical juncture. The Special Investigating Subcommittee of the House of Representatives' Science and Astronautics Committee held hearings over three days in the summer of 1960 to answer questions raised in hearings on supersonic commercial air travel earlier that session. "[T]he point was clearly brought out that engine noise and sonic boom phenomena were going to be major problems to overcome if we are going to operate such airplanes over populated areas of the country," committee chairman Overton Brooks said in his opening remarks. And the problem wasn't limited to the planned supersonic transports of the future, he added. "I have been aware for some time of the acute situation brought about by the current noise

⁶⁶² "Airplane Noise: Problem in Tort Law and Federalism," 1585.

problem surrounding the operation of today's jet airliners, guided missiles, and rockets."⁶⁶³

VI. The Unfriendly Skies

Hearings held by the House Committee on Interstate and Foreign Commerce in New York, Washington, San Francisco and Inglewood, CA, between September 1959 and December 1962 revealed just how acute the problem had become. Frequently tense and often raucous, the hearings allowed state and municipal officials, and representatives of citizens' organizations to vent their anger at federal officials and the aviation industry. Municipal governments had attempted, with little success, to intercede on behalf of their constituents. In 1956, the federal court of appeals struck down an ordinance adopted by the Village of Cedarhurst, Long Island, prohibiting overflights at altitudes of less than 1,000 feet by aircraft flying out of New York's Idlewild airport. Citing *US v. Causby*, the court ruled that it "would be utterly impracticable to attempt to specify by statute the precise height at which a plane could safely take off from or land at an airport," and that such decisions were a federal responsibility.⁶⁶⁴ Cedarhurst had acted unconstitutionally.

Unfortunately, the Federal Aviation Administration, created in the Federal Aviation Act after a 1956 mid-air collision over the Grand Canyon between a United Airlines DC-7 and a TWA Lockheed Constellation revealed the deficiencies of federal aviation regulation,⁶⁶⁵ simply did not have the authority to address the noise issue. While the FAA did have a mandate to regulate flightpaths for safety reasons and, Deputy

⁶⁶³ Congress, House Committee on Science and Astronautics, *Noise: It's Effect on Man and Machine*, 86th Cong., 2nd sess., 23 August 1960, 1.

⁶⁶⁴ *Allegheny Airlines v. Village of Cedarhurst*, 17 P.U.R.3d 244, 238 F.2d 812 C.A.2 (1956).

⁶⁶⁵ Robert M. Kane, *Air Transportation* (Dubuque, IA: Kendall/Hunt, Inc., 2003), 115. While

Administrator James T. Pyle testified to the House hearing in Washington in 1961, was willing to cooperate with municipal authorities in Los Angeles and New York, there was very little it could do about noise itself. "We are... limited in how far we can go in prescribing altitudes, climb and glide angles, speeds, and so forth, for the purposes of noise abatement due to overriding safety considerations," he said.⁶⁶⁶ It was a refrain often repeated throughout the hearings by the FAA, the guardian of national airspace, airport administrators like the New York Port Authority and the San Francisco Airport Operations Council, and airline executives.

The aroused citizenry was not impressed. John H. Overbeck, Mayor of Park Ridge, IL, "a city of residences, homes and churches," complained that noise from nearby O'Hare Airport, had made the local schools virtually unusable. Overbeck had recorded a total of 750 interruptions during class times at Park Ridge schools between 23 May and 12 June 1962, "[n]ot disturbances, gentlemen, but interruptions, where classroom work stopped during this 14-day period."⁶⁶⁷ Arthur Berke, moderator of Citizens of Inglewood, complained that his and his neighbours' constitutional rights had been violated by Los Angeles International Airport, two miles away. "[N]o matter which way [we] say it, our rights of peaceful tranquility have been violated," he said. "The citizens feel that in the preamble of the Constitution of the United States peaceful tranquility is mentioned as one of the predominant factors in developing the Constitution of the United States." And that violation occurred "every day, every night."⁶⁶⁸

⁶⁶⁶ Congress, House, Committee on Commerce, *Aircraft Noise Problems: Hearings Before Subcommittees of the Committee on Interstate and Foreign Commerce*, 86th and 87th Cong., 12 April 1961, 294.

⁶⁶⁷ Congress, House, Committee on Commerce, *Aircraft Noise Problems*, 17 July 1962, 368.

⁶⁶⁸ Congress, House, Committee on Commerce, *Aircraft Noise Problems*, 21 April 1960, 199.

Outraged citizens' testimonies invariably mobilized the language of occupational health that the BENOX researchers and industrial noise control experts used to describe the perils of the noise field. They deployed rhetoric that defined airport noise in spatial terms, as a penetration of domestic space. Joseph Bridgewater, Chairman of San Francisco's Citizens' Jet Noise Committee, unconsciously evoked images from Convair's "New Sound of Freedom" advertisement:

The loss of sleep and its consequences have resulted in our citizens, many being awakened in the middle of the night in this terrifying noise, has resulted in the loss of efficiency to the people, general rundown condition, weakness and susceptibility to disease and all its ramifications and physical disorders. There have been abnormally large incidences of severe headaches. These result from the planes taxiing to the takeoff preparation area. This whistling that occurs is quite similar to that of an artillery shell or buzz bomb of World War II. Then there is the terrifying shock of the explosion which is when the planes start their initial takeoff.⁶⁶⁹

Many of the witnesses, and the spectators from affected communities who packed the hearing rooms, expressed strong feelings of violation, and the hearings frequently threatened to spiral out of control. The hearings in New York City in September 1959, in particular, were frequently interrupted by hecklers and spectators demanding to be heard. Subcommittee chairman Sen. Oren Harris angrily called for order when spectators became unruly following his opening remarks. "But you took 32 minutes to make that address," one spectator called from the gallery. "I timed it; 32 minutes wasted with a lot of nonsense."⁶⁷⁰

New Yorkers in the outer boroughs had good reason to be angry. As the site of the first large-scale deployment of jet airliners in the United States, Idlewild Airport (now John F. Kennedy International Airport) in Queens brought the simmering tensions over the spatial violations of noise to a boiling point. As early as 1955, public pressure from

⁶⁶⁹ Congress, House, Committee on Commerce, *Aircraft Noise Problems*, 20 April 1960, 133.

⁶⁷⁰ Congress, House, Committee on Commerce, *Aircraft Noise Problems*, 7 September 1959, 12.

the residents of Queens had motivated the Port Authority to prohibit the British Overseas Airways Corporation from landing its Comet III jetliner at Idlewild "until such times as the noise from such craft can be reduced."⁶⁷¹ Seventeen months later, now under pressure from the FAA and the airline industry, the Port Authority arranged to have local community and political leaders on hand for the landing of an Air France jetliner. The experts, acoustical engineers from the firm of Bolt Beranek and Newman, concluded that the jet had been no noisier than a traditional piston engine aircraft, but local residents who attended the demonstration strongly disagreed. Central Queens Allied Civic Council President Mark M. Lowe, "who also represented the Federation of Civic Councils of the Borough of Queens, said the jet had 'a tremendously high noise level.'"⁶⁷²

The Port authority's ban on jetliners at Idlewild remained. However, with the airlines making multimillion-dollar investments in new jet aircraft, and the fortunes of manufacturers like Boeing and Douglas tied to a much-hoped surge in the commercial jetliner market, the Port Authority found itself coming under increasing pressure from the aviation industry. The Port Authority's "stubborn refusal to let a jet transport into the New York area on a one-shot experimental basis strikes us as being extremely shortsighted," an *Aviation Week* editorial charged in March 1957. "The people of New York, the Port Authority, the airlines and all others concerned might learn a little more about the problems of jet transport operations from these occasional trips by a wide variety of experimental types."⁶⁷³ The confrontation between the aviation industry and residents of suburban Queens was reaching a breaking point.

⁶⁷¹ "Airliner Banned Here," *New York Times*, 4 December 1955, 59.

⁶⁷² "Idlewild Jet Test Stirs Mixed Noise," *New York Times*, 4 May 1957, 42.

⁶⁷³ Robert Hotz, "Jet Noise Problem," *Aviation Week*, 18 March 1957, 21.

The Port Authority agreed to a series of experimental test flights. Pan Am flew one of its new Boeing 707s to Idlewild in the summer of 1958 for noise tests. These proved inconclusive, and the Port Authority extended the airline's permit for 30 days for additional tests, but under tighter restrictions that aimed "to avoid flights over populated areas whenever possible."⁶⁷⁴ American Airlines took that as a green light and, two days later, announced its schedule of 707 flights out of Idlewild, starting in November, "even though the plane hasn't been cleared to use the city's biggest airport."⁶⁷⁵ Two weeks later, Pan Am announced the schedule of its New York to Paris route from the same airport. At the beginning of October, after weeks of industry pressure, and accusations in the media that it was standing in the path of progress, the Port Authority finally authorized the use of jets at Idlewild – but with restrictions. Jets would be limited to two runways, ensuring takeoffs over Jamaica Bay. In the event that weather conditions made these runways unusable, jetliners would be cleared to use two other runways, but required complex manoeuvres – and night flights would be strictly limited. Surface noise levels in communities near the airport could not exceed 112 decibels. Pan Am "strongly objected... to the over-all set of rules imposed by the Port Authority."⁶⁷⁶ The battle was far from over.

Even with these regulations, the expansion of jet operations met with public opposition. In 1959, the airline industry's noise watchdog, the National Air Transport Coordinating Committee "received 616 complaints in July and 510 during the first 25 days of August covering Idlewild operations," *Aviation Week* reported. The total number

⁶⁷⁴ Richard Witkin, "30 More Test Days Allowed '707' Jet," *New York Times*, 6 September 1958, 19.

⁶⁷⁵ "American Air Announces Tentative Jet Schedules on New York Flight," *The Wall Street Journal*, 8 September 1958, 8.

⁶⁷⁶ Witkin, "Idlewild Opened to Jet Airliners; Strict Rules Set," *New York Times*, 4 October 1958, 1.

of complaints for Idlewild and La Guardia Airport combined in July 1959 "was 1,226, according to the NATCC, compared to 224 in July, 1958." The citizens had a point. Port Authority aviation director John Wiley noted that none of the airlines had observed the regulations completely, and the two worst offenders, American Airlines and TWA, had broken the rules in 53 percent of their landings and takeoffs. The NATCC begged to differ, claiming that all the airlines had achieved almost 100 percent compliance.⁶⁷⁷

The FAA, which did not have the authority to establish noise abatement regulations, came into the debate on the side of the airlines in 1960, bowing to industry pressure to mandate new takeoff and landing approaches. Noting that it alone had the authority to regulate air traffic, the FAA adopted the NATCC's own proposed rules which "take into consideration such economic factors as gross weight and fuel, cargo and passenger loads, as well as noise in determining runway assignments." Moreover, among other things, the FAA's regulations permitted nighttime takeoffs over residential areas.⁶⁷⁸ The airlines predictably welcomed the FAA's intervention and promised to comply with the new rules, but the Port Authority complained that the new rules were utterly inadequate. With the airline industry choosing its favourite option between two sets of regulations, the Port Authority took the matter to court. In October 1960, the agency sought an injunction against Delta Airlines to force it to play by local, rather than federal rules.⁶⁷⁹ This would begin six year court battle between the Port Authority and the

⁶⁷⁷ Glenn Garrison, "Idlewild Noise Complaints Increase," *Aviation Week*, 7 September 1959, 45.

⁶⁷⁸ Garrison, "Port Authority, Airlines Analyse FAA Idlewild Jet Anti-Noise Rules," *Aviation Week*, 16 May 1960, 41.

⁶⁷⁹ Garrison, "N.Y. Port Authority Takes Delta to Court Over Idlewild Jet Noise," *Aviation Week*, 31 October 1960, 36.

airlines, culminating in a federal court decision in 1966 that, as its tenants, the airlines could be compelled "to comply with the Port Authority's regulations and agreements."⁶⁸⁰

Nevertheless, the Port Authority found itself caught in the middle of a political battle on the border between home and workplace. The aural boundaries of the former were under sustained attack by the colonizing ambitions of the latter. Urged to act by a petition signed by the Nassau County Executive and Board of Supervisors and the mayors of nine communities neighbouring the airport in August 1962, New York Attorney General Louis J. Lefkowitz threatened legal action to bring the airlines and the Port Authority to heel.⁶⁸¹ Before beginning court proceedings, however, Lefkowitz called a public hearing on the noise issue at the New York Supreme Court in Manhattan on 24 October. While recognizing that the air transportation industry was of vital importance to New York, as the legal representative of the citizens of New York, it was, he said, his duty to safeguard the health and safety of area residents.

Before I begin a legal proceeding, I want to take one final opportunity once again to bring the Port of New York Authority and all other interested parties back to my office to strongly urge them to work out an action program which will reasonably safeguard both the air commerce industry and the individual men, women and children who are affected by the noise and vibration. This is a problem of modern times; its solution is undoubtedly complex.⁶⁸²

Indeed, a solution was nigh impossible. In the noise abatement debate, Lefkowitz publicly positioned himself as the defender of citizens' interests of "large segments of

⁶⁸⁰ *The Port Authority of New York v. Eastern Airlines*, 259 F. Supp. 745 (1966).

⁶⁸¹ Lefkowitz Warns of Jet-Noise Suit," *New York Times*, 23 October 1962, 38.

⁶⁸² Louis J. Lefkowitz, "Statement by Attorney General Louis J. Lefkowitz," Press Release, New York, NY, 23 October 1962, NY, Transport Workers Union of America Records WAG 235, Robert F. Wagner Labor Archives, Tamiment Library, New York University, New York, Box 47, Folder 9.

New York citizens" against the arrogance of big business and unresponsive local authorities in the lead up to the 6 November state elections.⁶⁸³

Things were not that simple, however. By 1962, jet airliner service from Idlewild and La Guardia had become entrenched. The air transportation industry had become essential to New York's economy, and jets were essential to the airline industry.

"Whether we like it or not," New York Commissioner of Commerce Keith McHugh pointedly told the hearing, "New York can retain its leadership and remain the great city among all American cities, only if it remains competitive in the broadest sense of the word."⁶⁸⁴ Ultimately, noise was the price of modernity. Progress, prosperity, American embourgeoisement and the quiet bungalows had a cost, and it was the inevitable colonization of domestic tranquility by the noise of the machine. "Jet noise is a new noise," the Transportation Workers Union local representing airport workers – the vast majority of whom were also residents of the communities under airliner flightpaths – made clear. "It is also a strange noise – with a reputation well established in the public consciousness as an especially undesirable noise. But it is also a noise of progress."⁶⁸⁵

Lefkowitz won reelection in 1962, but never made good on his election promise to seek legal action against the airlines and the Port Authority over noise. In July 1963, he organize a meeting of the New York congressional delegation to ask Congress to allocate

⁶⁸³ Louis J. Lefkowitz, "Statement Filed by Attorney General Louis J. Lefkowitz With the House Interstate and Foreign Commerce Committee on Aircraft Noise," Press Release, New York, NY, 6 December 1962, NY, Transport Workers Union of America Records WAG 235, Box 47, Folder 9. Also Edward Hudson, "Lefkowitz Plans Jet Noise Study," *New York Times*, 25 October 1962, 79

⁶⁸⁴ Keith S. McHugh, "Statement by Keith S. McHugh, Commissioner of Commerce, New York State at the Public Meeting Called by Attorney General Lefkowitz Concerning a Complaint of Excessive Noise and Vibration in the Operation of New York International Airport," Typescript, New York, NY, 23 October 1962, Transport Workers Union of America Records WAG 235, Box 47, Folder 9.

⁶⁸⁵ Transport Workers Union of America, "Information Sheet on the Operation of Jets at La Guardia Airport," Typescript, 24 October 1962, Transport Workers Union of America Records WAG 235, Box 47, Folder 9.

\$10,000,000 to research jet engine noise reduction technologies. Considering that the problem of airport noise only affected residents near a few major cities in the United States, the reception to the proposal was chilly.⁶⁸⁶ Noise was here to stay. The best Americans could hope to do was to learn to live with it or tune it out.

⁶⁸⁶ Warren Weaver, jr., "Congress to Get Jet Noise Plea," *New York Times*, 12 July 1963, 27.

CHAPTER 5

TOTAL ORGANIZATION

I. Music Without Performers

"When the curtain went up last night at the McMillin Theatre, the stage was bare save for six acoustic suspension loudspeakers," *New York Times* music critic Harold Schonberg wrote in 1961. "The audience looked at the speakers. The speakers looked back at the audience. The audience broke into applause. The speakers did not applaud back. We have finally arrived at music without performers." For Schonberg the McMillin Theatre concert, presented by the Columbia-Princeton Electronic Music Center, was a moment of rupture in conventional musical performance practice and deeply unsettling. "Electronic music marks a complete break from the past," Schonberg wrote. Even the most "advanced works" of Schoenberg and Webern had maintained "a certain contact with reality" through the performances of real, live musicians. "Here there is nothing of that." Schonberg noted that listeners might approach the new music in the same spirit that they would read Einstein's Unified Field Theory – with "great respect mingled with total incomprehension." Regardless, he was certain that it "is an honest-to-goodness revolution, and it is just starting."⁶⁸⁷

If not exactly a revolution, it inaugurated a new phase in American modern music. However the concert at the McMillin Theatre also signaled the culmination and convergence of processes that had been gaining momentum since the end of the Second World War. New audiophonic and audiogenic technologies widely adopted after 1945 revised the conventional economy of music and the notions of authenticity that had

⁶⁸⁷ Harold C. Schonberg, "Music: Concert Without Performers," *New York Times*, 10 May 1961, 53.

authorized it. The aesthetic practices of the 1961 concert also marked a high water mark of the rationalizing impulse in the neo-classicism and twelve-tone serialism that had the modern art music of the 1920s and 1930s – at least as viewed from the perspective of the postwar years. There was no room for what Max Weber called the "superfluities" and "idle talk" of irrationality in the work of composers, like Sessions and Milton Babbitt, who embodied the core of postwar high modernism. Their work sought rather to clarify and reinforce the boundary between music and rationality on one hand, and noise and irrationality on the other. In 1958, evoking the language of Taylorism, Babbitt advocated for an idiom that employed "a tonal vocabulary which is more 'efficient' than that of the music of the past, or its derivatives."⁶⁸⁸ It was a vocabulary of pure tone, mathematically organized and transmitted with the clarity of an undisrupted rationality. It was the antithesis of noise.

These composers sought to stabilize the codes of modern music and in the process reconfigured themselves as technical specialists. The time had come, Babbitt wrote, for composers to follow the lead of scientists and mathematicians, whose esoteric endeavours had removed them from the public commerce of ideas. In that respect, they positioned themselves as the heirs to the avant-garde. Artists in other fields had done the same, as Irving Howe noted in "The Culture of Modernism." For a century, the modernist avant garde had abandoned "the useful fiction of 'the common reader'" in literature. "The avant garde proclaims its faith in the self-sufficiency, the necessary irresponsibility, and therefore the ultimate salvation of art."⁶⁸⁹ Echoing Sessions' "profession of faith" of decades before, Babbitt wrote that the composer needed to be "free to pursue a private

⁶⁸⁸ Milton Babbitt, "The Composer as Specialist," *The Collected Essays of Milton Babbitt* (Princeton: Princeton University Press, 2003), 49.

⁶⁸⁹ Irving Howe, "The Culture of Modernism," *Commentary* 44, November 1967, 52.

life of professional achievement, as opposed to a public life of unprofessional compromise and exhibitionism."⁶⁹⁰ This was a necessary condition of musical progress; without it, "music will cease to evolve, and, in that important sense, will cease to live."⁶⁹¹

Many artists had begun to lose their faith in progress following the slaughter of the Second World War and the revelations of the full extent of the Nazi Holocaust. "Confidence in the steady, continuous advance of humanity has been sadly weakened," art historian Thomas Munro wrote in 1955. "The theory that progress is automatic and certain, through the operation of some natural law or basic, universal tendency, now has few if any advocates."⁶⁹² The brooding ideas of existentialism, imported from the ruins of war-torn Europe, and the "mystics and supernaturalists, admirers of Hindu panpsychism and the otherworldly cults of medieval Europe" condemned progress, as illusion. Yet Munro noted that there remained intrepid voices crying "that all is not completely lost for western civilization; that it is still possible to reaffirm our basic ideals and assumptions, with some revision in the light of new knowledge and experience."⁶⁹³ Indeed, progress was inevitable for American civilization and artists, in a new alliance with scientists, technical specialists, scholars and the state, would help propel it forward. "Nothing, it would appear, can check the onward march of science and technology into every field of culture, toward the understanding and purposeful control of all human activities," Munro wrote. "There is no way to go but forward, with the hope that victory through strength may come to men of good will, and that democratic, humanistic education may inculcate

⁶⁹⁰ Babbitt, "The Composer as Specialist," 53.

⁶⁹¹ Babbitt, "The Composer as Specialist," 54.

⁶⁹² Thomas Munro, "Do the Arts Progress?" *The Journal of Aesthetics and Art Criticism* 14, December 1955, 180. (175-190)

⁶⁹³ Munro, 181.

more desire for peaceful cooperation in the youth of the future."⁶⁹⁴ This was a new modernism, however; according to Fredric Jameson a "high modernism which conquered the university, the museum, the art gallery network and the foundations" after 1945.⁶⁹⁵

The paradigm shift did not go unnoticed among the inter-war generation. Reviewing a concert organized by the League of Composers of "Yesterday's Modernism" for the *New York Herald Tribune* in 1949, Thomson observed that the program of music by Varèse, Harris and even Sessions recalled "the former successes of the modern-music movement."⁶⁹⁶ Both the article and the concert were a benediction on the past. *Modern Music* emerged from the Second World War in disorder. An "atmosphere of sharp aesthetic controversy pervaded the magazine," noted Thomson. The focal point of American modern music for more than two decades, the magazine had tried to isolate itself from the League of Composers to protect it from "the gradual disintegration" of its parent organization.⁶⁹⁷ However, the postwar climate was inhospitable for a small magazine and the growing institutionalization of "difficult music" left little room for independent publications. Lederman announced that *Modern Music* had ceased publication in January 1947.⁶⁹⁸ The League itself merged with the International Society for Contemporary Music seven years later. Following the death of Ives in 1955, its primary source of support, *New Music* ceased publication in 1958.

Copland struck a note of nostalgia in his assessment of the new generation of American composers who had begun to emerge after the Second World War. "I

⁶⁹⁴ Munro, 182.

⁶⁹⁵ Jameson, "Postmodernism and Consumer Society," in Hal Foster, ed., *The Anti-Aesthetic: Essays of Postmodern Culture*, (Port Townsend, WA: Bay Press, 1983), 111.

⁶⁹⁶ Thomson, "Yesterday's Modernism," *Music Right and Left* (New York: Greenwood Press, 1951), 107.

⁶⁹⁷ Lederman, 187.

⁶⁹⁸ Lederman, 195.

instinctively thought of myself as part of a 'school' of composers," he wrote in the *New York Times* in 1948 with an almost-audible sigh. The composer had surveyed the field of "America's Young men of Promise" in 1926 and 1936 when he, Sessions, Cowell, Blitzstein and the others were indeed young men. Now 49, Copland noted that "my contemporaries and I must count ourselves among the spiritual papas of a new generation of composers."⁶⁹⁹ The elder composer was impressed by the new generation and certainly expected great things from them. Yet apart from his personal friend Leonard Bernstein, Copland clearly felt disconnected from "The New 'School' of American Composers."

Many of Copland's younger colleagues shared his observation that "you cannot set up a continuing tradition of creative music in any country without a constant freshening of source material as each decade brings forth a new batch of composers."⁷⁰⁰ Writing in 1959, Russell Smith noted that Copland was "regarded with considerable justice as the dean of American composers."⁷⁰¹ Yet he viewed the elder composer and his contemporaries primarily as precursors who had "created the first authentic and serious music which could be called native to this country."⁷⁰² Babbitt agreed, implicitly questioning the relevance of the interwar generation's music to the postwar world by firmly associating it with the past. "[It] must never be forgotten the that these men are of the strategic generation," he wrote in 1954, "which has produced works of such singular

⁶⁹⁹ Copland, "The New 'School' of American Composers," *New York Times*, 14 March 1948, SM18.

⁷⁰⁰ Copland, "The New 'School' of American Composers," SM18.

⁷⁰¹ Russell Smith, "The New Music," *Harper's Magazine*, April 1959, 42.

⁷⁰² Russell Smith, 39

achievement that they have provided the younger generation with independent directions and morale-building precedents."⁷⁰³

Many of the composers who had so challenged concert audiences in the 1920s and 1930s and sought to establish a native school of American modernism had successfully done just that and in the process had become, in Copland's words, "guardians of musical tradition."⁷⁰⁴ Almost two decades after the Copland-Sessions Concerts, the inter-war generation seemed parochial and a little stale to new ears. Sessions alone, who had "arrived at a more cosmopolitan, rather international, style," seemed relevant to the new, contemporary music of the postwar period.⁷⁰⁵ By then, Sessions had successfully disengaged his reputation from the memory of the past, representing himself as one of the few of his colleagues who was not tainted by association with Boulanger and neo-Classicism.⁷⁰⁶ Despite the "'cerebral' and 'difficult'" idiom in which he worked, he had emerged as the acknowledged leader of postwar American modernism, "ranked by other U.S. composers as one of the most serious and most original of them all."⁷⁰⁷

As in so much else, the Second World War had been a decisive break in American music. Many of Sessions' inter-war colleagues had made their departures from the challenging modernism of their youth. In Thomson's schema for example, the war inaugurated Copland's "third period" with accessible and unabashedly patriotic works like *A Lincoln Portrait* and *Fanfare for the Common Man* in 1942 and Americana like the ballet *Rodeo* in 1942 and *Appalachian Spring* in 1944. "This embodied his wish to enjoy

⁷⁰³ Babbitt, "Musical America's Several Generations," *The Collected Essays of Milton Babbitt*, 35.

⁷⁰⁴ Copland, "The New 'School' of American Composers," SM18.

⁷⁰⁵ Russell Smith, 39.

⁷⁰⁶ Babbitt, "My Vienna Triangle at Washington Square Revisited and Dilated," in Reinhold Brinkman and Christoph Wolff, eds., *Driven into Paradise: The Musical Migration from Nazi Germany to the United States* (Berkeley: University of California Press, 1999), 39.

⁷⁰⁷ "The Idiom Is Advanced," *Time*, 23 January 1950, 39.

large audiences not specifically musical," Thomson noted, "and for that purpose it was necessary to speak simply."⁷⁰⁸ Blitzstein enlisted in the Army Air Corps in the summer of 1942, as an "entertainment specialist" with the rank of private.⁷⁰⁹ Assigned to the 8th Air Force's film production unit and promoted to corporal, he began work on an ambitious choral symphony with dramatic narration on the history of aviation on a commission from the Army Air Corps.⁷¹⁰ The Airborne Symphony premiered in New York in the spring of 1946. "The performance, under the direction of Leonard Bernstein, was remarkably sure, brilliant and dramatically eloquent," The Times' Downes wrote. The performance was a phenomenal popular success, and the composer a "craftsman for the multitude."⁷¹¹

Cowell, released in 1940 with a pardon from California governor Culbert Olson, spent the war years at the Office of War Information. Sachs notes that, socially and financially insecure and feeling the sting of public humiliation, Cowell "had completed the transition away from modernism" in favour of a more accessible idiom, exemplified in his 1945 compositions *Hymns* and *Fuguing Tunes*, based on traditional melodies.⁷¹² Cowell continued to perform his experimental compositions in the postwar period, but with a self-conscious view to the past. A recital at New York's Times Hall in 1949 was, more than anything, a musical museum that "illustrated the way he sought to develop more kinds of tone qualities from the piano between 1915 and 1928 when he was specializing in the instrument."⁷¹³

⁷⁰⁸ Thomson, "Aaron Copland," in *Virgil Thomson, A Reader: Selected Writings 1924-1984*, 177.

⁷⁰⁹ Pollack, 261.

⁷¹⁰ Pollack, 283.

⁷¹¹ Downes, "Audience Cheers Blitzstein Work," *New York Times*, 2 April 1946, 23.

⁷¹² Sachs, 412.

⁷¹³ "Cowell Shows Methods," *New York Times*, 7 March 1949, 16.

Howe eulogized the passing of the modernist avant garde, doubting "whether by now, a few decades after World War II, there can still be located in the West a coherent and self-assured avant garde."⁷¹⁴ He noted the reconciliation of modernism with official culture. Modern music continued to thrive, with a characteristic disdain for the uneducated public, though now draped in academic regalia. The high-modernist composer, like Babbitt, was a breed apart from his inter-war predecessors. Copland, Cowell, even Sessions himself, had supplemented their unreliable livelihoods as composers by taking adjunct and casual teaching positions at American universities and conservatories. Yet they had maintained their independence from the institutions of higher education; they were composers who would moonlight as academics if necessary, not academic composers. In the years following 1945, however, the composers most identified with modernism and "advanced" music were almost invariably salaried intellectuals supported by the full weight of the postwar academy.

It could be no other way, Babbitt wrote. The university alone could offer the same kind of autonomy and independence from mass taste and fashion that it "provides the scholar and the scientist." It was the ideal "home for the 'complex,' 'difficult,' and 'problematical' in music."⁷¹⁵ The moment of modern music and the tide of avant garde experimentation had not passed, but its momentum had shifted from the concert halls, festivals and *soirées musicales* of the 1920s and 1930s to university music departments.

⁷¹⁴ Howe, 52.

⁷¹⁵ Babbitt, "The Composer as Specialist," 53.

II. Campus Composers

"I am well aware that one of the most oft heard complaints against contemporary art, and perhaps especially against that which I myself represent – contemporary music – is that it does not reach the heart of the common man," Sessions said at a symposium to mark the opening of Brandeis University's Graduate School of Arts and Science in 1954. The "gap" between "serious" music and public taste was not a new development, but with the "development of mass communication" and mass culture, contemporary music's potential public had "grown from an elite of a few thousands to a mass public of many millions."⁷¹⁶ Sessions was confident that, as in the past, public taste would inevitably catch up but he was well-aware that the size and diversity of the postwar mass audience made it unlikely that it would happen "promptly enough to satisfy those of us who care deeply about art and its fate."⁷¹⁷ The challenge was twofold: to cultivate and educate the "common man's" ear, while providing for the continued material survival and development of modern music. "If what I have said is even partially true, the fostering of the arts, in a period such as our own should certainly be a major concern of the university."⁷¹⁸

By the time he addressed the Brandeis symposium Sessions certainly knew that the arts – including modern music – had indeed become a major concern of universities and colleges. Although he jealously guarded his artistic and professional independence, Sessions had begun teaching at the New School for Social Research out of financial necessity following his return from Germany in 1933. "The chief difficulty," he wrote to

⁷¹⁶ Sessions, "Music and the Crisis of the Arts," *Roger Sessions on Music: Collected Essays*, Edited by Edward T. Cone (Princeton: Princeton University Press, 1979), 177-178.

⁷¹⁷ Sessions, "Music and the Crisis in the Arts," 178.

⁷¹⁸ Sessions, "Music and the Crisis in the Arts," 184.

Copland at the time, "seems to be the problem of getting pupils who can afford to pay!"⁷¹⁹ Nevertheless, the New School position, and a brief return to Smith College in 1935, marked the start of a lengthy university career. Following seven years at Princeton, he joined the music faculty at the University of California at Berkeley in 1945 to "build the school into something really good."⁷²⁰ He returned to Princeton in 1954 as a full professor.

The trajectory of Sessions' academic career, though illustrious, was not entirely unique and he could observe in 1956 with no hyperbole that virtually all "of the distinguished composers of today are teaching in universities."⁷²¹ The university had become the postwar high-modernist composer's natural habitat. "Does the university... really want to have composers around?" he asked in 1949, before answering emphatically in the affirmative.⁷²² It was essential to what Sessions believed was one of the central roles of the postwar academy, "of fostering what I have called a musical *society*, in which creative activity, as the expression par excellence of the musical impulse of a given time and place, must play its part."⁷²³ Moreover Sessions noted that the university provided an essential space for cross-disciplinary interaction and mutual inspiration across the academic spectrum that would foster a coherent intellectual culture. Composers and scholars in other disciplines "must therefore remain in genuine communication, and recognize clearly the nature of the work done by each, and the different roles which each

⁷¹⁹ Sessions, letter to Copland, 11 August 1933, Aaron Copland Papers, Box 262, Folder 21.

⁷²⁰ Sessions, letter to Krenek, 23 May 1945, in Olmstead, 339-340.

⁷²¹ Sessions, "Music and the Crisis in the Arts," 185.

⁷²² Sessions, "The Composer in the University," 196.

⁷²³ Sessions, "The Composer in the University," 198.

play in the total picture," he wrote. "If they can do this they may easily find that they cannot only live in peace but actually enjoy each other's society."⁷²⁴

Though Sessions made a strong intellectual case for the reconfiguration of composers as institutional scholars, many of his colleagues were equally drawn to universities by more practical considerations. The realities of the postwar music market and arts funding made the academy the most attractive – if not the only – option for composers seeking the financial security necessary to practice their art. Postwar orchestras and music societies seemed disinclined to program American music. "Of 739 pieces sung or played in Manhattan's three biggest concert halls last year, only 45—less than 7% —were composed by Americans," noted *Time* magazine in 1947. "Outside New York, artists and conductors were even less apt to be venturesome."⁷²⁵

The introduction of the 33 rpm long-play (LP) record by Columbia Records in 1948, and its rapid adoption throughout the recorded music industry had been a promising development. Record sales had dropped significantly during the Second World War and the recording industry was "anxious to get things back in the groove," the *New York Times* announced in 1948. The LP promised to do just that, by delivering 45 minutes of music over two sides of a 12-inch vinyl record – more conveniently and more economically than conventional 78-rpm discs. "A Columbia Records official said a single, 12-inch, long playing record containing a full symphony costs \$4.85," the *Times* reported, "compared with \$7.25 for an album of five conventional records containing the same symphony."⁷²⁶

⁷²⁴ Sessions, "The Composer in the University," 203.

⁷²⁵ "It Ain't Necessarily So," *Time*, 27 January 1947, 46.

⁷²⁶ "New Record Aimed to Bolster Sales," *New York Times*, 2 June 1948, 29.

Consumers responded eagerly. Four years later, Schonberg wrote that disks "were issued in a ceaseless flow" by the classical record industry to feed the appetites of an expanding market, including a growing number of audiophiles who invested considerable sums in custom audio equipment to take advantage of the new "high fidelity" recording standards. The one ominous note for American composers was that, while the flood of new records included "the usual ensuing amount" of "contemporary esoterica," Schonberg observed, record labels mostly served more conservative tastes.⁷²⁷ They were mining the past catalogue of orchestral warhorses. Capitol Records, along with Columbia, RCA and Decca, one of the four largest record companies in the world at the time, entered the classical music market with a stash of wartime recordings from the Telefunken corporation library: "Masters of the records were hidden in Bavarian caves during the war and were flown out of Berlin by the air lift."⁷²⁸ By 1954, it had become clear that contemporary American music little benefitted from the record boom. The LP had given the industry a "shot in the arm and spurred classical music sales to new heights," but record companies and postwar consumers were far more interested in "the bread-and-butter items" of the classical repertoire," Schonberg wrote. "[The] companies hedge on contemporary music," he continued. "Not specifically mentioned, but implicit in their observations, was the lack of support from the public in that regard."⁷²⁹

The failure of contemporary music to establish itself in record company catalogues was all the more disappointing given the meager support available from more traditional funding sources. Direct government funding for the arts all but dried-up in the

⁷²⁷ Schonberg, "Survey of Years Output Reveals Consolidation," *New York Times*, 28 December 1952, X8.

⁷²⁸ "Enters Classical Field: Capital Records Plans Release From Telefunken Library," *New York Times*, 5 March 1949, 20.

⁷²⁹ Schonberg, "Bread-and-Butter Items are Steady Best-Sellers," *New York Times*, 21 November 1954, XX1.

immediate postwar period – particularly when compared to the vast mobilization of resources in the New Deal's cultural programs like the Federal Theater Project and the Federal Music project during the Great Depression. The controversies surrounding the Dies Commission's investigation of subversive activity in Federal Theatre and the wartime celebration of America's Soviet allies had made government subsidies of the arts impolitic in the early Cold War climate. Efforts by Hubert Humphrey in the Senate and Jacob Javits and Frank Thompson in the House of Representatives to establish systematic federal arts funding were killed in committee.⁷³⁰ David Brian Howard notes that direct government arts funding had become almost impossible due to "the tainted association of public arts support with Soviet-style socialist-supported culture."⁷³¹

Many of the most prominent American composers of the inter-war period were themselves tainted. Blitzstein and much of the cast, including Howard da Silva and Will Geer, of the FTP-funded show *The Cradle Will Rock* were identified as potential subversives in *Red Channels*, a sensationalist report on Communist influence in the broadcasting industry published by the right-wing magazine *Counterattack* in 1950. Copland's "questionable" associations occupied three pages of the publication.⁷³² These associations, in fact, brought Copland before Joseph McCarthy's committee in the spring of 1953. "The list of so-called affiliations was long – nervous-making," he noted in his journal. "But my conscience was clear – in a free America I had the right to affiliate openly with whom I pleased; to sign protests, statements, appeals, open letters, petitions;

⁷³⁰ Joseph Wesley Ziegler, *Art in Crisis: The National Endowment for the Arts Versus America* (Chicago: A Capella Books, 1994), 9.

⁷³¹ David Brian Howard, "Between Avant-Garde and Kitsch: Pragmatic Liberalism, Public Arts Funding, and the Cold War in the United States, *Canadian Review of American Studies*, 34, No. 3, 293.

⁷³² American Business Consultants, *Red Channels: The Report of Communist Influence in Radio and Television* (New York, 1950), 39-41.

sponsor events, etc. and no one had the right to question those affiliations."⁷³³ While Copland might have had a clear conscience, McCarthy's suspicions came at a cost. A performance of his patriotic *Lincoln Portrait* at President Eisenhower's inaugural concert was peremptorily cancelled amid the controversy of Copland's subpoena.⁷³⁴ There were, to be sure, sources of private funding, like the Guggenheim grants which had supported so many American modernists, including Copland, Cowell and Roy Harris, during the 1920s and 1930s. Yet, in the immediate postwar period, the Guggenheim committee clearly favoured conservatives like Samuel Barber and Nicolai Berezowsky. For many of the most challenging American composers the greenest pastures were to be found on college and university campuses.

American institutions of higher education experienced a phenomenal postwar growth spurt, as ivied colleges were transformed into vast research universities. This transformation was driven by a number of factors closely related to economic reconversion and the delivery of the millennial promise of technological embourgeoisement following the Second World War. The democratization of higher education enabled by the G.I. Bill, postwar prosperity and the culture of abundance, the demand for skilled white collar workers, growing private-sector partnerships and above all the "flood of federal research dollars" vastly expanded American universities.⁷³⁵ There had been 1,100,727 students at American colleges and universities in 1930; by 1950 there were 2,659,021 – an increase of 140 percent. And postwar universities were far richer as

⁷³³ Copland, Journal entry, May 1953, Aaron Copland Papers, photostat, Box 243, Folder 7-8,

⁷³⁴ Copland, letter to League of Composers, 9 February 1953, in Copland, *The Selected Correspondence of Aaron Copland*, edited by Elizabeth B. Crist and Wayne Shirley (New Haven: Yale University Press, 2006), 208.

⁷³⁵ Hugh Davis Graham and Nancy Diamond, *The Rise of American Research Universities: Elites and Challengers in the Postwar Era* (Baltimore: Johns Hopkins University Press, 1997), 11.

well, with an aggregate budget of more than \$2.1 billion, a 235 percent increase over the \$632 million spent two decades before. Public colleges and universities, whose budgets grew more than 306 percent in this period, accounted for 55 percent of spending by post-secondary institutions, compared to 45 percent in 1930.⁷³⁶

The pure and applied sciences accounted for the lion's share of this growth, as Cold War pressures funneled vast amounts of funding into basic research from federal bodies like the Defense Department's Advanced Research Projects Agency and the National Science Foundation and university-corporate partnerships that had been established during the Second World War.⁷³⁷ "The publicly and privately supported colleges, universities, and research institutes are the centers of basic research," Vannevar Bush, the Director of President Truman's Office of Scientific Research and Development, asserted in a report calling for the creation of the NSF in 1945. "They are the wellsprings of knowledge and understanding. As long as they are vigorous and healthy and their scientists are free to pursue the truth wherever it may lead, there will be a flow of new scientific knowledge to those who can apply it to practical problems in Government, in industry, or elsewhere."⁷³⁸ Bush called on the Federal government to "accept new responsibilities for promoting the creation of new scientific knowledge and the development of scientific talent in our youth."⁷³⁹ Washington eagerly rose to the challenge.

Though music departments were not included under the NSF's rubric and did not produce the kind of basic research sought by government agencies and military

⁷³⁶ U.S. Census Bureau, U.S. Census Bureau, *Statistical Abstract of the United States, 1957*, 122.

⁷³⁷ Graham and Diamond, 27.

⁷³⁸ Vannevar Bush, *Science, the Endless Frontier*, Reprint (Washington: National Science Foundation, 1960), 12.

⁷³⁹ Bush, 31.

contractors, they nonetheless benefitted from overall university growth. New York's Columbia University was typical. Its music department offered 30 courses in the 1935-1936 academic year.⁷⁴⁰ To some extent, this reflected the effects of dwindling departmental budgets during the Great Depression and a series of cuts that affected most American university departments between 1932 and 1934.⁷⁴¹ However, postwar university growth had made the years of austerity a distant memory. By 1955-1956, the Columbia music department offered 49 courses in 65 sections.⁷⁴²

American music departments had also grown immensely in prestige with the relocation of an entire generation of modernist composers from Europe to the United States following the rise of the Third Reich and during the Second World War. "By the end of the first two months following Adolf Hitler's arrival in power, hundreds of prominent literary and artistic figures were in exile," writes Alan Beyerchin.⁷⁴³ Nazi racial and cultural policies silenced producers of "degenerate" art and music and stripped scholars of their tenure and posts. The Nazi campaign against liberals, modernists and so-called "cultural pessimists" resulted in "the intellectual decapitation of Germany," Beyerchin writes.⁷⁴⁴ It also left thousands of artists and intellectuals stateless and homeless. A vast transatlantic hemorrhage of European knowledge and creativity, with enormous implications for American culture and scholarship had begun.

⁷⁴⁰ "Announcement of the Department of Music for the Winter and Spring Sessions, 1935-1936," *Columbia University Bulletin of Information*, 35th series, No. 21, February 1935, 11-17.

⁷⁴¹ Marjorie Lamberti, "The Reception of Refugee Scholars from Nazi Germany in America: Philanthropy and Social Change in Higher Education," *Jewish Social Studies: History, Culture, Society* 12, No. 3, Spring/Summer 2006, 159.

⁷⁴² "Announcement of the Division of Fine Arts, Archaeology, and Music for the Winter and Spring Sessions, 1955-1956," *Columbia University Bulletin of Information*, 55th series, No. 38, September 24, 1955, 193-202.

⁷⁴³ Alan Beyerchin, "Anti-Intellectualism and the Cultural Decapitation of Germany under the Nazis," in Jarrell C. Jackman and Carla M. Borden, eds., *The Muses Flee Hitler: Cultural Transfer and Adaptation, 1930-1945* (Washington: Smithsonian Institution Press, 1983), 30.

⁷⁴⁴ Beyerchin, 41.

As early as 1933, the Emergency Committee in Aid of Displaced German Scholars had begun a process of recruiting exiled Jewish and left-leaning German scholars for American universities. "The society of universities cannot fail to notice and must reservedly deplore the abandonment of these university rights wherever they have been abandoned," the Committee declared. "It behooves [American universities] to make known, in all solemnity, that they intend to maintain their historic duty of welcoming scholars, irrespective of race, religion and political conviction into academic society." Initially characterized as an emergency effort, the Committee received funding from the Rockefeller Foundation to provide for supernumerary academic posts. "We wish to emphasize the emergency nature of this activity," the Committee assured Americans. "We have not the resources to endow permanent chairs nor in view of the unemployment of our own scholars have we any desire to do so."⁷⁴⁵

The emergency continued and expanded as Nazi power spread in Central Europe and world war became increasingly likely. By 1938, *The Washington Post* reported that "an estimated 400 German professors are at work in this country," and they were "being joined by teachers from Vienna, Prague, Milan and Rome." For all the Committee's humanitarian intentions, an unexpected benefit for American universities and their students was the sudden availability of a wealth of European learning on home shores. "It used to be 'the thing' for young American intellectuals to finish their education in Germany," *The Post* enthused, "but today the youth of this country need go no farther than a nearby university to find a famous German savant."⁷⁴⁶ The migration contributed to a radical revision of the relationship between the new world and the old. "What

⁷⁴⁵ "German Scholars to be Aided Here," *New York Times*, 13 July 1933, 6.

⁷⁴⁶ "Savants Fleeing Europe Go to U.S. Colleges," *The Washington Post*, 28 November, 1938, X24.

probably constitutes the world's greatest gain in this migration, and what in the long run must prove a great blow to the cultural future of Germany," James Husted observed in *The Washington Post*, "is the scattering among the universities and other scientific institutions of the whole civilized world of a great number of Germany's important Jewish scholars."⁷⁴⁷

Central European musicians received special attention from the Placement Committee for German and Austrian Musicians, which boasted that, by September 1940, it had found jobs for 1,361 refugee conductors, instrumentalists, singers and composers at orchestras and educational institutions across the country.⁷⁴⁸ However, the arrival of so many musicians and artists in other fields coincided with the worst days of the Great Depression, and their presence *did* create tensions. For example, unions representing film industry workers warned of a "refugee problem," although "as far as can be determined at present no mass displacement of studio workers who were employed before the refugees began to pour in has taken place."⁷⁴⁹ Unsaid, but implicit in the "refugee problem" was that it was also a "Jewish problem." Oswald Veblen had encountered considerable anti-Semitic resistance in his efforts to place foreign mathematicians at American universities.⁷⁵⁰

On the other hand, as the music critic Howard Taubman wrote in 1938, American culture could only benefit from extending a warm welcome to European composers and musicians, and finding a permanent place for them in the country's musical life. "As for

⁷⁴⁷ James Husted. "Exiled Victims of Nazi Terrorism Find Hospitality in Many Lands," *The Washington Post*, 28 July 1935, B3

⁷⁴⁸ M. Robert Rogers, "Record of Placement of Refugee Musicians," *New York Times*, 17 November 1940, 143.

⁷⁴⁹ Frank Daugherty, "Haven for Refugees: The Absorption of Artists from Europe Creates a Problem for Film Unions," *New York Times*, 2 March 1941, X5.

⁷⁵⁰ Nathan Reingold, "Refugee Mathematicians in the United States, 1933-1941: Reception and Reaction," in Jackman and Borden, 225.

the immigrants, there is scarcely room for argument about granting these men and women asylum here," he wrote. "And there will be general agreement that this country is bound to gain from the infusion of such an abundance of talent."⁷⁵¹ The arrival of Schoenberg, one of the first musical refugees to arrive in the United States, was covered breathlessly by the American press throughout the fall of 1933, even before the liner *Ile de France* left Brussels in October. Few Americans had ever heard Schoenberg's music – though his reputation as an *enfant terrible* of modernism certainly preceded him – but as much ink was spilled over him as over a Hollywood star. Downes tried to put it in perspective for readers of *The New York Times*: the master of modern music was coming to teach and to learn. His arrival would be a moment of profound cultural importance. "He comes to new frontiers, to the home of a civilization which might use him roughly, to try not only his material but his artistic fortune," Downes wrote. "It is to be hoped that his stay will be an extensive one, and one duly recorded in his music... Schönberg will be at least as willing to experiment and as curious about America as America will be about him. How will he function here as a teacher?"⁷⁵²

The question could equally well have been asked of the dozens of composer-scholars, including Krenek, Hindemith, Alexander von Zemlinsky, and Stefan Wolpe, who would soon follow. How, and more pointedly, *where* would they teach, and how would this affect American musical education? Schoenberg's initial appointment was at the Malkin Conservatory of Music in Boston. He later moved to New York, finally accepting an appointment at the University of California in Los Angeles in 1936. Music

⁷⁵¹ H. Howard Taubman, "Influx of Artists: Many Seek Place Here Because of Events In Europe-- Advantages and Problems," *New York Times*, 29 May 1938, 115.

⁷⁵² Downes, "Schoenberg's Impending Visit: The Possible Effects of His Sojourn Here on One of the Great Figures in Modern Music," *New York Times*, 22 October 1933, X6.

had not been a priority in American universities and even the most illustrious of the creative exiles from Nazi Germany entered something of an academic vacuum. Shortly after his arrival in New York, for example, Schoenberg had been invited to give his "first pronouncement on the subject" of twelve-tone composition at Princeton University. But, Babbitt would later recall, in "1933 there was no music department at Princeton, and Schoenberg's invitation had been arranged by various departments and the university organist."⁷⁵³

In many cases, a music department would be built around the newly-arrived refugee scholar composer, often under the newly-created title "composer-in-residence." Krenek held the title at Vassar College before being tapped by Hamline University in 1942, as department head and then dean of the School of Fine Arts, to build the music department and inaugurate its graduate program.⁷⁵⁴ Wolpe's peripatetic teaching career brought him to Black Mountain College, a small experimental institution in North Carolina, as a lecturer in the spring of 1952. He was appointed music director later that summer.⁷⁵⁵ A late émigré, Hindemith served on the music faculty of Yale University from 1940 until 1953 where, musicologist Boris Schwarz recalls, he "built a department that reflected his ideas on the craft of musical composition."⁷⁵⁶

Of equal importance was the arrival of German and Austrian musicologists. Musicology was still in its infancy in the United States in the 1930s, despite the efforts of the small, informal group around Seeger, Cowell and Slonimsky that formed the New

⁷⁵³ Babbitt, "My Vienna Triangle at Washington Square Revisted and Dilated," in Brinkman and Wolff, 34.

⁷⁵⁴ Dorothy L. Crawford, *A Windfall of Musicians: Hitler's Émigrés and Exiles in Southern California* (New Haven: Yale University Press, 2011), 200

⁷⁵⁵ Andrew Kohn, "Black Mountain College as Context for the Writings of Wolpe," in Austin Clarkson, ed., *On the Music of Stefan Wolpe: Essays and Recollections* (New York: Pendragon Press, 2003), 115

⁷⁵⁶ Boris Schwarz, "The Music Work in Migration," in Jackman and Borden, 142.

York Musicological Society in 1930 and which grew into the American Musicological Society in 1934. The stream of refugee musicologists from central Europe, including Alfred Einstein, Heinz Geiringer and Paul Nettl, transformed the discipline. "Overcoming linguistic difficulties, most of these scholars obtained positions at American colleges and universities, usually teaching one or two courses in musicology and some related subjects," Schwarz writes. "The phenomenal growth of musicological studies, reflected in the parallel growth of the American Musicological Society... can be traced to the influence of immigrant scholars, mostly of German background."⁷⁵⁷

Although composers and music scholars of different backgrounds, like Stravinsky, Milhaud and Bartòk, also found refuge in the United States, they were relatively few and somewhat submerged in an overwhelmingly Germanic tide. Their influence cannot be easily quantified, but the Teutonic musical tradition rapidly colonized American modern music. Not even Stravinsky, the embodiment of neo-classical opposition to twelve-tone serialism before the War, was immune. "The division persisted even when Schoenberg and Stravinsky became near-neighbors in Hollywood," Joseph Straus writes. "Despite their physical proximity over a period of eleven years, from Stravinsky's arrival in Los Angeles in 1940 until Schoenberg's death in 1951, they never once met or spoke to one another."⁷⁵⁸ Yet Straus notes that the disastrous reception of the opera *The Rake's Progress*, his last explicitly neo-classical work, "led Stravinsky to a dramatic stylistic reorientation."⁷⁵⁹

The opera sounded hackneyed and out-of date to New York audiences. "This is a sophism as superficial as it is specious, proceeding directly from the fundamental fallacy

⁷⁵⁷ Schwarz, 149.

⁷⁵⁸ Joseph N. Straus, *Stravinsky's Late Music* (Cambridge: Cambridge University Press, 2001), 9.

⁷⁵⁹ Straus, *Stravinsky's Late Music* 4.

of the kind of neo-classicism actually practiced, if not professed, by Stravinsky and his followers," Downes wrote. "To the best of our belief, Stravinsky's looking backward in the esthetic sense results in music which is 'ersatz,' artificial, unreal and actually unexpressive."⁷⁶⁰ The reviews of the opera's performances in Paris and Geneva in the summer of 1952 hadn't been any better. Restaged by the Metropolitan opera the next year, *The Rake's Progress* "suffered the worst fiasco that we have seen occur at the Metropolitan in thirty years of attendance there," Downes wrote, "a fine performance of a poor opera!"⁷⁶¹ Whether the reception of *The Rake's Progress* demonstrated that Stravinsky was now completely out of touch with American music or, as Joan Peyser suggests, because of the recent "death of Schoenberg and the goading of [conductor Robert] Craft," the composer abruptly adopted the twelve-tone idiom with the fervor of a religious convert.⁷⁶²

Craft, Stravinsky's close friend, amanuensis and most vocal American champion, would later recall that attending a concert of works by Schoenberg and Webern following the opera's dismal reception marked a "turning point in [Stravinsky's] later musical evolution." On a drive in the country in 1952, "he startled us, saying that he was afraid he could no longer compose and did not know what to do," Craft wrote. "He referred obliquely to the powerful impression that the Schoenberg piece had made on him, and when he said that he wanted to learn more, I knew that the crisis was over; so far from being defeated, Stravinsky would emerge a new composer."⁷⁶³ Indeed, his works in the

⁷⁶⁰ Downes, "'The Rake's Progress': An Estimate of the Opera By Igor Stravinsky," *New York Times*, 22 February, 1953. X7.

⁷⁶¹ Downes, "'Rake's Progress' of Stravinsky Makes Season's Debut at 'Met:' Many in the Audience Leave Before the End," *New York Times*, 27 January 1954, 23.

⁷⁶² Joan Peyser, *To Boulez and Beyond*, revised edition (Lanham, MD: The Scarecrow Press, 2008), 100.

⁷⁶³ Robert Craft, *Stravinsky: Glimpses of a Life* (London: Lime Tree, 1992), 39.

twelve-tone idiom were enthusiastically received. *The New York Times* called Stravinsky's *Canata* "the work of a master... Only Stravinsky among living composers could get such timbre and variety from only five players."⁷⁶⁴ *Agon*, staged by the New York City Ballet in December 1957, and treated to a concert presentation two months later, was judged difficult and enigmatic – but a triumph. "Using serial technique in ways inspired by Webern and his own limitless freshness for rhythmic play and instrumental combinations," Taubman wrote, "the composer has woven a distinctive fabric."⁷⁶⁵

Stravinsky had become utterly committed to serialism. He now celebrated Schoenberg as one of the great composers, and his twelve-tone works as the essential monuments of the modern canon. "Musicians will take their bearings from them for a great while to come," he said in 1958. "They constitute together with a few works of not so many other composers, the true tradition."⁷⁶⁶ Not merely tradition, Stravinsky declared that serialism was both the most effective idiom of contemporary music and its future as well. A "masterpiece is more likely to happen to the composer with the most highly developed language," he said, noting that the language was serialism. "Developments in language are not easily abandoned, and the composer who fails to take account of them may lose the mainstream. Masterpieces aside, it seems to me that the new music will be serial."⁷⁶⁷

⁷⁶⁴ H.C.S, "Stravinsky Offers Debut of 2 Works," *New York Times*, 22 December 1952, 21.

⁷⁶⁵ Taubman, "'Agon' on Concert: The Bostonians Play Stravinsky's Ballet," *New York Times*, 13 February 1958, 21.

⁷⁶⁶ Stravinsky and Craft, *Conversations with Igor Stravinsky* (London: Faber and Faber, 1958), 71.

⁷⁶⁷ Stravinsky and Craft, 131.

III. Musical Science

"The serial organization of tones must be, and for the most part is, today regarded as a settled fact—the composer is free to take it or leave it, or to adopt it with varying degrees of rigor, as he may choose," Sessions observed in 1959.⁷⁶⁸ To be sure, many American composers chose to "leave," rather than take serialism. Even as he was speaking to a Seminar in Advanced Musical Studies at Princeton University, sponsored by the Fromm Music Foundation, a wide range of composers continued to employ a broad spectrum of techniques that did not necessarily involve serialism. The generation of Copland and Cowell continued to compose in less-forbidding idioms; the musically conservative Barber, most of whose work was emphatically tonal and evocative of late-romanticism, was widely hailed as one of the great American composers. Indeed, Straus notes that because "of the numerical preponderance of traditionally oriented composers, it would be tempting to term the 1950s and 1960s an era of tonal dominance."⁷⁶⁹ Even in the academy, serialist composers were never more than a minority of music department faculty.⁷⁷⁰

Yet serialism, as the highly-refined development of the twelve-tone technique pioneered by Schoenberg and Webern became known after the Second World War, was the pervasive reference for virtually all discussions of modern American music. "By fairly general consent among musicians [Schoenberg and Webern] are acknowledged as masters," Taubman wrote, noting however that there remained dissenters who frankly

⁷⁶⁸ Sessions, "Problems and Issues Facing the Composer Today," in *Roger Sessions on Music*, 82.

⁷⁶⁹ Straus, "The Myth of Serial 'Tyranny' in the 1950s and 1960s," *The Musical Quarterly* 83, Autumn, 1999, 302.

⁷⁷⁰ Straus, "The Myth of Serial 'Tyranny' in the 1950s and 1960s," 307.

hated the music. "The more common reaction, however, is respect, if not affection."⁷⁷¹

Morton Feldman was one of the composers who had little affection for serialism, though he recognized – and lamented – its importance to academic music, and the hegemony that the "campus composers" of the 1950s and 1960s exercised over American art music.

"These men are their own audience. They are their own fame," he wrote. "Yet they have created a climate that has brought the musical activity of an entire nation down to a college level." It was, Feldman noted with more than a trace of irony, an "academic avant-garde" closely allied with Germanic musical tradition. "This is perfectly understandable," he conceded, "12-tone music, while it may not be great fare for the concert hall, is perfect for the schoolroom." Whatever the pedagogical value of their work, Feldman suspected that the "campus composers" did not think of their music as art. "It is a process of teaching teachers to teach teachers," he wrote. "In this process it is only natural that the music of the teacher will be no different from that of the teacher he's teaching. Academic freedom seems to be the comfort of knowing one is free to be academic."⁷⁷²

There was a certain amount of truth to the accusation. "Modern" or "advanced" music was almost invariably defined in terms of its relation to serialism, and the serial techniques deployed by the dominant campus composers inevitably articulated a rhetoric of progress. "The concept of newness, indeed, underlies everything that goes on in Kranichstein, and, closely allied with it, the concept of progress in art," the American musicologist Everett Helm wrote of the annual Darmstadt Courses for New Music. "Thus Schoenberg is better than Hindemith because his musical language is more' radical ',

⁷⁷¹ Taubman, "In Time to Come?: Twelve-Tone Music Is Major Influence But Public Has Not Yet Accepted It," *New York Times*, 23 March 1958, X9

⁷⁷² Feldman, "Boola Boola," *Composer*, Winter 1966/67, 13-16.

Webern better than Schoenberg for the same reason." Even in 1958, no one suggested that any composer had yet surpassed Webern, "but the prevailing outlook is that the kind of advanced music they are writing is definitely superior to anything that has gone before it."⁷⁷³ That was the point. "Certainly serialism in this period commanded an intellectual interest out of proportion to its actual measurable presence on the musical scene," Straus writes. "Its outsized prestige derived from a number of factors, including its scientific aura, its association with the most recent European developments, and its simple novelty."⁷⁷⁴

The serialism practiced by composers like Babbitt was a highly refined, precise, even scientific idiom. It was a Taylorized musical aesthetic that systematized "orderable nonpitch elements such as duration, dynamics, et cetera," with the same rigour that Schoenberg's technique organized melody, harmony and timbre. "This extension of autonomous and analogous structuring to nonpitch elements has, to the present writer's knowledge, no precedent in musical history," Babbitt wrote.⁷⁷⁵ The level of complexity involved in ordering the vast range of variables in a composition demanded the application of a mathematical logic that would have bewildered Schoenberg, but postwar serialism sought nothing less than rational perfection. The "very nature of the twelve-tone technique and its further development into serialism inevitably leads to a mathematical style of reasoning," Krenek wrote of the idiom he helped develop. "The composer dreams that the image of the universe as outlined in the concepts of Einstein's relativity, Heisenberg's principle of indeterminacy, Planck's quantum theory or Schroedinger's wave

⁷⁷³ Everett Helm, "Darmstadt Holiday Courses for New Music," *The Musical Times* 99, November 1958, 620.

⁷⁷⁴ Straus, "The Myth of Serial 'Tyranny' in the 1950s and 1960s," 303.

⁷⁷⁵ Babbitt, "Past and Present Concepts of the Nature and Limits of Music," *The Collected Essays of Milton Babbitt*, 83.

equations is somehow reflected and sublimated in his complex serial manipulations of musical atoms..."⁷⁷⁶

Krenek's musical scientism was mostly hyperbole. Yet the most rigorous academic modernists refused to recognize a distinction between music and science. Babbitt called it an "indefensible dichotomy or multichotomy, the perpetuation of a linguistic fortuity as if it embodied a fundamental and persistent truth."⁷⁷⁷ Music and science, composition and mathematics, were one and the same. Stückenschmidt, who had championed modern music since the 1920s, was appalled. "Krenek has defined the aim of serial composition as the 'total pre-determination of music,'" he wrote in 1963. Although built on a twelve-tone foundation, the hyper-rational ambition of the "serial technique has annulled Schoenberg's efforts to liberate music. The new order is even more rigid than the old."⁷⁷⁸

Although he never composed in a serial idiom Columbia University professor Vladimir Ussachevsky's lectures on modern music articulated what had already become the academic musical establishment's preoccupation with rationality and science. His lecture on "Music and Science" began with classical Greek musical theory and Pythagoras's tuning system for the monochord. Ussachevsky explained that Western music and science have always been related; even during the Middle Ages, "the close connection with mathematics is all too evident." By the 18th century, "Harmony becomes a science, and counterpoint also," he noted. Not even the mysticism of 19th century

⁷⁷⁶ Krenek, "A Composer's Influences," *Perspectives of New Music* 3, Autumn-Winter 1964, 41.

⁷⁷⁷ Babbitt, "The Structure and Function of Musical Theory," *The Collected Essays of Milton Babbitt*, 193.

⁷⁷⁸ Stückenschmidt, "Contemporary Techniques in Music," *The Musical Quarterly* 49, January 1963, 12.

Romanticism excluded "scientific considerations for music," and the 20th century was the apotheosis of musical science.⁷⁷⁹

The idiom pioneered and promoted in the academy, and of which Babbitt, by the end of the 1950s, was the leading exponent, articulated the virtues of science and the goals of progress: rationality, precision, discipline and above all efficiency. Yet this raised challenges that made demands beyond the capacity of human performers and listeners. "This increase in efficiency necessarily reduces the 'redundancy' of the language, and as a result the intelligible communication of the work demands increased accuracy from the transmitter (the performer) and activity from the receiver (the listener)," Babbitt wrote. "Incidentally, it is this circumstance, among many others, that has created the need for purely electronic media of 'performance.'"⁷⁸⁰

IV. Sonic Contours

The reception to the concert of "tape music" at the Museum of Modern Art on 28 October 1952 "was sensational," Otto Luening recalled in his memoirs.⁷⁸¹ It wasn't hyperbole. "Every age has had its characteristic instruments: in the 17th century it was the voice, in the 18th the clavier and pipe organ, in the 19th the piano and the symphony orchestra," *Time* magazine reported. "The 20th century instrument is the record machine—a phonograph or a tape recorder." Until recently, the reporter mused, "the instrument has been little more than a musical morgue where performances could be

⁷⁷⁹ Vladimir Ussachevsky, Lecture Notes, GS Music 38, n.d., probably 1 October 1955, Columbia University Department of Music, Vladimir Ussachevsky Papers, University Archives, Rare Book and Manuscript Library, Butler Library, Columbia University, New York, Box 3, Folder 1.

⁷⁸⁰ Babbitt, "The Composer as Specialist," 49.

⁷⁸¹ Otto Luening, *The Odyssey of an American Composer: The Autobiography of Otto Luening* (New York: Charles Scribner's Sons, 1980), 517.

preserved and exhumed at will."⁷⁸² But Luening and Ussachevsky, his colleague at Columbia University, demonstrated that recording technology had become an instrument unto itself – and they were its virtuosi. *Time* dubbed them "The Tapesichordists."

Presented alongside a program of more conventional music, including compositions by Lou Harrison and Elliott Carter, conducted by Stokowski, the tape music stole the show. The venerable conductor told the audience that he could imagine a day "when composers could work very much like painters, directly in the materials of sounds, with the assistance of devices like tape recorders."⁷⁸³ Ussachevsky's *Sonic Contours* distorted the familiar tones of the piano and voice into something decidedly unfamiliar. Luening's *Fantasy in Space* manipulated the recorded and overdubbed sound of a flute, played by the composer, to produce "interesting 'sonority forms,' as I called them."⁷⁸⁴ *Low Speed* employed a similar technique to produce harmonic tones in "a kind of unearthly and ghostlike counterpoint." The serial composition *Invention in Twelve Tones* subjected "a twelve-tone row" to three variations in ways that familiar to the most committed serialists. However, it added an additional level of control, Luening wrote. "I again used headphones and controlled the sound so that the end result was freer and more elastic than in much twelve-tone music."⁷⁸⁵

The technique was still in its infancy, and the music experimental. As Taubman wrote in the *New York Times*, the "experimenters" felt "that they are just beginning to discover the possibilities of the technique." As for the music itself, Taubman judged it

⁷⁸² "The Tapesichordists," *Time*, 10 November 1952, 97.

⁷⁸³ Taubman, "U.S. Music of Today Played at Concert: Two Works Presented on Tape Recorder Provide Novelty – Stokowski is Conductor," *New York Times*, 29 October 1952, 35.

⁷⁸⁴ Luening, 514.

⁷⁸⁵ Luening, 515.

"striking or amusing. Original, too, if you please, in the narrow meaning of the word."⁷⁸⁶ That originality certainly struck a chord. The MOMA concert program was broadcast on New York-area radio stations and caught the ear of producers at NBC's *Today Show*. The host Dave Garroway presented the "tapesichordists" to the network's national audience with "a flowery introduction about the mysteries of electronic music." Luening and Ussachevsky, "starstruck and geniuslike," improvised a performance of music for flute and tape. "The next day we were truly famous," Luening recalled.⁷⁸⁷ Electronic music, though not newly-born, had moved to the centre of modern music.

By 1952, electronic music already had a half century of history. The inventor Thaddeus Cahill created an electromechanical keyboard instrument called the Telharmonium to produce music for transmission across New York City's telephone lines as early as 1897. Following a tour of European capitals, Soviet inventor Leon Theremin introduced the "ether wave" music produced by his Thereminovox – More commonly known as the eponymous Theremin – to New York audiences in 1928. "What we have before us now is a successful scientific experiment which unfolds new and dazzling horizons for a future that should certainly have much to do with music," Downes reported, deploying the progressive rhetoric of the era. "For what is new, the possibilities stagger the imagination."⁷⁸⁸ The following year, the inventor performed along with the Philadelphia Orchestra under Stokowski at Carnegie Hall. "The performance was very brilliant," Downes judged.⁷⁸⁹ Yet, without keys or a fingerboard, the Theremin was a devilishly difficult instrument to play and remained a curiosity. In Europe, Maurice

⁷⁸⁶ Taubman, "U.S. Music of Today Played at Concert," 35.

⁷⁸⁷ Luening, 519.

⁷⁸⁸ Downes, "Theremin Opens a Musical Vista," *New York Times*, 29 January 1928, 128.

⁷⁸⁹ Downes, "Music," *New York Times*, 18 December 1929, 30.

Martenot and Friederich Trautwein picked up where Theremin left off. Most American audiences became acquainted with the possibilities of electronic music through the electric guitar and, above all, the electronic organ, first mass-produced by the Hammond Organ Company in 1934, and a familiar sight in churches and nightclubs by the late-1940s.⁷⁹⁰

Luening's and Ussachevsky's goal was nothing less than the creation of "a new kind of music."⁷⁹¹ This would be an idiom of organized sound, giving the composer complete control over every element of the composition and performance of his work.⁷⁹² Although they approached the problem from a different direction from the serialists, the "tapesichordists'" ambitions intersected with their colleagues' desire to achieve, as Sessions wrote, "total organization" and this became the basis of a productive creative alliance. "Since the potentialities of electronic media in the realm of sound are, at least to all intents and purposes, infinite, it is possible to measure all musical elements in terms of exact quantity, and in fact necessary to do so, since such measurement is the very nature of the instruments and the method by which they are used," Sessions wrote. "Every moment of music not only can but must be the result of the minutest calculation, and the composer for the first time has the whole world of sound at his disposal."⁷⁹³ This was made possible by the convergence of three postwar developments: the expansion of American universities and colleges whose resources and institutional culture provided a fertile environment and material and financial support for research into "musical

⁷⁹⁰ Braun, "Introduction: Technology and the Production and reproduction of Music in the 20th Century," in Braun, 12.

⁷⁹¹ Ralph Hartsock and Carl Rakhonen, *Vladimir Ussachevsky: A Bio-Bibliography* (Westport: The Greenwood Press, 2000), 7.

⁷⁹² Hartsock and Rakhonen, 93.

⁷⁹³ Sessions, "Problems and Issues Facing the Composer Today," 84.

science;" an unprecedented level of corporate sponsorship and, above all, revolutions in the electronic production and mediation of sound which, Sessions, wrote, "make possible the exact control of all musical elements."⁷⁹⁴

The first technological revolution was in sound recording and reproduction. Inter-war technologies like acetate disc and wire recorders were inadequate for the project that Sessions and his colleagues envisioned. Essential to the growth of the recorded music industry in the 1920s and 1930s, acetate disc recorders were expensive, temperamental, bulky and required considerable skill to operate. "The input from a microphone was amplified through a vacuum tube amplifier and then cut into an acetate covered revolving disc," Andre Millard notes. "The cutting head required constant attention and the user had to decide on several important variables such as the type of cutting stylus, the angle of the cut and the number of threads cut per inch."⁷⁹⁵ The sound quality of the recording was subject to a number of environmental variables as well and could be ruined by a simple bump against the recording apparatus. Moreover, grooves in a disc were an indelible record, uneditable once recorded, and with a fixed beginning and end. This could be overcome with some difficulty, by making closed groove recordings that played back in an infinite loop, and multiple discs could be played back simultaneously on multiple devices to achieve a primitive multi-tracking effect, but the technology was severely limited.

Wire recorders were widely used by the American businesses and the US military during the Second World War. They were reliable and portable but they, too, required

⁷⁹⁴ Sessions, "Problems and Issues Facing the Composer Today," 85.

⁷⁹⁵ Andre Millard, "Tape Recording and Music Making," in Braun, 158.

skill to operate "and a broken wire could be a dangerous thing."⁷⁹⁶ The technology was suited primarily for audio-dictation and archival purposes since, like acetate discs, it was not possible to edit recordings once they were made, and the recordings themselves and serious limitations in sound quality. Among the most serious, writes Peter Manning, were "poor audio bandwidth, extending only to about 7 kHz, the high background noise levels and an uneven frequency response that colored the timbre."⁷⁹⁷

Everything changed after the Second World War. In 1945, American troops recovered a large cache of plastic recording tapes from the BASF plant in Bad Nauheim and French forces captured *Magnetophon* tape recorders at the Allgemeine Elektrizitäts-Gesellschaft (AEG) headquarters in Berlin. AEG and IG Farben, BASF's parent company, had demonstrated prototypes of both the recorder and its recording medium at the German Radio Exposition in Berlin in 1935, but a decade of development had turned what had been a technological curiosity into an eminently useable tool. Within a year, a number of American companies, including Ampex Corp., emerged to take advantage of the unexpected peace dividend and a new, greatly improved plastic tape developed by 3M Corp. with a superior magnetic oxide coating. The first units shipped in 1947.⁷⁹⁸

The public reception of the new technology was both ecstatic and overwhelming. The New York Times breathlessly announced a "new electronic instrument known as the 'Magnesonic,' which records radio programs, phonograph records, music and voice on magnetic tape." It was expected to hit stores in time for the 1947 Christmas shopping

⁷⁹⁶ Millard, 159.

⁷⁹⁷ Peter Manning, "The Influence of Recording Technologies on the Early Development of Electroacoustic Music," *Leonardo Music Journal*, Vol. 13, 2003, 5.

⁷⁹⁸ Joel Chadabe, *Electric Sound: The Past and Promise of Electronic Music* (Uppser Saddle River, NJ: Prentice-Hall, 1997), 30.

season.⁷⁹⁹ "There are a prodigious number of tape-recorders either announced or already on the market," the music journal *Notes* reported in 1948. The "most fabulous of them all" was the Ampex Magnetic Tape Recorder "which sells for approximately \$4000."⁸⁰⁰ The Indiana Steel Products Company had a model that used cheaper paper tape at the more consumer-friendly price of \$150.⁸⁰¹ By 1950, tape recorders were being used to record concerts, soothe surgical patients to sleep and eavesdrop on telephone conversations. "When I started tapping, we took down conversations with pencil and paper," Treasury agent William J. Mellin told *The Saturday Evening Post* in 1948. Now, the G-man just plugged a tape recorder into the phone. "We didn't dream forty years ago that we'd have robot wire tapping."⁸⁰²

The quality of magnetic tape recording was indeed a quantum leap beyond that provided by earlier technologies. Tape "seldom breaks, and when it does, it rarely snarls," *Notes* reported. It could be edited, spliced, looped, and a single reel could play for an hour or more. Best of all, tape recordings provided unprecedented sound quality. *Notes* raved that "the quality can take on the air of a live performance with amazing fidelity and very little 'surface noise.'"⁸⁰³ In the minds of many Americans at the end of the 1940s, however, tape was solely a medium for recording and playback. It took radio engineer Pierre Schaeffer at the French national broadcasting agency Radiodiffusion Télévision Française to first exploit the possibilities of tape recording as a musical instrument.

⁷⁹⁹ "New Recorder Nearly Ready," *New York Times*, 15 August 1947, 24.

⁸⁰⁰ Philip L. Miller, "Findings on Sound Equipment," *Notes*, September 1948, 501.

⁸⁰¹ "Four Radios Are Shown: Electronics Laboratories Holds Preview of New Models," *New York Times*, 4 March 1947, 36.

⁸⁰² William J. Mellin, "I Was a Wire Tapper," *The Saturday Evening Post*, 10 September 1949, 20.

⁸⁰³ Earl Walker, Philip L. Miller and Morton Lee, "Recording Symposium." *Notes*, June 1950, 364.

Schaeffer had first experimented with integrating recorded sounds with a musical soundtrack in the "radiophonic opera" *La coquille à planètes*, produced by the Studio d'Essai de la Radiodiffusion Nationale in Paris under German occupation in 1944. Divided into eight 45-minute episodes, the opera featured an inventive score that included a spoken part, a musical part and a part for sound effects, a "partie bruitage." The latter provided a nonmusical soundtrack to serve "both as a component of the spectacle and as a reminder of the original radiophonic form."⁸⁰⁴ The sound effects would sometimes intrude on the broadcast to evoke specific signals like the carillons of Paris in episode six, or to provide the ambiance of a theatre or a garden in episode three. In effect, sound was used as both stage and setting, a "décor sonore," essential to illustrate the action in the absence of visuals and the virtual aural space in which it happened.⁸⁰⁵ In many respects *La coquille à planètes* expanded on the established practice of using sound effects to illustrate radio drama. To Pierre Henry, a soundtrack composer at RTF, the integration of music with sound – though limited by the disc-based technologies employed – suggested that recorded sounds themselves could be deployed as music. An admirer of Russolo's work, "Henry's presence at the studio brought an immediate sense of musicality to the work that had been lacking in Schaeffer's collages," Thom Holmes writes.⁸⁰⁶

After the war, Schaeffer and Henry pursued the implications, using all of the resources that RTF had to offer. In 1948, Schaeffer performed five compositions for pre-recorded sounds in *Études de Bruits* on RTF. Using four turntables with closed-groove

⁸⁰⁴ Claude Arrieu, "Dossier La Coquille à Planètes," ts. and ms., Bibliothèque Nationale de France, Paris, VMDOS-8.

⁸⁰⁵ Arrieu, "Dossier La Coquille à Planètes."

⁸⁰⁶ Thom Holmes, *Electronic and Experimental Music*, 2nd edition (New York: Routledge, 2002), 94

sound effects records from the studio library, a four-channel mixer and a collection of audio effects, Schaeffer presented five evocative montages of environmental, human and musical sounds. He called this new art form *musique concrète*.⁸⁰⁷ The availability of tape recorders, permitting splicing, editing and variable speed effects, refined the art form. "A major revolution is fermenting in the world of sound," Schaeffer wrote. Magnetic recording was to music what photography was to painting. "As long as sound remained in an evanescent state, directly subordinate to the instrument and the performer, we had traditional music, tightly imprisoned in the symbols of solfege."⁸⁰⁸

As developed by Schaeffer and Henry, *musique concrète* went much further than simply playing sound montages. What made it *music* was the control that the composer-performer exerted in assembling, manipulating, processing – in effect, composing – raw sound in the same way a visual artist might compose a montage of found objects and images. Art depended on the intentionality of the artist. Raw sound, Henry noted, was simply noise. However "Invented sound, or music, is at the level of [human] intelligence or of some other hermetic faculty," he wrote. "In the first case, it constitutes an integral part of his life and needs the same attention as one pays familiar objects... In the second, it claims and captures him." This was, after all, the century of "the triumph of synthesis," according to Henry. Artists were no longer bound by technologies and practices that merely represent reality – they could reconfigure and resynthesize it to their will.

Musique concrète was aural alchemy that transformed the familiar objects of sound and transformed them into music using modern technology. "Thus today noise is organized,

⁸⁰⁷ Homes, 91-92.

⁸⁰⁸ Pierre Schaeffer, "Music and the Instrument," in Ussachevsky and Luening, Preliminary Report on the State of Experimental Music to the Rockefeller Foundation, ts., 1956, Appendix II, 6. Vladimir Ussachevsky Papers, Box 6, Folder 4.

melted down, echoed, reshaped."⁸⁰⁹ Schaeffer celebrated the fact that "the sound-substance has become incredibly plastic in our hand," like the sculptor's clay. "It is renewed in a thousand ways, and thus transcends all preconceived systems – whether they be systems of solfege or harmony, notation or performance."⁸¹⁰

News of Schaeffer's and Henry's experiments spread quickly. Luening writes that, soon after the Second World War, rumors reached musical circles in the United States that "new kinds of sound production were being tried in Paris."⁸¹¹ They were more than rumors; *musique concrète* was an important topic of conversation throughout the music world. In a July 1950 address to the Royal College of Organists, college president George Thalben-Ball noted "the 'Musique Concrete' which is being hatched out in Paris. It is a kind of Picasso in music."⁸¹² John Amis, a broadcaster himself, dismissed "the latest French craze" that he had encountered at the 1950 Salzburg Festival. "Musique concrete, was invented by a radio engineer and is possible only in recordings," he wrote. "The sounds are concrete as opposed to abstract sounds: coughs, casserole lids twirled on to a resonant slab, train noises and certain freak musical noises such as the sound of a piano recorded after being struck."⁸¹³ Though much talked about, American audiences would only hear *musique concrète* for the first time when Schaeffer's *Symphonie pour un Homme Seul* was performed alongside the premiere of Bernstein's opera *Trouble in Tahiti* at the Brandeis Creative Arts Festival in Boston in June 1952.⁸¹⁴

⁸⁰⁹ Pierre Henry, "Concrete Music and the Twentieth Century," in Ussachevsky and Luening, Appendix II, 4.

⁸¹⁰ Schaeffer, "Music and the Instrument," Appendix II, 7.

⁸¹¹ Luening, 511.

⁸¹² G. Thalben-Ball, "The President's Address," *The Musical Times* 91, October 1950, 388. (387-389)

⁸¹³ John Amis, "Talking to Young Musicians" *Tempo*, Winter 1950-1951, 32. (31-33)

⁸¹⁴ "Brandeis Offering Bernstein Opera," *New York Times*, 6 May 1952, 34.

Ussachevsky had already begun his own experiments with tape music late in 1951. Primarily a choral composer, he had joined the music faculty at Columbia University in 1947 where he and Luening discovered a shared research interest in the acoustical properties and physics of music. Ussachevsky was inspired by the developments in France, but found that he was severely limited by the equipment available to him at Columbia. In 1951, this consisted of a two-speed Ampex tape recorder, "a borrowed Magnachord from Harvey's Radio Shop, a Western Electric 639 microphone, and a boxlike device rigged up by the engineer Peter Mauzey to create feedback for reverberation."⁸¹⁵ Nevertheless, despite the challenges, Ussachevsky had accumulated enough recorded material to present to his colleagues in the Columbia Composers Forum in May 1952. "These were not compositions, and no attempt was made to call them so," Cowell wrote. "But the sounds are certainly a possible resource for composers."⁸¹⁶

That was certainly on his mind, and Ussachevsky had already begun to explore the musical possibilities: "In magnetic tape we have, for the first time, I believe the multiple means of modifying musical sounds after they have been recorded, or while they are being recorded." The art form that Ussachevsky imagined was a departure from *musique concrète*, which he placed "in a related but still distinct category."⁸¹⁷

Ussachevsky and Luening eschewed the *concrétiste* approach of constructing electronic music from found sounds. "We chose to fashion compositions based on musical values rather than to explore the shock value of the new medium," Luening wrote. "We were

⁸¹⁵ Luening, 512.

⁸¹⁶ Cowell, "Current Chronicle," *The Musical Quarterly* 38, October 1952, 599. (595-620)

⁸¹⁷ Ussachevsky, quoted in Cowell, "Current Chronicle," 599.

interested in controlling this powerful new medium."⁸¹⁸ American tape music compositions would begin and end with the composer in complete control of sound.

The project required far greater resources than Columbia's music department had at its disposal. Supported by a \$9,995 grant from the Rockefeller Foundation "to do creative research in electronic music in Europe and America," Luening and Ussachevsky began a tour of the European electronic music scene, including a visit to the International Congress for Electronic Music in Switzerland in 1955.⁸¹⁹ The tour was a revelation. "The hotbed of activity was in Europe, where government funds were available in most countries to underwrite [electronic music] studios," Thom Holmes writes. "Most of the leading government-sponsored programs were associated with state-run radio stations."⁸²⁰ European electronic music composers could draw upon the full resources of research laboratories, often lavishly funded by state broadcasting networks. Schaeffer and Henry established the Groupe de Recherches Musicales in Paris in 1951 with funding from RTF, "the first audio studio in the world devoted exclusively to the production of electronic music."⁸²¹ Nordwestdeutscher Rundfunk (NWDR) set up a rival studio in Cologne the same year. Director Herbert Eimert was "interested in electronic music instruments as a means of extending the compositional theories of Anton Webern and other serialists," and the facility soon attracted young experimental composers like Karlheinz Stockhausen.⁸²²

The European studios, equipped with the latest audiophonic technologies and supported by what seemed like limitless government funding, made a profound impression on the American composers and they reported back to the Rockefeller

⁸¹⁸ Luening, 514.

⁸¹⁹ Luening, 524.

⁸²⁰ Holmes, 86.

⁸²¹ Holmes, 94.

⁸²² Holmes, 100.

Foundation with undisguised envy. Electronic music research had already reached a high level of maturity in Europe, but America was falling behind. "In the United States, the lack of radio-sponsored studios inhibits the work and points to the necessity of establishing comprehensive studio facilities in connection with educational institutions, and of giving commissions to encourage composers working in this field," Luening and Ussachevsky wrote in their final grant report. "An interim support to the Columbia-Barnard studio is suggested as a necessity in order that the work for the next year may advance at least at the rate commensurable with that of the European studios."⁸²³

V. Synthesis

RCA Acoustic Research Laboratories director Harry Olson and his head engineer Herbert Belar aspired to reinvent music-making in their own way. In a 1950 confidential report to RCA president David Sarnoff, they proposed developing an electronic musical instrument they dubbed a "synthesizer." They observed that an electronic instrument capable of synthesizing virtually any sound would free RCA and its NBC broadcasting division from the need to hire whole orchestras while creating "sounds beyond the range of present instruments." Such an instrument would produce not just one sound – as in the way a violin produces only the sound of a violin and a piano the sound of a piano – but, in theory, all sounds. With considerable insight, they noted that "the synthesis of music, as proposed, compares with the conventional method of recording, as animated cartooning does to motion picture photography."⁸²⁴ Just like a cartoon, synthesized music could be produced economically while minimizing the need for human performers or an

⁸²³ Ussachevsky and Luening, 2.

⁸²⁴ Harry F. Olson and Herbert Belar, "The Prospects of Advance Acoustic Development of Music Synthesizers and Composing Machines," mimeographed typescript, 22 March 1950, Herbert Belar Collection, David Sarnoff Library, Princeton, NJ.

intermediate stage of rehearsal and communication between composer and performer. The synthesizer promised Taylorized musical production with modern industrial efficiencies.

The idea of building a musical instrument that produced tones electronically was not itself a radical proposition. Though the Telharmonium had been a commercial failure, and RCA itself had marketed a commercial Theremin beginning in 1929.⁸²⁵ Some of the more experimentally-inclined inter-war composers, like Cowell, attempted with varying degrees of success to integrate electronic instruments with conventionally-orchestrated performances. Maurice Martenot's electronic keyboard instrument *Les Ondes Martenot* had enjoyed brief moments of popularity – not to mention notoriety – in the 1930s. Unveiled in 1928, it made its American debut with the Philadelphia Orchestra under Stokowski's baton in 1930 in a program of baroque and classical music and a new composition by Demetrios Levidis.⁸²⁶ Martenot's instrument caught the interest of French composers like Milhaud and Olivier Messiaen who were attracted to its unique sonorities. "Some used it to produce ethereal effects as an atmospheric accompaniment to an orchestra," Holmes writes. "Some were drawn to its ability to create special effects, such as bell sounds or birdsong."⁸²⁷ Yet, apart from a few works – like Messiaen's *Fête Des Bells Eaux* – neither *Les Ondes Martenot* nor Theremin never became more than a musical curiosity or a supplement to conventional music production and performance.⁸²⁸

⁸²⁵ Holmes, 54.

⁸²⁶ "Offers Music from the Ether," *New York Times*, 13 December 1930, 24.

⁸²⁷ Holmes, 64.

⁸²⁸ Holmes writes rather optimistically that more than 300 composers produced "100 chamber works, 50 operas, 100 symphonic works, numerous ballets and over 500 incidental scores for films and theater." Holmes, 65.

What made the RCA synthesizer project unique was the ambition to create a device that would allow the operator – dubbed a "synthesist" – complete control over every variable in musical production. Moreover, it debuted at the nexus of technological and aesthetic trajectories that made such control both possible and desirable. The synthesist used a typewriter-style keyboard to enter information on note timing, duration, frequency, volume and envelope behaviour – the attack, decay and sustain characteristics of a tone – on a punched paper roll reminiscent of a player piano or an early mainframe computer. When complete, the synthesist played the roll back into the synthesizer, and the resulting tones were recorded onto an integrated acetate disk recorder, soon replaced by a magnetic tape recording system.⁸²⁹

Although the RCA team recognized that "the use of a synthesizer for the production of musical sounds" opened "the possibility of producing entirely new tone complexes and combinations which cannot be achieved in conventional musical instruments," their initial focus was on producing conventional sounds.⁸³⁰ Reflecting the project's initial commercial rationale, Belar's research notes indicate that he was preoccupied with reproducing the conventional tonalities –synthesizing sounds that corresponded to "authentic" sounds – that would be required for television soundtrack applications. In the musical arrangement notes for a 1952 demonstration recording of the RCA Mark I Music Synthesizer, Belar categorized the instrument's tones according to conventional instrument names. His recording of the Irving Berlin standard "Blue Skies"

⁸²⁹ Olson and Belar, "Electronic Music Synthesizer," *The Journal of the Acoustical Society of America* 27, May 1955, 606.

⁸³⁰ Olson and Belar, "Electronic Music Synthesizer," 611.

required six arrangements with varying combinations of "saxophone parts," "trumpet parts," piano accompaniment," "contra bass" and "traps."⁸³¹

RCA chose well-established pieces from the popular and classical repertoire to demonstrate the synthesizer when it was publicly unveiled at the end of January 1955. The original selections for the demonstration reel included an excerpt from Bach's *Well-Tempered Clavier*, as well as Brahms's "Hungarian Dance No. 2," a medley of Stephen Foster tunes, and "Nola," the 1915 standard by Felix Arndt.⁸³² The extent to which Belar actually succeeded in reproducing "authentic" conventional tonalities is in the ear of the beholder, and one can only speculate about the extent to which he conceived of such sonic mimesis as the primary intended function of the device. However, it is clear that Belar and Olson intended to situate the synthesizer firmly within a conventional musical genealogy – at least for its first public appearance.

It was an enormously successful debut. "The electronic system, which fills a small room, is able to create any tone made by the human voice or any musical instrument, blend them in any orchestral arrangement," the *Wall Street Journal* reported in amazement, "and even produce tones that may never before have been heard."⁸³³ Taubman raved about the machine's "sound miracles" in the *New York Times*. "How good is the sound the machine produces?" he asked. "The piano tone this observer heard in an excerpt from a Chopin Polonaise was like that of a Steinway grand. A Bach excerpt was close enough to a clavichord to be credible."⁸³⁴ Olson and Belar were inundated with

⁸³¹ Belar, Arrangement Notes for "Demonstration Reel 1-8-52," 8 January 1952, Herbert Belar Collection, Box 2, Folder 7.

⁸³² Olson, letter to Alfred Wallenstein, 10 January 1955, Harry F. Olson Collection, Box 9, Folder 1.

⁸³³ "RCA Develops Machine That Some Day May Replace Musicians," *Wall Street Journal*, 1 February 1955, 14.

⁸³⁴ Taubman. "Synthesized Piano Music Found To Have Tone Matching a Grand's," *New York Times*, 1 February 1955, 35

letters from the curious as well as from musicians who were afraid the synthesizer had rendered them obsolete. The device caught the eye of a 21-year-old engineering student at Queen's College who had a profitable sideline selling Theremin kits. On the very day that Taubman's article appeared in the *Times*, Robert Moog wrote to ask if Olson and Belar planned to publish schematics.⁸³⁵

The synthesizer development project ran in tandem with an even more ambitious effort to automate the process of music composition. Olson and Belar observed somewhat disingenuously in 1955 that "to make an artistic record, or a hit, novelty or technical excellence alone is not sufficient. There are other ingredients, many of which are intangible."⁸³⁶ Nevertheless, as early as the 1950 confidential report, Olson and Belar had envisioned an electronic composing machine that could be integrated with the synthesizer.

The creation of melody, like beauty has always been considered above a merely mechanical process. Yet some laws of melody are known particularly in the light of research in the allied fields. The design of calculating machines has opened new fields of research, and calculating machines have been developed which rival in many respects the thought processes of man. In view of published works... it does not appear irreverent, to music or to the higher facilities of man, to suggest a composing machine.⁸³⁷

Just as tonality could be analyzed, reduced to its component parts and then produced through rationalized automation, so too, in theory, could musical composition. In fact, the composition machine proved to be a far more difficult problem to solve than the synthesizer and was only made public in 1961. The device employed a computerized random probability generator to "select notes in random fashion from among many

⁸³⁵ Robert Moog, letter to David Sarnoff Research Center, 1 February 1955, Herbert Belar Collection, Box 2, Folder 7.

⁸³⁶ Olson and Belar, "Electronic Music Synthesizer," 610.

⁸³⁷ Olson and Belar, "The Prospects of Advance Acoustic Development of Music Synthesizers and Composing Machines," 6.

choices, with the probability of the choice determined by the frequency with which various note sequences occur in the style favored by the composer."⁸³⁸ The operator or "composer" would set the parameters for a particular style, and the device would generate a random melody in that style.

For all the promise of the new technology RCA was unable to capitalize commercially on the synthesizer. Plans to install the greatly improved RCA Mark II synthesizer, whose development began soon after the introduction of the Mark I, at the company's RCA Victor Record Division in New York, were soon abandoned.⁸³⁹ It might be speculated that the inability of the synthesizer convincingly to reproduce the tonalities of conventional instruments, whatever its inventors' intentions, greatly limited its application in commercial music production. Nevertheless, the device's capacity for creating unfamiliar sounds attracted the attention of musical experimenters. Krenek expressed his eagerness to get his hands on the synthesizer's keyboard in a telegram to Olson following the instrument's debut in 1955. "This is exactly what I was after," he wrote eagerly, "would be happy to write or rather construct music with aid of this apparatus if given opportunity to study it..."⁸⁴⁰

It was what a great number of composers were after. In their report to the Rockefeller Foundation, Luening and Ussachevsky noted that while the tape recorder remained their principle creative tool, "the unmistakable trend is to synthesize all sounds by electronic means."⁸⁴¹ Consequently, "any long-range plans for producing adequate

⁸³⁸ Press Release, "Electronic Aid to Music Composers is Developed by RCA Scientists," RCA Corporation, 26 April 1961, Herbert Belar Collection, Box 3, Folder 4.

⁸³⁹ Douglas H. Ewing, letter to Dr. I. Wolff, Memorandum, 25 March 1955, Harry F. Olson Collection, Box 9, Folder 1.

⁸⁴⁰ Krenek, letter to Olson, Telegram, 6 Feb 1955, Harry F. Olson Collection, Box 9, Folder 1.

⁸⁴¹ Ussachevsky and Luening, 2.

experimental facilities to carry on creative and research work must include the use of a sound synthesizer of most advanced design, such as the RCA Olson-Belar synthesizer."⁸⁴² Babbitt, their colleague at Princeton, agreed and "believing there is strength of numbers, the three of us joined forces" to convince RCA to grant them regular access to the technological marvel, down the road at the Sarnoff Laboratory.⁸⁴³

The creative interests of the serialist and tape music composers converged. Enlisting Babbitt's Princeton colleague Sessions, they approached the Rockefeller Foundation with a request to fund an experimental electronic music studio housed at Columbia and jointly administered by the two university music departments.⁸⁴⁴ At the beginning of 1959, the Foundation agreed to provide \$175,000 in funding for the venture, dubbed the Columbia-Princeton Electronic Music Center, over five years.⁸⁴⁵ Initially providing the Music Center with access to the synthesizer at the Sarnoff Laboratory for a fee, RCA finally agreed to donate the Mark II unit and install it at Columbia University later that spring.⁸⁴⁶ It was a significant moment in music and similar centers were soon established at Brandeis and the University of Illinois, but the Columbia-Princeton Electronic Music Center was the largest and best-funded of them all. Babbitt wrote shortly thereafter that its creation represented "the all too rare recognition that the most complex, advanced, and 'problematical' activities in music, as in science, belong properly in the university. For it is not too much to say that the Electronic Music Center is, in the

⁸⁴² Ussachevsky and Luening, 3.

⁸⁴³ Luening, 552.

⁸⁴⁴ Luening, 553.

⁸⁴⁵ Columbia University News Office, Press Release, 18 January 1959, Herbert Belar Collection, Box 5, Folder 6.

⁸⁴⁶ George M.K. Baker, Memorandum, RCA Laboratories, 12 May 1959, Herbert Belar Collection, Box 5, Folder 6.

scope of its implications and its strategic nature – if not in its budget – the 'Matterhorn' of contemporary music."⁸⁴⁷

The synthesizer became the centerpiece of an academic musical culture that celebrated scientific rationality and transformed what had been the autonomous composer's artistic experimentation into institutional research. The National Science Foundation had already included Ussachevsky in its "register of physicists and astronomers" in 1958, blurring the line between art and science.⁸⁴⁸ In the minds of the founders of the Electronic Music Center, this was only as it should be. The composer was, according to Babbitt, a scientist whose "research requires the cooperation of the musician, the electrical engineer, the psychologist, and even the mathematician."⁸⁴⁹ Nowhere was that cooperation more necessary and evident than in the composers' efforts to control acoustical space itself.

Babbitt noted that the "limits of music reside ultimately in the perceptual capacities of the human receptor, just as the scope of physical science is delimited by the perceptual and conceptual capacities of the human observer."⁸⁵⁰ In other words, although he could determine every aspect of the production and organization of sound, he could not control his listeners' ears. That consideration placed composers in "a precarious position," wrote Fritz Winckel, an acoustics researcher at Nordwestdeutscher Rundfunk's Cologne studio: "having to reproduce his work directly from the tape, where it is stored in ready-for-use form, to the loudspeaker and to the hearer – without the intervention of

⁸⁴⁷ Babbitt, "The Revolution in Sound: Electronic Music," *The Collected Essays of Milton Babbitt*, 74.

⁸⁴⁸ Elmer Hutchisson, letter to Ussachevsky, 11 February 1958, Vladimir Ussachevsky Papers, Box 5, Folder 4.

⁸⁴⁹ Babbitt, "The Revolution in Sound: Electronic Music," 74.

⁸⁵⁰ Babbitt, "Past and Present Concepts of the Nature and Limits of Music," *The Collected Essays of Milton Babbitt*, 84.

an interpreter."⁸⁵¹ The solution was to take control over the minutest acoustic details of the performance and concert hall acoustics, under the direction of sound engineers whose "principal technical task would be to perform transformation processes to the end of optimum adaptation to the listener's ear."⁸⁵² That had already become standard practice at the Electronic Music Center. Arrangements for performances at the McMillin Theatre typically required weeks of precise acoustical research.⁸⁵³ Preparations for the Center's inaugural concert in 1961 began seven months in advance, but had to be postponed because the 22 days of planned experiments conflicted with the theatre's normal use... *as a theatre.*⁸⁵⁴

With lavish funding and institutional legitimacy, the composers of the Electronic Music Center were integrated into the corporate community of postwar scientific and technological research. Ussachevsky collected hundreds of science and electronic journals and technology vendor catalogues. The Amplifier Corporation of America offered the Center access to "such of the material [it] has been able to collect/or equipment [it] has designed for the Navy Underwater investigations."⁸⁵⁵ By 1963, the Center had expanded its list of sponsors to include Bell Labs, along with RCA the country's leading corporate research facility. "I would be delighted to have you use the diagrams of computer instruments which Mr. Gale may have drawn with my notation," Max Matthews, director of Behavioral Research at Bell Labs wrote to Ussachevsky. "I

⁸⁵¹ Fritz Winckel, "The Psycho-Acoustical Analysis of Structure as Applied to Electronic Music," tr. by Louise Eitel Peake, *Music Theory* 7, Winter 1963, 243. (194-246)

⁸⁵² Winckel, 244.

⁸⁵³ Ussachevsky, Request for use of McMillin Academic Theater, 16 September 1960, Vladimir Ussachevsky Papers, Box 4, Folder 3.

⁸⁵⁴ David F. Genero, memorandum to Ussachevsky, 20 September 1960, ts., Vladimir Ussachevsky Papers, Box 4, Folder 3.

⁸⁵⁵ Betty, memorandum to Ussachevsky, n.d. (probably early-1960s), ts., Vladimir Ussachevsky Papers, Box 5, Folder 3.

would encourage you, Milton, and Mr. Gale to come visit us in May. We can tell you about some of Mr. Tenney's efforts with computer composed music and we would like to find out what you are doing with computer music as well as with your other music."⁸⁵⁶ Through the Center, "advanced" music had achieved the respect and support that Babbitt, Ussachevsky and their colleagues had long hoped for.

VI. Time's Encomium

The "concert without performers" at the McMillin Theatre in 1961 was the high-water mark of both the Columbia-Princeton Electronic Music Center and the aesthetic project it was meant to advance. Held on 9 May, and repeated the following night, it was the Center's debut performance, before "invited audiences consisting of distinguished people in the art world."⁸⁵⁷ Each member of the audience had been hand-picked, having received engraved personal invitations from Columbia University President Grayson Kirk, as if for a debutante's coming-out party.⁸⁵⁸ The program included Babbitt's first electronic work *Composition for Synthesizer*, Luening's *Gargoyles for Violin Solo and Synthesized Sound*, and *Symphonia Sacra* by newcomer and Electronic Music center fellow Charles Wuorinen.⁸⁵⁹ Despite Schoenberg's review, many of the pieces, including Luening's and Wuorinen's, featured live musicians who performed alongside taped electronic music. Yet the critic's impression, though inaccurate, was widely-held and the leading proponents of the music of total control inevitably found that they had to explain

⁸⁵⁶ M.V. Matthews, letter to Ussachevsky, 26 March 1963, ts., Vladimir Ussachevsky Papers, Box 5, Folder 7.

⁸⁵⁷ Luening, 555.

⁸⁵⁸ Invitation to Columbia-Princeton Electronic Music Center concert, 9-10 May 1961, Vladimir Ussachevsky Papers, Box 6, Folder 1.

⁸⁵⁹ Luening, 555.

themselves repeatedly to a public that feared they intended to create art "untouched by human hands" and absent human imagination.

It was an accusation that many serialist composers had faced throughout the postwar period, but the innovation of electronic music only seemed to focus and reinforce the criticism. Only five days after heralding the advent of the RCA synthesizer in 1955, Taubman expressed his unease at the innovation of thoroughly electronic music. "In the end, we must believe and submit, though nothing can shake the conviction that man, not the machine, must prevail," he wrote. "The researchers have proceeded from the theory that if the elements that go into the making of sound can be measured exactly – and they can – the sound can be synthesized by bringing together the right mixture of its elements."⁸⁶⁰ What they could not do was quantify the ineffable quality human creative genius with all of its imperfections and serendipity. Babbitt, rarely inclined to pay the audience much heed in any case, was often on the defensive. "The music can be, and will be, whatever the composer wills it to be within the almost unconfined joys of the electronic realm," he assured listeners. "I am not speaking of machines that 'compose,' but of machines that carry out only the instructions of the, we assume, 'human' composer. They can and will do nothing more and nothing less."⁸⁶¹ Yet many listeners remained unconvinced.

Seeking to distinguish between "music and non-music," Hubert Lamb complained in *Harper's* that "support is too often given, in the name of Progress, to alluring enterprises which have little or nothing to do with music." He dismissed Babbitt as "our leading apologist for 'electronic music'" before listing all that the composer had to

⁸⁶⁰ Taubman, "Machines and Men: No Sound Track Can Take Place of Live Performer," *New York Times*, 6 February 1955, X9.

⁸⁶¹ Babbitt, "The Revolution in Sound: Electronic Music," 75-76.

apologize for.⁸⁶² Have "the apologists forgotten that music is a performing art in which performers act upon audiences and audiences upon performers, and that fortune, for good or ill, and the hazards of temperament are essential ingredients?" Lamb wondered. "In dispensing with the performer, they have overcome and eliminated risks."⁸⁶³ The "technicians" of electronic music, he mused, *might* someday be liberated from "minute procedural detail" long enough to truly create art. "But whether our children, or our grandchildren, even with these advances, will experience the joys of music through the agency of this impersonal facsimile equipment will remain, still, to be seen."⁸⁶⁴

In the *Saturday Evening Post* Lewis Lapham was doubtful, but inclined to reserve judgment. "On first hearing, electronic music seems an arbitrary collection of the ghastly noises associated with the last scene of an Alfred Hitchcock film," he wrote. "The nature of the art lies in the arranging of these nonmusical sounds into what the composers hope will be recognized as musical shapes. Most electronic composers think of themselves as both scientists and musicians who are experimenting with unknown sounds and working toward what the more visionary among them call 'the music of the future.'"⁸⁶⁵ Lapham noted Babbitt's promise that the synthesizer was merely an instrument subordinate, like any other, to the will of a human composer. Yet for all that reassurance, he warned that the electronic music of 1964 might only be the beginning. "To the most fiercely mathematical composers, however, nothing equals a computer, which can eliminate not

⁸⁶² Hubert Lamb, "Music in the Age of Zak," *Harper's Magazine*, May 1963, 76.

⁸⁶³ Lamb, 84.

⁸⁶⁴ Lamb, 85.

⁸⁶⁵ Lewis H. Lapham, "Music for Machines," *The Saturday Evening Post*, 18 January 1964, 66.

only performers but composers as well," Lapham wrote. "A few computers have already been taught to improvise on a given theme and to compose entire string quartets."⁸⁶⁶

The technologies and practices that enabled the "total organization" of music seemed to contradict both the authorial intent and authenticity that authorized it as art. Prior to the revolution in electronics and sound a musical tone was the unique expression of a discrete and knowable instrument, produced within a discourse of technique and virtuosity and at a specific and knowable time and place. Given the relative ease of reproduction provided by modern technology, it was that moment which separated the real from the imitation, the painting from the print and the performance from the recording.

Conventionally, what makes a performance of a Beethoven quartet art is the uniqueness and un-reproducibility of that performance – its authenticity. It is connected to at least the promise of an unmediated experience, "sincere, innocent, original, genuine, and unaffected, distinct from strategic and pragmatic self-presentation," observes Gary Alan Fine. "[I]t is linked to the moral authority of the creator and simultaneously to the fact that the object was made by hand, not mechanically reproduced."⁸⁶⁷ No matter how it is transmitted what conventionally constitutes art is the direct correspondence between the signal received by the audience and the artist's autonomous subjectivity at a specific time and place. Despite protests to the contrary, the electronic music of the 1950s and 1960s seemed to subvert that correspondence. Some composers recognized this. "Our entire musical heritage, as well as every non-electronic advanced technique of the moment, is conditioned by the act of performance," Wuorinen observed in 1963. "None

⁸⁶⁶ Lapham, 68.

⁸⁶⁷ Gary Alan Fine, "Crafting authenticity: The Validation of Identity in Self-Taught Art," *Theory & Society* 32, 2004, 155.

of us knew, until we began working with electronic music, how our every compositional act and gesture is dependent on this conditioning."⁸⁶⁸ Not merely mechanical reproduction, the new music was mechanically produced through practices and with technologies that obviated the necessity of a *performer* and could therefore conceivably eliminate the composer.

This happened at a moment when concert-goers were answering *High Fidelity* magazine's rhetorical question "Who Cares if You Listen?" by avoiding contemporary music in droves despite the fact that institutional music societies continued to offer high-modernist composers commissions. As director of the New York Philharmonic, Bernstein commissioned and conducted *Concerted Piece for Tape Recorder and Orchestra* by Ussachevsky and Luening in 1960, "followed by four regular performances in Carnegie Hall and a CBS network broadcast."⁸⁶⁹ Works by both Babbitt and Sessions had a string of premieres with the Philharmonic and other orchestras, from the latter's Second Symphony in 1952 to his Eighth in 1968.⁸⁷⁰ The Philharmonic offered a commission to Babbitt in 1967, along with Copland, Piston, Carter and Harris, formerly of the *Boulangerie*.⁸⁷¹ It played Babbitt's *Ensembles for Synthesizer* at the 1966 Stravinsky Festival and premiered his *Relata II*, a commission from Koussevitzky, in 1969.⁸⁷²

Yet these works were not always popular with audiences. "It does not require much penetrating thought to lay down a few principles about the problem of contemporary music," Taubman wrote in 1957. "It must get itself played. It must get

⁸⁶⁸ Charles Wuorinen, "The Outlook for Young Composers," *Perspectives of New Music* 1, Spring 1963), 55.

⁸⁶⁹ Luening, 554.

⁸⁷⁰ Henahan, "Victories and Vicissitudes of Roger Sessions," *New York Times*, 14 April 1968, D17.

⁸⁷¹ "18 Works Sought by Philharmonic," *New York Times*, 6 April 1967, 45.

⁸⁷² Howard Klein, "Philharmonic Festival Offers Music Chosen by Stravinsky," *New York Times* 23 July 1966, 12; Schonberg, "Music: Bernstein and Stern Team Up," *New York Times*, 17 January 1967, 33.

itself understood and appreciated, assuming that there is something to understand and appreciate."⁸⁷³ Overcoming audience resistance – either in the concert hall or on LP – had become a serious challenge for "advanced" composers. It wasn't a concern for Babbitt who, in any case, denied that he had any "obligation to the public" and was unconcerned about audience approval. "The time has passed when the normally well-educated man without special preparation could understand the most advanced work in, for example, mathematics, philosophy, and physics," he wrote in 1958. "Advanced music, to the extent that it reflects the knowledge and originality of the informed composer, scarcely can be expected to appear more intelligible than these arts and sciences to the person whose musical education usually has been less extensive than his background in other fields."⁸⁷⁴

Yet many other commentators recognized the problem and the question of how, and whether, contemporary music could remain culturally relevant was hotly debated in the professional music press. "The problem which concerns so much contemporary music, and serial music in particular, is one of presentation—that of reaching the man in the back row," David Wooldridge observed. "Performances before a wider public are still rare enough for it to be not too difficult to imbue them with a sense of occasion—certainly nothing like so difficult as with a Beethoven or a Tchaikovsky symphony; but to persuade the public at large that the later Webern is something more than a donnish eccentric, and that he will repay closer acquaintance, is not so easy; it is difficult enough to overcome resistance from players themselves."⁸⁷⁵ Indeed, both the slim financial opportunities and daunting technical challenges of mastering new performance techniques and instruments

⁸⁷³ Taubman, "With Fresh Ears: Listener Who Wants to Give New Music A Chance Must Set Aside Prejudice," *New York Times*, 22 December 1957, 53.

⁸⁷⁴ Babbitt, "The Composer as Specialist," 51.

⁸⁷⁵ David Wooldridge, "Some Performance Problems in Contemporary Music," *Tempo* 79, Winter 1966-1967, 13.

had become serious disincentives for performing the new music at all. "The serious crisis confronting performance today centers primarily on the role a performer must undertake to be part of a growing musical culture," violinist Paul Zukofsky wrote. "Otherwise, he will take the full consequences of the prevailing reckless disregard of the work and thought of his colleagues in composition and theory."⁸⁷⁶

There were some promising developments. Commissioned by Nonesuch Records and produced on the Electronic Music Center's RCA synthesizer, Wuorinen's work *Time's Encomium* was released to what for "advanced" electronic music were rave reviews in 1969. The work "often bombards the nerve-endings with high-tension particles of sound," *Times* music critic Theodore Strongin wrote. It had "the characteristic, abrupt Wuorinen explosion of energy" that faded and exploded again. "In between are all sorts of changes, always clear and sonorous, remarkably easy to hear and in satisfying relationship with the whole. 'Time's Encomium' is a bracing example of a thoroughly thought out musical work."⁸⁷⁷ Wuorinen won the 1970 Pulitzer Prize for music for the work.⁸⁷⁸

Despite the accolades and healthy record sales of *Time's Encomium*, however, the academic bastion of modernism was already under siege, and its cultural dominance crumbling. Evolving from the highly-refined idiom of American serialism, through the early tape-music experiments to the synthesized sounds emanating from the studios of the Columbia-Princeton Electronic Music Center, academic composers had innovated a musical idiom that was modern in every way: rational, calculated and totally controlled,

⁸⁷⁶ Paul Zukofsky, "The Performer: Revitalization or Stagnation?" *Perspectives of New Music* 3, Spring-Summer 1965, 172.

⁸⁷⁷ Theodore Strongin, "Electronic -- But With Soul," *New York Times*, 7 September 1969, D40.

⁸⁷⁸ Paul Hume, "World of Electronic Music Comes Closer to Our Own," *The Washington Post*, 14 June 1970, E4.

and both employed and evoked the technological promises of modernity. But music "untouched by human hands" was largely unheard by human ears. The cultural context had shifted, and listeners were tuning in and turning on to a new world of sound.

CHAPTER 6:
AT PLAY IN THE SOUND FIELD

I. Atlas Eclipticalis

John Cage was in the audience on the night of the Columbia-Princeton Electronic Music Center's inaugural concert at the McMillin Theatre in May 1961. He wasn't impressed. There "was a ghastly concert by the Synthesizer at Columbia," he wrote to his longtime collaborator, pianist David Tudor. "You would not have believed your ears. Luening's piece was violin and tape doing Bach like figures. Unbelievable... The whole thing was embarrassing, and of course very well attended."⁸⁷⁹ Cage, and the small community of avant-garde experimentalists who had coalesced around him in downtown New York in the 1950s and 1960s, had no personal animus toward the campus composers. For the most part, their personal relations were warm and friendly. Cage and Christian Wolff participated in the Composers Forum at Columbia University. Feldman and Babbitt were friends. "We were all in New York, and new music's world is a small world," Wolff recalls today, "so we would see each other at concerts, if nowhere else."⁸⁸⁰ The personal connections between composers from opposite ends of Manhattan were congenial enough, but their artistic and philosophical differences were insurmountable.

Both the campus composers and the art music establishment, embodied in the large, institutional music societies and the critics who defined taste, rhetorically produced Cage and his colleagues as the aesthetic other. Experimental composer Pauline Oliveros, then a music student at San Francisco State University, remembers that campus

⁸⁷⁹ Cage, letter to David Tudor, n.d. (May 1961), typescript, The David Tudor Papers, Getty Research Institute, Los Angeles, CA, Box 52, Folder 3.

⁸⁸⁰ Christian Wolff, interview by author, 9 November 2012, digital recording.

composers had no respect for Cage's work at all. "I don't think there were any pro-Cage people in academia at that point," she says. "They were arguing about Cage, and calling him an imposter, but I don't think there were any Cage supporters in academia."⁸⁸¹ The high-modernist composers already knew that they were under siege. Luening and Ussachevsky pointedly referred to "John Cage and his followers" in their Rockefeller Foundation report as rivals in the field of electronic music.⁸⁸² Wuorinen explicitly warned composition students away from the "romantic avant-gardism represented by John Cage and his later, less witty followers." They produced, in his mind, an anti-music which "entirely devalued" the art of composition. "When compositions consisting entirely of silence are presented, when water is blown through trombones, etc., etc., there is little point in one's making either a professional or critical comment."⁸⁸³ The aesthetic gulf between uptown and downtown was wide.

Professional critics *were* eager to comment and, predictably enough, they were even more scathing. "Works of this sort have nothing in common with the disciplined art of Palestrina, Handel, Mozart and the obvious B's," an anonymous critic wrote of a concert of Wolff's music in 1954, "they are hollow, sham, pretentious Greenwich Village exhibitionism."⁸⁸⁴ The British Broadcasting Corporation perpetrated a mischievous exhibition of its own in 1961 to illustrate the point. On 5 June, the BBC's *Third Programme* broadcast "Mobile for Tape and Percussion," a new composition from the largely-unknown "aleatoric" Polish composer Piotr Zak. The punch line was that Zak was a figment of the BBC producers' imaginations, and the "composition" was simply random

⁸⁸¹ Pauline Oliveros, interview by author, 29 October 2012, digital recording.

⁸⁸² Luening and Ussachevsky, 12.

⁸⁸³ Charles Wuorinen, "The Outlook for Young Composers," *Perspectives of New Music* 1, Spring 1963, 60.

⁸⁸⁴ J.B., "Look, No Hands! And It's 'Music,'" 34.

noises cobbled together by studio engineers. It was a hoax, but a "serious" one, according to BBC spokesperson Susan Bradshaw. "That fake music can be indistinguishable from the genuine is a reflection on certain trends in present-day composition," she said. "We are sorry if we have embarrassed certain music critics."⁸⁸⁵

Those critics who took the hoax seriously enough to condemn it as unmusical certainly had reason to blush. For others, "Piotr Zak" was a valuable illustration of everything that was wrong with avant-garde music, particularly as practiced by Cage and his colleagues. "The BBC is to be congratulated for its sense of satire," syndicated columnist and cultural curmudgeon George Sokolsky wrote. "It is needed to restore musical scores to music." The avant-garde had brought music to an unmusical pass. "I sit at concerts and watch the stern, concentrated faces of young people trying to understand what the moderns are trying to say when they write notes which only end up in noise," he wrote. "Then it is over."⁸⁸⁶

Other critics made more explicit comparisons. One *Time* magazine reviewer pronounced the 1962 premiere of Cage's *Music Walk*, a collaboration with choreographer Merce Cunningham, an "electronic nightmare." He found the performance reminiscent of the Zak hoax. "Composer Cage, a real person as Zak was not, works in much the same way... It was a prime sample of what students of the avant-garde call 'indeterminate' music, i.e., music that is based on almost pure chance." The "illogical" nadir of this kind of music, he noted, came with *4'33"*, "in which a pianist sat with a stop watch for four minutes and 33 seconds without playing a note, while the audience provided the 'music' in the form of coughs, yawns and sneezes." The *Time* reviewer seemed horrified by

⁸⁸⁵ Anthony Lewis, "B.B.C. Admits a Musical Hoax: Noise by Imaginary Composer," *New York Times*, 2 August 1961, 7.

⁸⁸⁶ George E. Sokolsky, "These Days ... Not Really a Hoax," *The Washington Post*, 7 August 1961, A11.

Cage's growing influence among a new generation of composers, while taking comfort that "most critics denounce the movement as fraudulent, or misguided, or both."⁸⁸⁷

Hubert Lamb was one of them. "Zak is the integral embodiment of the fallacies which have spread confusion in music," he noted, "fostering the spurious and diverting attention from the authentic for more than a quarter of a century." Cage, and not Zak, was the real hoax. Anyone "who has kept up with the music of John Cage and others is aware that its performance can make for intriguing theatre," Lamb wrote. "But taken as music, this branch of the avant-garde stands as the ultimate absurdity in the evolving aesthetic of disorder."⁸⁸⁸

Cage did not spend much time worrying about the critics, nor was he concerned about the judgments of uptown colleagues such as Wuorinen. Although he advocated the abandonment of "fixity of purpose," his music, and that of his downtown colleagues, did have a point.⁸⁸⁹ Above all, noted Peter Yates in 1962, he "challenged the traditional concept of musical order with his music by chance or random operations, now widely imitated."⁸⁹⁰ Cage's purpose was to subvert order and rationality, thus producing the disorder and non-rationality – if not exactly absurdity – that his critics accused him of. That his music explicitly eschewed conventional musical categories and transgressed the boundaries that defined them was the whole point. "John Cage wants to reassess all the boundaries of the musical art," Schonberg wrote. "He hates boundaries; would like to abolish them."⁸⁹¹ He considered the sounds of a ringing telephone and a closing door interrupting a recording of a Brahms symphony more "beautiful" than the symphony

⁸⁸⁷ "Composing by Knucklebone," *Time*, 13 April 1962, 56-56.

⁸⁸⁸ Hubert Lamb, "Music in the Age of Zak," *Harper's Magazine*, May 1963, 85.

⁸⁸⁹ John Kolber, "Everything We Do is Music," *Saturday Evening Post* 241, 19 October 1968, 94.

⁸⁹⁰ Peter Yates, "Review of Silence. Lectures and Writings by John Cage," *Notes* 19, March 1962, 257.

⁸⁹¹ Schonberg, "The Far-Out Pianist," *Harper's Magazine*, June 1960, 52.

itself, John Kolber observed with wonderment in the *Saturday Evening Post*.

"Conventional music – indeed most conventional and traditional art – pains him."⁸⁹²

For composers, critics, and audiences whose aesthetic reference point was a coordinate within the conventional discursive space of music, it was all wildly incomprehensible in a way that each previous "advancement" in music had not been. For half a century, modern composers had tested and expanded the boundaries of music only to re-inscribe them. Cage and the growing avant-garde that he inspired denied both the categories, rooted in tradition, which gave music coherence and authorized by the progressive goal of ever-purer rationality. "For ten years of my life I worked in an environment committed to neither the past nor the future," Feldman wrote in 1965. "We worked, that is to say, not knowing where what we did belonged, or whether it belonged anywhere to all. What we did was not in protest against the past. The rebel against history is still to be part of it. We were simply not concerned with historical processes. We were concerned with sound itself. And sound does not know its history."⁸⁹³ The avant-garde "revolution," as Feldman called it, was a campaign to liberate sound; to erase the boundaries that contained and constrained the sound field and release sounds into space. The spaces of music were material and social as much as they were rhetorical, however, and the extent to which they were under threat became abundantly clear in a rear-guard action of musical convention in the winter of 1964.

If American art music had a homegrown star in the 1960s, it was Leonard Bernstein. His success as a musical theatre composer, with innovative scores for *On the Town* in 1944 and *West Side Story* in 1957, had made him a household name, and his

⁸⁹² Kolber, 46.

⁸⁹³ Feldman, "The Anxiety of Art," 22.

forays into art music with operas like *Trouble in Tahiti* in 1954 and his first and second symphonies had been well-received by critics. Most importantly, at a time when Stokowski and Koussevitzky were household names, he was by far the best-known American-born conductor in the United States. In 1947, when Bernstein was 39, Thomson had pronounced him "our brightest young leader" in his influential *Herald-Tribune* column.⁸⁹⁴ Bernstein assumed direction of the New York Philharmonic in 1958, continuing a series of "young people's concerts" that combined performance and conversation to introduce audiences to American music in the concert hall and on television.⁸⁹⁵ A protégé of both Copland's and Blitzstein's, he had long been recognized as the foremost champion from the podium of new American music. "Leonard Bernstein knows what American music is all about," Thomson observed.⁸⁹⁶ Pursuing his mission to promote American music, the maestro invited New York's downtown composers to present their work with his orchestra at Philharmonic Hall in a series of five concerts showcasing the avant-garde in the winter of 1964.

It was an invasion of the musical establishment's sanctum sanctorum, and the media promoted the concerts as a confrontation between downtown upstarts and uptown taste. Under the provocative headline "Philharmonic Takes on the Avant-Garde," *New York Times* critic Howard Klein turned to Copland to make sense of "the far, far-out" sounds about to invade Philharmonic Hall. Copland's 1926 Piano Concerto, "avant-garde in its day," was to be featured in the first concert on 9 January. The series would conclude with a program, presented three times in the week of 6 February, featuring the works of

⁸⁹⁴ Thomson, "Tradition Today," *Music Right and Left*, 180.

⁸⁹⁵ Taubman, "'Previews' Begin at Philharmonic: First of New Music-and-Talk Programs Under Bernstein," *New York Times*, 3 October 1958, 31.

⁸⁹⁶ Thomson, "Tradition Today," 179.

Cage, Feldman and Earle Brown. Copland expressed sympathy with the downtown music scene, noting that it was pointless to ask anyone over the age of 35 about what constituted avant-garde music. "John Cage's temperament is very far from my own, but it would not have been right for me to say, 'Stop all this nonsense, John,' for regardless of what one thinks, his 'nonsense' has had positive effects," the composer told Klein, "A new generation sees inferences in works that were completely overlooked by the last one." Yet Copland sounded an ominous note, musing that audiences would reject the radical assault on their aesthetic expectations, though he conceded that the concert series would, if nothing else, put the new avant-garde on the map. "I like the dramatic effect of throwing this far-out music at the audiences all at once, though," he said. "After all, it has more publicity value."⁸⁹⁷ Copland probably did not expect the audience – and the Philharmonic itself – to throw the music right back.

Bernstein had already encountered difficulties rehearsing Cage's *Atlas Eclipticalis* with the Philharmonic, and went to great pains to encourage the orchestra musicians to take the work seriously.⁸⁹⁸ The program began with "Autumn" from Antonio Vivaldi's *The Four Seasons* and Pyotr Tchaikovsky's *Pathétique* symphony, warhorses of the classical repertoire with which the Philharmonic audience was certainly familiar. The unfamiliar – *Atlas Eclipticalis*, Feldman's *Out of Last Pieces* and Brown's *Available Forms I* – arrived after the intermission. The sold-out first night was a disaster. "The avant-garde came to an end last night, at least as far as the New York Philharmonic was concerned," Schonberg wrote in the *Times* with evident satisfaction. "Leonard Bernstein conducted the fifth and final program of the series, and brought down his baton around

⁸⁹⁷ Howard Klein, "Philharmonic Takes on the Avant-Garde," *New York Times*, 5 January 1964, X9.

⁸⁹⁸ Revill, 205.

11:05 P.M. before an audience considerably smaller than it was when the evening started." The music's "new sounds, apparent chaos and weird textures shook the audience quite a bit."⁸⁹⁹ *Time* magazine noted that Cage's composition was met with "a salvo of boos and hisses from the audience." The concert ended, *Time* noted, "with most of the musicians, most of the audience, and Leonard Bernstein himself laughing. Perhaps to keep from crying."⁹⁰⁰

Schonberg wrote in the next morning's *New York Times* that the concert was clear evidence that the music of the downtown avant-garde "is a passing fad, but it does illustrate the breakup of values in music the way so many other manifestations mirror the equivalent breakup in contemporary life and thought."⁹⁰¹ The critic almost certainly held that opinion before the concert, which ended less than an hour before midnight and the *New York Times's* morning edition deadline. It was an opinion shared by the musicians of the Philharmonic. "On the third night, during the performance of *Atlas*, the orchestra laughed and talked among themselves, played scales or melodies instead of the notes in their parts, sang or whistled into the contact microphones; some stamped on the electronic equipment," David Revill writes. "Bernstein seemed unable to control the situation."⁹⁰² While Cage might have expected rejection from the uptown audience more attuned to Vivaldi and Tchaikovsky, he felt both offended and betrayed by the Philharmonic's professional musicians. "They are a group of gangsters," he said decades later, the anger still burning. "They do everything wrong on purpose, not to make fun of

⁸⁹⁹ Schonberg, "Last of a Series: Bernstein et al Conduct 5th Avant-Garde Bill," *New York Times*, 7 February 1964, 35.

⁹⁰⁰ "Far-Out at the Philharmonic," *Time*, 14 February 1964, 91.

⁹⁰¹ Schonberg, "Last of a Series: Bernstein et al Conduct 5th Avant-Garde Bill," 35.

⁹⁰² Revill, 206.

something, but to ruin it. They get in mind criminal ideas, artistically criminal ideas. They are vandals."⁹⁰³

Despite the normally congenial relationship between the downtown avant-garde and the campus composers and the uptown art music establishment, the lines were drawn. When avant-garde music "was performed in public, the response from the musical establishment was extraordinarily negative," Wolff recalls. "We were absolutely banished. We were regarded as crazy, and destroying music, and so-on. So, naturally, there would be some response to that, and we would defend ourselves and say 'you guys are the ones who are off the rails, and not doing the interesting things, but we are.'"⁹⁰⁴ The aesthetic guardians of campus and concert hall felt threatened, and they were justified in their fears. What Cage and a generation of musical revolutionaries he inspired across the United States proposed was nothing less than the negation of the aural categories that authorized high modernism.

II. Imaginary Landscapes

"I have finished the first part of a string quartet," Cage wrote to Thomson from Paris in 1949. "My concern in this work is to further demonstrate that no sounds are forbidden even the most familiar. It just occurs to me that you are laughing."⁹⁰⁵ Cage had first contacted Thomson a decade before. As an accompanist and dance composition instructor at the Cornish School in Seattle, Cage had set up an informal percussion

⁹⁰³ John Cage, quoted in Benjamin Piekut, *Experimentalism Otherwise: The New York Avant-Garde and Its Limits* (Berkeley: University of California Press, 2011), 22.

⁹⁰⁴ Wolff, interview by author.

⁹⁰⁵ Cage, letter to Thomson, 1949, The Papers of Virgil Thomson, Box 29, Folder 11.

ensemble whose first concert, in December 1938, had been "very well received."⁹⁰⁶ He doubtless sensed a kindred spirit in Thomson whose early work, he later noted, was full of "dead-pan" humour, and employed "minimal music events" that were preceded or followed by silences. "Stripped of context, they resemble the sounds that issue from single percussion instruments."⁹⁰⁷ Cage recalled hearing Thomson's 1926 composition *Five Phrases from the Song of Solomon* for soprano and percussion and asked Thomson "whether you have any scores for percussion alone, and, if not, whether you would be interested in writing something for a percussion concert which we will give May 19th here in Seattle."⁹⁰⁸

In most ways, Cage's early musical education had been fairly conventional. Though a decade younger than the composers of the *Boulangerie* he had followed their path to Europe in 1930 to study piano with Lazare Lévy at the Conservatoire de Paris, though he abandoned his lessons after two sessions.⁹⁰⁹ He studied briefly with modernist architect Ernö Goldfinger, who had Cage "measuring the dimensions of rooms which he was to modernize, answering the telephone, and drawing Greek columns." Returning to the United States the following year, he did odd jobs and resumed his music studies with Cowell at the New School. At the latter's suggestion, Cage began studying counterpoint and analysis with Schoenberg both privately and at the University of Southern California and UCLA in 1934. It was while studying with the titan of modernism that Cage had a revelation. "In order to write music, you must have a feeling for harmony," Schoenberg told his student. "I explained to him that I had no feeling for harmony," Cage later

⁹⁰⁶ Cage, letter to Thomson, 13 March 1939, typescript, The Papers of Virgil Thomson, Box 29, Folder 11.

⁹⁰⁷ Cage, "Virgil Thomson: His Music," in Kathleen Hoover and John Cage, *Virgil Thomson: His Life and Music*, reprint (New York: A.S. Barnes & Co., 1970), 138.

⁹⁰⁸ Cage, letter to Thomson, 13 March 1939.

⁹⁰⁹ Reville, 36.

recalled. Schoenberg admonished him that, without a sense for harmony, Cage would inevitably run into a wall through which he would never pass. "In that case," Cage replied, "I will devote my life to beating my head against that wall."⁹¹⁰

What interested Cage most was sound itself and, composing music for the dancers at the Cornish School, he found that he was able to use percussion to create music with sounds unencumbered by conventions of harmony and melody. Inspired by Cowell's compositions *The Banshee* and *The Aeolian Harp*, Cage had begun to experiment with the use of a "string piano" in the percussion ensemble works *First* and *Second Construction*. In *Bacchanale*, composed for a dance recital by Cornish School graduate Syvilla Fort at Seattle's Repertory Playhouse in the spring of 1940, he took Cowell's experiments a step further. Cage had conceived a work for percussion ensemble but "for practical purposes, I had to confine myself to the piano," he wrote.⁹¹¹ Leta Miller suggests that the principal consideration was that the venue was too cramped to accommodate a full percussion ensemble.⁹¹² Cage improvised at the keyboard with unsatisfactory results for several days until concluding that "it was the sound of the piano itself that was objectionable" and decided "to change that sound by placing objects on and between the strings themselves."⁹¹³ So prepared, the piano became "a percussion orchestra of an original sound and the decibel range of a harpsichord directly under the control of a pianist's fingertips."⁹¹⁴ The "prepared piano" became something of a creative

⁹¹⁰ Cage, "Indeterminacy," *Silence: Lectures and Writings by John Cage*, Fourth Paperback Edition (Cambridge: The MIT Press, 1970), 261.

⁹¹¹ Cage, "A Composer's Confessions," *John Cage: Writer*, 35.

⁹¹² Leta E. Miller, "Henry Cowell and John Cage: Interactions and Influences, 1933-1941," *Journal of the American Musicological Society* 59, Spring 2006, 82.

⁹¹³ Cage, "A Composer's Confessions," 35-36.

⁹¹⁴ Cage, "A Composer's Confessions," 36.

trademark as he pursued his "credo" and explored the possibilities of using noises "not as sound effects, but as musical instruments" throughout the 1940s.

Much of Cage's music throughout the 1940s concentrated on the sonic possibilities of percussion instruments and the percussive sounds produced by the unprepared and, more often, the prepared piano. He had met choreographer Merce Cunningham, a student of Bird's, at the Cornish School shortly after his appointment in 1937.⁹¹⁵ Cunningham soon departed for New York, where he became a featured soloist in the Martha Graham dance Company. "Four or five years later, I went to New York and encouraged Cunningham to give programs of his own dances," Cage later recalled.⁹¹⁶ Their partnership would continue for the rest of Cage's life and, in the 1940s, it provided a focus for his musical ideas. "Percussion music is revolution," he wrote in 1939. "Sound and rhythm have too long been submissive to the restrictions of nineteenth-century music. Tomorrow, with electronic music in our ears, we will hear freedom."⁹¹⁷ The music of the nineteenth century and its 20th century heirs had "given us endless arrangements of the old sounds." But the time had come for a change. A "healthy lawlessness is warranted," he continued. "Experiment must necessarily be carried on by hitting anything – tin pans, rice bowls, iron pipes – anything we can lay our hands on." It was "lawlessness," a disregard for the conventional boundaries of music, and Cage anticipated the response. "The conscientious objectors to modern music will, of course, attempt everything in the way of a counterrevolution," he wrote. "Musicians will not admit that we are making music... New and original sounds will be labeled as 'noise.'"

⁹¹⁵ Revill, 56.

⁹¹⁶ Cage, "Four Statements on the Dance," *Silence*, 86.

⁹¹⁷ Cage, "Goal: New Music, New Dance," *Silence*, 87.

By 1943, Cage was being equally hailed and derided as American music's foremost exponent of noise. "Percussionist Cage, 30, is firmly convinced that percussive noise poems will bulk large in the musical future," *Time* magazine reported of a performance by his percussion ensemble at the Museum of Modern Art that winter. "They used thundersheets, oxen bells, cowbells, cymbals, anvils, gongs, woodblocks, rice bowls, button gongs, rattles, claves, maracas, drums, flowerpots, tin cans, automobile brake drums. They not only tapped and beat their instruments, but shook and rubbed them and sometimes even immersed them in water."⁹¹⁸ Most reviewers were not even that charitable. Reviewing the same "inexplicably childish" concert, the *New York Times* reported that "practically all of the 'music' produced by the various combinations of [instruments] had an inescapable resemblance to the meaningless sounds made by children amusing themselves by banging on tin pans and other resonant kitchen utensils."⁹¹⁹

Anticipating both *musique concrète* and Luening's and Ussachevsky's tape-music experiments, Cage took advantage of the primitive equipment available in the Cornish School's recording studio to explore the possibilities of technologically-mediated sound. Composed in 1939, *Imaginary Landscape No. 1* was scored for cymbal and string piano, and "employed records of constant and variable frequencies on turntable, the speed of which could be varied," he wrote. "This was a use of recording equipment for creative rather than customary reproducing purposes. I was also able to work with small sounds which to be heard required amplification."⁹²⁰ *Imaginary Landscape No. 1* "was written to be subsequently broadcast or heard as a recording," Cage later noted. Performed at the

⁹¹⁸ "Percussionist," *Time*, 22 February 1943, 68.

⁹¹⁹ "Percussion 'Music' Heard at Concert," *New York Times*, 8 February 1943, 14.

⁹²⁰ Cage, "A Composer's Confessions," 33.

Cornish School, the work was intended primarily as an experiment, and does not seem to have been widely performed, though it was used by both Bird and Marian Van Tuyl as a dance accompaniment.⁹²¹ Significantly, the sounds of *Imaginary Landscape No. 1* were organized neither harmonically, nor melodically, but as discrete events within interrelated blocks of time.⁹²²

Miller notes that, along with the string piano, one of the most significant contributions that Cowell made to Cage's developing musical idiom was the concept of "elastic form." Cowell conceived of elastic form as a way to compose music for the dance that would be both eminently adaptable to dance performance considerations, yet liberated the composer from the domination of the choreographer's demands. "The key to writing a successful elastic composition was devising an organizational principle that would admit flexibility, yet retain structure," Miller writes. Music would be composed in sections that the choreographer could assemble and arrange to meet the needs of the dance performance. In his first work composed according to this principle, Miller writes, "major sections, four-measure units, or individual measures could be repeated, extended, shortened, or omitted, and yet the 'unity of form is preserved' by the repetition of the dynamic pattern on multiple metrical levels."⁹²³ It provided for an enormously flexible relationship between music and dance, but it also suggested that, while preserving the composer's authorial intent, an elastic composition was also paradoxically subordinated to conditions that the composer could not determine.

⁹²¹ Cage, "On Earlier Pieces," in Kostelanetz, ed., *John Cage: An Anthology* (New York: Da Capo Press, 1991), 128.

⁹²² Paul Griffiths, *Cage* (New York: Oxford University Press, 1991), 8.

⁹²³ Miller, 105.

Elastic form both reinforced Cage's interest in exploring music as temporal assemblage of sonic events and introduced an indeterminacy that would have a profound impact on Cage's work. "These actions by Cowell are very close to current experimental compositions which have parts but no scores," he observed in 1958, "and which are therefore not objects but processes providing experience not burdened by psychological intentions on the part of the composer."⁹²⁴ While Miller notes that there is nothing to suggest that Cage explicitly set out to employ Cowell's ideas, he certainly knew about them, and the parallel with the "micro-macrocosmic" form he used in the 1940s is striking. *First Construction* was composed of sixteen parts, each containing sixteen measures subdivided into five phrases of four, three, two three and four measure each. The parts were grouped into five "large sections in the same proportion," Cage wrote. Though intentionally arranged, Cage's goal was assemble a rhythmic form without relying on harmonic or motivic conventions. Rather, the rhythm was a sequence of discrete sound events related to the other, and to the whole. "I call this principle micro-macrocosmic because the small parts are related to each other in the same way as are the large parts," he wrote. "The fact of the identity of the number of measures and the number of parts, or, in other words, the existence of the square root of the whole, is an essential *sine qua non*, providing one wants to reflect the large in the small, and the small in the large."⁹²⁵ The score for *First Construction* also specified that that each player would perform from a limited palette of sixteen sounds, thus relating the individual sound events to the symmetry of the whole piece.⁹²⁶

⁹²⁴ Cage, "History of Experimental Music in the United States," *Silence*, 71.

⁹²⁵ Cage, "A Composer's Confessions," 35.

⁹²⁶ Cage, "Composition as Process," *Silence*, 23.

There was a kind of inexorable logic that propelled Cage's aesthetic explorations throughout the 1940s, until he concluded that "the underlying, necessary structure [of music] is rhythmic" rather than harmonic or formal.⁹²⁷ Thomson played a vital role in that process after the two composers became reacquainted while teaching at Mills College in 1941. Well connected, and with an established reputation as one of the leaders of inter-war modernism, Thomson took a strong interest in Cage, using his influence to arrange "joint sponsorship" by the League of Composers and the Museum of Modern Art for a performance of the younger composer's works in the fall of 1942.⁹²⁸ Reviewing a performance at the New School for the *Herald-Tribune* in 1945, Thomson judged Cage a genius who "writes music for expressive purposes; and the novelty of his timbres, the logic of his discourse, are used to intensify communication, not as ends in themselves. His work represents, in consequence, not only the most advanced methods now in use anywhere but original expression of the very highest poetic quality." He praised the younger composer for carrying Schoenberg's "harmonic manoeuvres to their logical conclusion" not by exploiting harmonic dissonance, but "by eliminating, to start with, all sounds of precise pitch."⁹²⁹ Thomson's enthusiastic advocacy helped to legitimize Cage's unorthodox methods in the New York music scene. More importantly, however, Thomson introduced the younger composer to the then little-heard music of Erik Satie.⁹³⁰

A maverick at the height of his career in the early decades of the century, Satie's elevation of simplicity to the level of an aesthetic ideal had been an inspiration to both Thomson and the French neo-classicists in the 1920s. Yet Cage heard something other

⁹²⁷ Cage, "Defense of Satie," in Kostelanetz, *John Cage: An Anthology*, 83.

⁹²⁸ Frances Harding, letter to Thomson, typescript, 9 October 1942, The Papers of Virgil Thomson, Box 29, Folder 11.

⁹²⁹ Thomson, "Expressive Percussion," *Virgil Thomson, A Reader*, 223.

⁹³⁰ Gann, 60.

than neo-classical formalism in the French composer's work. He appreciated Satie's wit and his "defiance of the general run of Teutonism and neo-classicism."⁹³¹ Along with a handful of other composers Satie represented for Cage the antithesis of an academic modernism "derivative from whatever models of the past its particular composer chooses." Yet Cage believed that Satie's music had implications far beyond its idiosyncratic sense of humour: time and aural space, rather than form, melody and harmony, were the unifying principles of music. "If you consider that sound is characterized by its pitch, its loudness, its timbre, and its duration, and that silence, which is the opposite and, therefore, the necessary partner of sound, is characterized only by its duration, you will be drawn to the conclusion that of the four characteristics of the material of music, duration, that is, time length, is the most fundamental," he wrote in a "Defense of Satie" in 1948. "Silence cannot be heard in terms of pitch or harmony: it is heard in terms of time length."⁹³² If music was rhythm – a sequence of discrete sounds arranged on a temporal axis – then what gave it meaning was aural space.

Yet here was a paradox that Cage was only just beginning to explore. A decade later, in an imaginary *dialogue de sourdes* with Satie, he observed that silence must be breached to contain sound. The "empty time" of silence had meaning only when it was not empty. "Is it not a question of the will, this one, I mean, of giving consideration to the sounds of the knives and the forks, the street noises, letting them enter in?" he asked. "Why is it necessary to give the knives and forks consideration? Satie says so. He is right. Otherwise the music will have to have walls to defend itself, walls which will not only constantly be in need of repair, but which, even to get a drink of water, one will have to

⁹³¹ Cage, "Virgil Thomson: His Music," 246.

⁹³² Cage, "Defense of Satie," 81.

pass beyond, inviting disaster."⁹³³ The question was how to let the sounds in, and by whom. "To be interested in Satie one must be disinterested to begin with accept that a sound is a sound and a man is a man," Cage wrote, "give up illusions about ideas of order, expressions of sentiment, and all the rest of our inherited claptrap."⁹³⁴

III. Music of Changes

There is a gap toward the end of the second part of Cage's *Music of Changes*. The composer was unsure of how the audience would react when it was premiered at New York's Cherry Lane Theatre on New Year's Day, 1951. "The second part... includes a half-minute of silence (about 2/3 of the way through) which brings me to the idea that the approximate time-length of each part should be indicated on a program (instead of allegro con brio or in C)," he wrote to Tudor in preparation for the recital. Cage knew he was asking a great deal of his favourite pianist in what would be an enormously demanding performance of the new work. "I myself in the course of composing it developed several blisters (not calouses, since I do not 'practice')," he noted.⁹³⁵ The physical demands of *Music of Changes* would be great – Tudor played his instrument from the keyboard, from the strings, and as a percussion instrument – but Cage did not want the audience to think that the silence marked the end of a movement; it was an integral part of the work. He needn't have worried. Some listeners doubtless didn't understand, but others, the kindred spirits attuned to the direction Cage had begun to pursue in the 1950s, certainly did. "I found the Music of Changes an immense development, both in clarity of design, depth and intensity of communication, and, indeed, an altogether new experience," the artist

⁹³³ Cage, "Erik Satie," *Silence*, 80.

⁹³⁴ Cage, "Erik Satie," 82.

⁹³⁵ Cage, letter to Tudor, n.d. (late 1950), manuscript, The David Tudor Papers, Box 52, Folder 3.

Thomas Hughes Ingle wrote to Cage following a performance in Hartford in 1953. "The tremendous longest silence near the end has the effect of interstellar silence, Nirvana."⁹³⁶

Nirvana, or something like it, was what Cage was reaching for after 1950. Brown first met him in Denver at about the time he was working on *Music of Changes*. "Then he went deeply into bringing about music rather than composing it," Brown later recalled. "That's what you do when you don't choose."⁹³⁷ Inspired by a paperback copy of the *I Ching* given to him by Wolff in exchange for composition lessons, *Music of Changes* seemed to continue the trajectory suggested by the elastic form of Cage's earlier dance works. Truly experimental compositions would not be predetermined by the composer's tastes. An experiment is "an action the outcome of which is not foreseen," he wrote in 1959. "It is therefore very useful if one has decided that sounds are to come into their own, rather than being exploited to express sentiments or ideas of order."⁹³⁸ For that to be possible, however, the composer whose subjective will imposed order on sounds had to step out of the way – compositional nirvana.

The *I Ching* seemed to provide that. A system of numerical divination dating from at least 1,000 B.C. and codified during the Tang dynasty, it requires the diviner to throw coins or sticks and build hexagrams from the results.⁹³⁹ These figures correspond to 64 possible combinations, corresponding to oracles, actions or numbers in the *I Ching* text. While Cage retained the divination system, he substituted a set of charts to determine the

⁹³⁶ Thomas Hughes Ingle, letter to Cage, 2 November 1953, typescript, The David Tudor Papers, Box 52, Folder 3.

⁹³⁷ Earle Brown, "Interview with Peter Dickinson, Rye, New York, July 1, 1987," in Dickinson, 138.

⁹³⁸ Cage, "History of Experimental Music in the United States," *Silence*, 69.

⁹³⁹ For example, a toss of three coins resulting in two tails and one head could signify an "old yin" line, while a toss resulting in three heads could signify an "old yang" line. A sequence of six throws would produce a hexagram of six lines.

possible musical combinations.⁹⁴⁰ In effect, he used divination as a random number generator to determine the sounds and properties that he would use in his work without, in theory at least, his own conscious input "Each event in *Music of Changes* was the combination of one element from each of three charts individually referring to sonority, duration and dynamics," James Pritchett writes. "Thus, in these new chart pieces, the individuality of each event would not be compromised by the conscious choice of dynamics and rhythm."⁹⁴¹ At least that was the theory. The events in *Music of Changes* were determined randomly, but they still required the intentionality of the composer to determine the numerical relations and throw the coins in the first place. Moreover, the whole point of the system, Wolff recalls, was to produce a conventional score. "You can't think of a more determinate piece in a certain way, because every single parameter of the music has been fixed," he says.⁹⁴²

Yet, for Cage, the *I Ching* seemed to offer a way around his own intentionality and the imposition of an order outside of the realm of sound itself. He also believed that these chance procedures allowed him to reach beyond rationality to something greater than human intellect. Cage was certain that he had tapped into something powerful and metaphysical. He would toss his coins at night, before going to bed, and then relate them to the charts the following morning. "it is interesting to note that the coins seem to know that they are involved in producing a long movement," he said while composing the second part of *Music of Changes*. "For after 3 pages... of tempo changes, the next three settle to one tempo, accelerate to another which holds through the next three, returns then

⁹⁴⁰ James Pritchett, *The Music of John Cage* (Cambridge: Cambridge University Press, 1993), 79.

⁹⁴¹ Pritchett, 80.

⁹⁴² Wolff, interview by author.

to another which then again holds!"⁹⁴³ Cage's faith seemed confirmed by science itself. Shortly after finishing the section, he entertained an old friend who worked as a cryptographer. "When I told him about the *I Ching*, he said he already knew about it through a Chinese friend and that its mathematics are equal to those of the current avant garde & that the book is having quite an influence on modern scientific research," Cage wrote. "*Mirabile dictu.*"⁹⁴⁴

It was not so much of a miracle. Cage's randomizing system employed a kind of computational logic, though authorized by the ancient knowledge of China, not entirely inconsistent with the kind of mathematical formulae that lay at the basis of Babbitt's compositions. The Franco-Greek architect-turned-composer Iannis Xenakis explored these implications in much of his work through the 1950s and 1960s. Beginning with the orchestral work *Metastaseis*, Xenakis employed complex mathematical systems and relationships, like the Fibonacci Sequence to assign durations and tonal values to his compositions.⁹⁴⁵ By the mid-1950s, Xenakis concluded that complex, unintentional sounds, such as the sound of a rain storm, could be described as sonic events governed by mathematical laws of random probability. "These sonic events are made out of thousands of isolated sounds; this multitude of sounds, seen as a totality, is a new sonic event," he wrote in the treatise *Formalized Music*, "This mass event is articulated and forms a plastic mould of time, which itself follows aleatory and stochastic laws."⁹⁴⁶ With

⁹⁴³ Cage, letter to Tudor, n.d. (early 1950) , manuscript, The David Tudor Papers, Box 52, Folder 3.

⁹⁴⁴ Cage, letter to Tudor, n.d. (late 1950), manuscript, The David Tudor Papers, Box 52, Folder 3.

⁹⁴⁵ Jonathan Cross, "Composing with Numbers: Sets, Rows and Magic Squares," in John Fauvel, Raymond Flood, Robin James Wilson, editors, *Music and Mathematics: From Pythagoras to Fractals* (Oxford: Oxford University Press, 2002), 146.

⁹⁴⁶ Iannis Xenakis, *Formalized Music: Thought and Mathematics in Composition*, (Bloomington: Indiana University Press, 1971), 9.

Pithoprakta in 1954 he began a career-long exploration of the potential of stochastic mathematics to compute random sound.⁹⁴⁷

Cage, however, was less concerned with the mathematical mechanics of chance than with the possibility the *I Ching* offered of tapping into an existence beyond material reality.⁹⁴⁸ Indeed, he was receptive to ideas from outside the European-American tradition. Cowell, who exerted such a strong influence on his early career, had demonstrated the ease with which boundaries between musical cultures could be crossed, and Cage had enrolled in his mentor's course on "Music of the World's Peoples" at the New School in 1933. David Patterson observes, at any rate, that like Cowell, Cage would have encountered non-western music throughout most of his childhood in California and that his social contacts "ensured continued exposure to Asian music."⁹⁴⁹ By the early 1940s, Cage and a small community of like-minded composers had begun to find in non-western music and philosophy the keys they hoped would release them from the constraints of modernity and rationality. "They were looking for a way out," Luening recalled of the "downtowners from Greenwich Village." Non-western philosophy seemed to offer a way to "shed the weight of industrial living, technological advance, and megalomania... It gave them more of a chance instead of following on from Mahler and Schoenberg—by discarding."⁹⁵⁰ The ideas of the Anglo-Ceylonese scholar Ananda K. Coomaraswamy in particular resonated deeply with Cage's aesthetic goals.

⁹⁴⁷ Sergio Luque, "The Stochastic Synthesis of Iannis Xenakis," *Leonardo Music Journal* 19, December 2009, 77. (77-84)

⁹⁴⁸ Jackson Lears, *Something for Nothing*, 304.

⁹⁴⁹ David W. Patterson, "The Picture that Was Not in the Colors: Cage, Coomaraswamy, and the Impact of India," in Patterson, editor, *John Cage: Music, Philosophy, and Intention, 1933-1950* (New York: Routledge, 2002), 178.

⁹⁵⁰ Luening, "Interview with Peter Dickinson, New York City, July 2, 1987," in Dickinson, 129.

Cage probably encountered Coomaraswamy's aesthetic philosophy while staying as guest in the home of choreographer and Cunningham collaborator Jane Erdman and her husband Joseph Campbell in 1942.⁹⁵¹ By the time of his death in 1947, Coomaraswamy had established an international reputation as the architect and curator of the Boston Museum of Fine Arts Far East Collection and was hailed "as one of the greatest scholars of his field."⁹⁵² He had also acquired considerable fame among American Theosophists during the 1920s and 1930s as an eloquent critic of modernism and Western rationality: Madame Blavatsky's *Theosophical Quarterly* pronounced Coomaraswamy's 1934 book *The Transformation of Nature in Art* "of such immense value and interest."⁹⁵³ Throughout his career, Coomaraswamy emphasized the essential opposition of Indian and Western-modernist aesthetic philosophies. The divergence was, he wrote, particularly evident in music, where Western modernism subordinated aesthetic "truth" to the ego of the composer. On the other hand, he wrote, "Indian music is essentially impersonal: it reflects an emotion and an experience which are deeper and wider and older than the emotion of any single individual."⁹⁵⁴ Western modernism was mechanistic and materialistic, but "it is the inner reality of things, rather than any transient or partial experience that the [Indian] singer sings."⁹⁵⁵

Patterson observes that Cage's borrowings from Coomaraswamy "did not constitute so much a faithful transcription of an aesthetic" as a selective and sometimes subversive appropriation of the scholar's "rhetoric to advance the cause of contemporary

⁹⁵¹ Patterson, 178.

⁹⁵² "A. Coomaraswamy, Art Expert, Dead" *New York Times*, 10 September 1947, 27.

⁹⁵³ St. C. La D., Review of *The Transformation of Nature in Art*, *Theosophical Quarterly*, July 1934, 93.

⁹⁵⁴ Ananda Kentish Coomaraswamy, "Indian Music," *The Dance of Siva* (New York: The Sunwise Turn, 1918), 70.

⁹⁵⁵ Coomaraswamy, 80.

music."⁹⁵⁶ Indeed, in the 1946 article "The East in The West," Cage argued that, in "Western music at the present time, certain practices are similar to or characteristic of Oriental classical music" – including Schoenberg's 12-tone system.⁹⁵⁷ He sought authorization for his own abandonment of the conventions of modern music. "The composers who today wish to imbue their music with the ineffable, seem to find it necessary to make use of musical characteristics not purely Western," he concluded, "they go for inspiration to those places, or return to those times, where or when harmony is not of the essence."⁹⁵⁸ Cage wished to imbue his music with the ineffable, a connection with the "Unified Being or Ultimate Reality" that "lies beyond the scope of mere language or logic" and which "cannot be explained, taught or even comprehended."⁹⁵⁹ Coomaraswamy, and non-Western thought generally, provided an aesthetic justification to reach outside rationality itself.

For Cage, that meant abandoning the conceit that music was or could be a medium for communication between rational subjects: "we communicate quite adequately with words," he noted in 1948. Music should be rather an "integrating activity" that allowed performers and listeners to "disinterestedly" transcend their differentiated subjectivity. "It is these moments of completeness that music can give, providing one can concentrate one's mind on it, that is, give one's self in return to the music, that are such deep pleasure, and that is why we love the art."⁹⁶⁰ The first manifestation of this aesthetic philosophy marked a departure in Cage's music. Composed between 1946 and 1948 the *Sonatas and Interludes*, though performed on a prepared

⁹⁵⁶ Patterson. 185.

⁹⁵⁷ Cage, "The East in the West," *John Cage, Writer*, 21.

⁹⁵⁸ Cage, "The East in the West," 25.

⁹⁵⁹ Patterson 182.

⁹⁶⁰ Cage, "A Composer's Confessions," 42.

piano and based on numerical relations, are far more lyrical than earlier works. "After reading the work of Ananda K. Coomaraswamy, I decided to attempt the expression in music of the 'permanent emotions' of Indian tradition," Cage later noted, "the heroic, the erotic, the wondrous, the mirthful, sorrow, fear, anger, the odious, and their common tendency toward tranquility"⁹⁶¹

Cage left for France with funding from the National Institute of Arts and Letters early in 1949. He continued his study of Satie, acquired editions of his scores – hard to find in the United States – for Thomson and, at the latter's suggestion, struck up an acquaintance with the composer Pierre Boulez. "I have met Pierre Boulez and see him a good deal, almost every day," Cage wrote. "His ideas and his conversation are marvelous and I could listen indefinitely to his music." Though Boulez composed in a serialist idiom, Cage wrote found it "extraordinary how full of feeling [Boulez's music] is and yet how every note and duration is part of a micro-geometrical plan." The two composers shared a common interest in mathematical proportions but, Cage noted, were otherwise poles apart. "He has not yet heard my music, but will this afternoon," Cage wrote. "I confess I am worried, for I should be happy if he liked it, but there is so much in my work that is free and spontaneous."⁹⁶² Boulez evidently liked Cage's music a great deal, and arranged a well-received performance the *Sonatas and Interludes* at modernist *grande dame* Suzanne Tézenas's Paris salon a few weeks later.⁹⁶³

In his introduction to the performance, Boulez noted that in "negating the traditional harmonic system," Cage had instead given "each sound a prominent

⁹⁶¹ Cage, "On Earlier Pieces," 129.

⁹⁶² Cage, letter to Thomson, n.d. (June 1949), typescript, The Papers of Virgil Thomson, Box 29, Folder 11.

⁹⁶³ Cage, letter to Thomson, 28 June 1949, typescript, The Papers of Virgil Thomson, Box 29, Folder 11.

individuality" in his composition by employing a limited range of possible sounds.⁹⁶⁴ The *Sonatas and Interludes*, like *First Construction*, organized sounds in what Cage had begun to call "gamuts." Cage compared "the selection of sounds for the *Sonatas and Interludes* to a selection of shells while walking along a beach," a "matter of taste" in which the composer employed sounds from a limited palette.⁹⁶⁵ For the *String Quartet in Four Parts*, begun while he was Paris, but not completed until the following year in New York, Cage greatly refined the technique. "The Quartet uses a gamut of sounds, some single and some aggregates, but all of them immobile, that is staying always not only in the same register where they originally appear but on the same strings and bowed or produced in the same manner on the same instruments," Cage wrote to Boulez. "There are no superpositions, the entire work being a single line."⁹⁶⁶ The effect was almost static, writes Paul Griffiths: "The removal of incident reaches an extreme in the winter slow movement, marked 'Nearly stationary', where the same chords keep returning, always on one or the other of the two minim beats."⁹⁶⁷

The *Quartet's* stillness also reflected Cage's growing interest in Zen Buddhism and the work of Japanese scholar Daisetz T. Suzuki. Neither a cleric nor, strictly speaking, a theologian, Suzuki was "the single most important figure in the spread of Zen to the West," Robert Sharf observes.⁹⁶⁸ By the time his *Essays in Zen Buddhism* were published in the United States in 1950, the philosopher Gerald Heard could confidently

⁹⁶⁴ Pierre Boulez, "Pierre Boulez's introduction to *Sonatas and Interludes* for Prepared Piano by John Cage at Suzanne Tézenas's Salon," in Jean-Jacques Nattiez, editor, *The Boulez-Cage Correspondence*, trans. Robert Samuels (Cambridge: Cambridge University Press, 1993), 29.

⁹⁶⁵ Cage, "Composition as Process," 25.

⁹⁶⁶ Cage, letter to Boulez, 22 May 1951, in Nattiez, 92.

⁹⁶⁷ Griffiths, 21.

⁹⁶⁸ Robert H. Sharf, "The Zen of Japanese Nationalism," in Donald S. Lopez, jr., *Curators of the Buddha: The Study of Buddhism Under Colonialism* (Chicago: The University of Chicago Press, 1995), 116.

observe that Suzuki was "the greatest English-speaking authority on Zen."⁹⁶⁹ In fairness, the Dharma that he taught was a greatly secularized version of Buddhism, stripped of much of its ritual content and influenced by the work of philosopher Paul Carus, with whom Suzuki studied for several years in La Salle, Illinois at the end of the 19th century. "The importance of Suzuki's tenure at La Salle for his intellectual development cannot be underestimated," Sharf writes, "at the very least it should be noted that his tutelage under Carus was in many ways as intensive and as sustained as his formal Zen training in Japan."⁹⁷⁰ Though his wife Beatrice Erskine Lane, a Radcliffe-educated Theosophist, Suzuki had unique access to the American and British esoteric community, and Lane helped to arrange the publication of the first Buddhist journal in the English language.⁹⁷¹

By the time he returned to the United States in 1950, Suzuki was already "an improbably celebrity," interviewed by *Vogue* and *The New Yorker*.⁹⁷² Teaching at the American Academy of Asian Studies in San Francisco early in 1950, his students included Gary Snyder and Allen Ginsburg. Suzuki's broadcasts on Pacifica Radio KPFA in Berkeley drew large audiences to hear him speak about the "Way Beyond the West."⁹⁷³ Suzuki's version of Zen seemed to offer just that – a way outside of the West and, above all, of the constraints and "illusions" of western modernity. It promised escape or, as the character Ray Smith says in Jack Kerouac's Zen-influenced novel *The Dharma Bums*, a way to "get out of that city of ignorance which is the modern city."⁹⁷⁴ Suzuki began teaching at Columbia University in New York in 1951, where Cage and Feldman

⁹⁶⁹ Gerald Heard, "On Learning from the Buddha," *New York Times*, 4 June 1950, BR3.

⁹⁷⁰ Sharf, 117.

⁹⁷¹ Lewis MacAdams, *The Birth of the Cool: Beat, Bebop, and the American Avant-Garde* (New York: Free Press, 2001), 149.

⁹⁷² MacAdams, 149.

⁹⁷³ Mark Watts, "Introduction, in Alan Watts, *What is Zen?* (Novato, CA: New World Library, 2000), x-xi.

⁹⁷⁴ Jack Kerouac, *The Dharma Bums*, (Harmondsworth: Penguin Books, 1976), 113.

attended his lectures. However, Cage was well-acquainted with his work even before that, expressing his anticipation that "Suzuki's works on Zen Buddhism are about to be published" in a letter to Boulez in January 1950.⁹⁷⁵

Filtered through Suzuki and as Cage understood it, Zen valued *prajna*, an intuitive connection with nature, over *vijnana*, "reason or discursive understanding." While *vijnana* is necessary to interact with the physical world – the world of the senses and the intellect – it is predicated on a false duality "in the sense that there is one who sees and there is the other that is seen – the two standing in opposition." *Vijnana* produces boundaries between the self and its other, inside and outside and while it might be useful it ignores, Suzuki wrote, the essential undifferentiated interconnectedness of nature – it's "suchness" or *tathata*. "In *prajna* this differentiation does not take place; what is seen and the one who sees are identical; the seer is the seen and the seen is the seer," he wrote. "To divide is characteristic of *vijnana*, while with *prajna* it is just the opposite. *Prajna* is the self-knowledge of the whole in contrast to *vijnana*, which busies itself with parts. *Prajna* is an integrating principle while *vijnana* always analyses."⁹⁷⁶ Although *vijnana* is built on *prajna* in the same way that nature lies behind sensed reality, the rational mind cannot know nature. Nature can only be experienced through the "pure awakening" of *prajna*. "This is the very foundation of all our experiences, all our knowledge, and defies being defined, for definition means ideation and objectification," Suzuki wrote. "The 'something' is the ultimate reality or '*subjectum*' or 'emptiness' (*sunyata*)."⁹⁷⁷ The *prajna* experience of a "beginningless beginning," timelessness and an undifferentiated space

⁹⁷⁵ Cage, letter to Boulez, 17 January 1950, in Nattiez, 50.

⁹⁷⁶ Daisetz Teitaro Suzuki, "Reason and Intuition in Buddhist Philosophy," *Studies in Zen* (New York: Dell Publishing, 1955), 85.

⁹⁷⁷ Suzuki, "Zen: A Reply to Dr. Hu Shih," *Studies in Zen*, 145.

that was thus "emptiness" was "the moment of no-mind or no-thought [which] refuses to be expressed in language, in words of the mouth."⁹⁷⁸

Patterson notes that "Even after investigating the chronological details of Suzuki's Columbia lectures, his particular role in Cage's artistic development is a frustratingly speculative issue."⁹⁷⁹ None of his voluminous writings, though they increasingly took on the character of Zen *koans* in the 1950s, directly cited Suzuki, and most of his direct references are anecdotal. Yet as Gann points out, "Many of Cage's ideas echo, sometimes unconsciously, statements he could have heard from Suzuki."⁹⁸⁰ Indeed, in an address to the Music Teachers National Association conference in 1957, Cage explicitly invoked the idea of "purposelessness" in the 9th century Chinese Zen (Ch'an) master Huangbo Xiyun's concept of the "universal mind."⁹⁸¹

What is the purpose of writing music? One is, of course, not dealing with purposes but dealing with sounds. Or the answer must take the form of a paradox: a purposeful purposelessness or a purposeless play. This play, however, is an affirmation of life – not an attempt to bring order out of chaos nor to suggest improvements in creation, but simply a way of waking up to the very life we're living, which is so excellent once one gets one's mind and one's desires out of its way and lets it act of its own accord.⁹⁸²

While Cage was never a practicing Buddhist, Zen provided him with the authority and aesthetic vocabulary to abandon the categories – rationality, boundaries and order – upon which modernism was built.⁹⁸³ "Have been enjoying teaching Merce's pupils how to stop

⁹⁷⁸ Suzuki, "The Role of Nature in Zen Buddhism," *Studies in Zen*, 190.

⁹⁷⁹ Patterson, "Cage and Asia: History and Sources," in Julia Robinson, editor, *John Cage* (Cambridge, MA: The MIT Press, 2011), 63.

⁹⁸⁰ Gann, 105.

⁹⁸¹ Patterson, "Cage and Asia: History and Sources," 67.

⁹⁸² Cage, "Experimental Music," *Silence*, 12.

⁹⁸³ "So that even tho I was involved deeply in Zen, I never practiced sitting or breathing exercises." Cage, letter to Edgar Lipworth, 28 February 1974, manuscript, carbon, The David Tudor Papers, Box 52, Folder 3.

thinking and feeling," he wrote to Tudor with considerable relish.⁹⁸⁴ In a lecture in 1958, he seemed to invoke Suzuki to authorize the interruption of aural order. "The mind may be used either to ignore ambient sounds, pitches other than the eight-eight, durations which are not counted, timbres which are unmusical or distasteful, and in general to control and understand an available experience," he said before digressing into an anecdote of how a jetliner flying out of La Guardia Airport had once drowned out one of Suzuki's lectures. "Nevertheless, he never raised his voice, never paused and never informed his listeners of what they had missed of the lecture, and no one ever asked him what he had said while the airplanes passed above."⁹⁸⁵ In this "moment of no-mind," it seemed, aural space was undifferentiated.

Cage had attempted to discard compositional intent in *Music of Changes* in 1951 by employing the randomizing possibilities of the *I Ching*, but it was not a fully-indeterminate work. "In the *Music of Changes*, structure, which is the division of the whole into parts; method, which is the note-to-note procedure; form, which is the expressive content, the morphology of the continuity; and materials, the sounds and silences of the composition are all determined," he wrote. "Though chance operations brought about the determination of the composition, these operations are not available in its performance."⁹⁸⁶ With *Imaginary Landscape No. IV* for twelve radios, composed the same year, Cage sought to introduce an additional element of indeterminacy and consequently further reduce the effect of his intentionality by surrendering the selection of sound resources to chance. "The radio-piece is not only tossing of coins but accepts as its sounds those that happen to be in the air at the moment of performance," he explained

⁹⁸⁴ Cage, letter to Tudor, n.d. (probably 1949), typescript, The David Tudor Papers, Box 52, Folder 3.

⁹⁸⁵ Cage, "Composition as Process," 32.

⁹⁸⁶ Cage, "Composition as Process," 36.

to Boulez.⁹⁸⁷ There was certainly an element of danger: a late-night performance at the McMillin Theatre in May 1951 was somewhat less-than-successful because, by that time, most of New York's radio stations had gone off the air.⁹⁸⁸ "We heard a cadenza of a Mozart concerto and that was it!" Luening recalled.⁹⁸⁹ Even then, performers dutifully followed instructions of which frequencies to tune to, and when, in the score produced through chance but ultimately controlled and recorded by the composer, and heard within the conventional confines of a concert hall.

By the time he returned to teach at Black Mountain College in the summer of 1952, Cage had begun to develop a strategy to breach those boundaries as well. He had "been reading a great deal of [French dramatist Antonin] Artaud," whose work he had first encountered through the pianist David Tudor.⁹⁹⁰ Cage certainly sensed a kindred spirit in the dramatist, whose name he would cite frequently throughout his career to authorize his creative transgressions.⁹⁹¹ Like Cage, Artaud was fascinated by potential of Asian philosophy and aesthetics – in particular, Balinese theatre – to liberate "our disinterested and inert idea" from the cultural "gods that sleep in museums."⁹⁹² Western theatre, he wrote, had become trapped within the boundaries of literature, and fixed as immutable "masterpieces," and "in forms that no longer respond to the needs of the time." Artaud blamed "the formal screen we interpose between ourselves and the public," and called for a new kind of theatre that would neither be fixed in a literary tradition nor

⁹⁸⁷ Cage, letter to Boulez, 22 May 1951, in Nattiez, 95.

⁹⁸⁸ Revill, 138.

⁹⁸⁹ Luening, "Interview with Peter Dickinson, New York City, July 2, 1987," 126.

⁹⁹⁰ Cage, letter to Boulez, 22 May 1951, in Nattiez, 96.

⁹⁹¹ See Cage, "On Film," in Kostelanetz; *John Cage*, 115; Cage, "History of Experimental Music in the United States," *Silence*, 75; Cage, "45' for a Speaker," *Silence*, 187.

⁹⁹² Antonin Artaud, "Preface," *The Theater and its Double*, trans. Mary Caroline Richards (New York: Grove Press, 1958), 11.

shackled by conventions of language or space."⁹⁹³ It would be "a physical and nonverbal idea of the theater, in which the theater is contained within the limits of everything that can happen on a stage."⁹⁹⁴ For Cage, the inevitable corollary was that anything could therefore be theatre. "There are things to hear and things to see, and that's what theater is," he told Kostelanetz in an interview in 1967.⁹⁹⁵ Cage set out at Black Mountain College to create theatre or, more accurately, to let theatre happen.

The theatrical event that Cage staged at Black Mountain College in the summer of 1952 had no title, appropriately enough. It has since been retroactively dubbed *Theater Piece No. 1, The Black Mountain Piece* or "the first happening," though that term would not come into currency for several more years. There was virtually no script and no score, just things to hear and things to see: Tudor Playing at a prepared piano, Cunningham dancing, poetry, "films, slides, phonograph records, radios" and Robert Rauschenberg's "white paintings."⁹⁹⁶ Charles Olson and Artaud translator M.C. Richards read poetry. Cage threw the *I Ching* to determine the duration and the order of the performances. The audience of Black Mountain College students and faculty sat in a circle with the performance happening in the centre, in the aisles between sections and outside of it. Reports of what actually happened vary widely. For some it was a triumph; Lou Harrison was bored, and Black Mountain College's music director Wolpe stormed out in disgust.⁹⁹⁷

For all of its chaotic activity the Black Mountain College happening was not completely indeterminate. Cage had left the organization of events up to chance but, in

⁹⁹³ Artaud, "No More Masterpieces," 75-76.

⁹⁹⁴ Artaud, "Oriental and Occidental Theater," 68.

⁹⁹⁵ Cage, quoted in Kostelanetz, *The Theatre of Mixed Means: An Introduction to Happenings, Kinetic Environments, and Other Mixed-Means Performance* (New York: The Dial Press, 1968), 51.

⁹⁹⁶ Cage, "Foreword," *Silence*, x; Gann, 154.

⁹⁹⁷ MacAdams, 164.

invoking chance, he paradoxically also invoked compositional intent; someone, after all, threw the coins and others *acted*, even if their actions were spontaneous. It was thus not *quite* the moment of no-mind that he had been reaching for. Rather, he came closer – closer than he ever would – in *4'33"*, performed later that summer. Cage had already thought of composing a silent piece in 1948, "in the first flush of my early contact with oriental philosophy." He would credit Rauschenberg's "white paintings (not painted white, just unpainted canvasses)" for giving him "the courage to make *4'33"*."⁹⁹⁸

Although Cage himself often referred to it "as my silent piece," *4'33"* was not exactly silent, as was never meant to be. Writing about Rauschenberg in 1961, he noted that "The white paintings caught whatever fell on them; why did I not look at them with my magnifying glass?"⁹⁹⁹ They were spaces, with nothing placed into them through the intentionality of the artist, though created intentionally, but they were not empty. After all, "when activity comes to a stop, what is immediately seen is that the rest of the world has not stopped," Cage said. "There is no place without activity."¹⁰⁰⁰ Indeed, if *4'33"* is about anything, it is about space.

To *prajna*, in the "moment of no-mind," the container and its contents, time and events, sound and silence are one and the same. Cage alluded to this in his "Lecture on Nothing," published seven years later. "I have nothing to say and I am saying it and that is poetry as I need it," he said. "This space of time is organized. We need not fear these silences, – we may love them. This is a composed talk, for I am making it just as I am making a piece of music. It is like a glass of milk. We need the glass and we need the

⁹⁹⁸ Cage, letter to Bálint András Varga, 1 May 1980, typescript, carbon, John Cage Collection, Box 37, Folder 5.

⁹⁹⁹ Cage, "On Robert Rauschenberg, Artist, and his Work," *Silence*, 108.

¹⁰⁰⁰ Cage, quoted in Stephen Montague, "John Cage at Seventy: An Interview," *American Music* 3, Summer 1985, 213.

milk. Or again it is like an empty glass into which at any moment anything may be poured."¹⁰⁰¹ The glass and the milk are part of the same whole; they are mutually constituting and thus undifferentiated, except to the rational mind that must conceive of the container and the contained as a duality.

The "silence" of *4'33"* was a container in which sounds occurred just as the sound events of rhythm occurred within the context of time. "There no such thing as silence," Cage later said. "What [the audience] thought was silence, because they didn't know how to listen, was full of accidental sounds."¹⁰⁰² The work was premiered by Tudor on 29 August 1952 at the Maverick Concert Hall near the end of a program of contemporary music including Cage's *Water Music* for prepared piano, a radio, whistles, water containers, a deck of cards, a wooden stick, and a stopwatch. The sounds of the forest around the auditorium, and the noises of uncomfortably fidgeting audience members filled the hall. Far from being four-and-a-half minutes of silence, *4'33"* was an aural space, like Rauschenberg's canvasses, that caught whatever fell into it.

What fell in was noise and, in allowing that to happen, Cage subverted the aural, spatial and discursive boundaries of modern music and turned them inside-out. No sound was produced within the concert hall, over-coded as the space that contained music. The audience, which had come to hear music, faced the stage where Tudor sat explicitly not playing the piano. Yet there were sounds: the noises that the physical, aural and discursive boundaries of music meant to exclude. Of all his compositions, "the most important piece is my silent piece, *4'33"*... Because you don't need it in order to hear it," Cage said near the end of his life. "You have it all the time. And it can change your mind,

¹⁰⁰¹ Cage, "Lecture on Nothing," *Silence*, 109-110.

¹⁰⁰² Cage, quoted in Kostelanetz, *Conversing With Cage*, second edition (New York: Routledge, 2003), 65.

making it open to things outside it. It is continually changing. It's never the same twice... So whenever you feel in need of a little music, all you have to do is to pay close attention to the sounds around you."¹⁰⁰³

IV. Indeterminacy

Christian Wolff didn't exactly choose to study with Cage; he was sent. "I was very young," he recalls. "I was 16, and I was taking piano lessons, and realized that I didn't have enough talent to do anything with the piano. So I started to compose, and brought my stuff into my teacher, and she said that I needed to go see a composer." Wolff knew already knew Varèse through family connections. His father, Kurt Wolff, was the founder of Pantheon Books, had been the European publisher of Franz Kafka and Walter Benjamin before the war, and was embedded in the New York modern arts scene. The Wolffs knew Varèse personally, but Christian knew the composer's formidable reputation and recalls that "somehow I was a little uneasy about asking him if I could study with him." His teacher, avant-garde pianist Grete Sultan, recommended Cage. "So I was sent to Cage," Wolff says. "I didn't really choose him."¹⁰⁰⁴ It was a fortunate encounter. Wolff provided Cage with a copy of the *I Ching*, pilfered from his father's publishing house, and through his composition teacher became connected with a community of musical rebels in downtown New York.

Today, Wolff resists the notion that he and the community that coalesced around Cage in the 1950s were engaged in an overt act of creative rebellion. "I would think of it this way," he says, "we did what we were doing because that's what we wanted to do."

¹⁰⁰³ Cage, quoted in Montague, 213.

¹⁰⁰⁴ Wolff, interview by author.

Yet what the composers of what would later be called the New York School "wanted to do" was a subversion of the basic axioms of modern art music.¹⁰⁰⁵ Together with Cage, Feldman, and Brown, Wolff spent the 1950s and 1960s exploring an aesthetic approach to composition and performance that sought to liberate sound from the intentional determination of the composer. "Having the sounds continually appearing as a physical fact wakens me from a sort of intellectual daydream," Feldman later wrote of his approach to composition. "The sounds are enough." In making sounds appear, Feldman believed that his work was authorized by early music from the time before "the 'art of composition' developed." In the past, he noted, the sounds came first and there was not much concern for the instrument." His compositions were simply "the means by which sound becomes audible."¹⁰⁰⁶

Feldman and his colleagues faced something of a paradox, however: how to compose music intentionally that would allow sounds to appear undetermined by the intentionality of the composer. Feldman and Wolff independently settled on the means at about the same time around 1951. Their music would be open to aural possibilities undetermined by the composer, and their unintended consequences. For example, in an early trio work composed shortly after beginning his lessons with Cage, Wolff explicitly did not indicate the pitches at which each voice would sound. "It was notated on a single line, and all it indicated was whether the melodic movement was up, or down." He says. "The line was a reference pitch, and anything above the line was a higher pitch and

¹⁰⁰⁵ *New York Times* music critic Donal Henahan coined the label in 1970, evoking connections to the New York School of abstract expressionist art, when he reviewed a concert of music at the Whitney Museum of American Art by Cage, Wolff, Feldman and Earle Brown, "four mature masters of what might be called the New York school of contemporary tone painting." Donal Henahan, "4 Contemporary Piano Pieces Add New Tone to the Whitney," *New York Times*, 25 March 1970, 37.

¹⁰⁰⁶ Feldman, "Piano and Voice II," Notes, Berlin, February 1972, manuscript, Morton Feldman Papers, Music Library, State University of New York at Buffalo, Buffalo, NY, Box 1, Folder 5.

anything below was a lower pitch."¹⁰⁰⁷ The composer determined when, and with what instrument, each note would be played, but abdicated control over what the notes would actually be.

Feldman experimented with graphical scores for his *Projections* and *Intersections*, composed in 1950 and 1951, which represented discrete, but largely indeterminate sound events. The scores indicated the sound events and the instruments that produced them as boxes, spaced out to indicate when they were to occur in time. In *Marginal Intersection*, composed in 1951, for an ensemble of woodwinds, brass and strings, "entrances within the given time duration as well as actual pitches and dynamics are freely chosen by the performer," Feldman noted. The composer only determined the temporal relationship between the sound events and the register in which most of the sounds were to occur. "The score also calls for a sound-effects recording of a riveting machine and two oscillators," Feldman wrote, "one low and the other high. (These cannot be heard, but are 'felt.')"¹⁰⁰⁸ Brown's *Folio*, composed in 1953, was simply a graphic, with no indication of which instrument, or instruments, it was meant to be played on, the durations of either the performance or the sound events, or even in which direction the score was meant to be read. "He has a purely graphic score, and no instructions at all as to how you would interpret the graph, except to say that any instrument can do it, you can read the page upside-down, sideways, or whatever," Wolff says. "You simply have this graphic image, and you go from there."

These experiments in indeterminacy had been suggested by Cage's chance composition procedure, but they greatly expanded on its implications. Chance operations

¹⁰⁰⁷ Wolff, interview by author.

¹⁰⁰⁸ Feldman, "Marginal Intersection, Intersection II, Intermission IV," *Give My Regards to Eighth Street*, 11.

determined sound events randomly but nonetheless produced a predetermined score that could be read and played that same way repeatedly. Indeterminate compositions were subject to unknown and unknowable possibilities. "When you get into indeterminacy, explicitly, you're dealing with kinds of composition in which various elements are not in the score, and the performer has to work them out for herself," Wolff says. No two performances could ever be the same. Wolff notes that Cage's music of the period rarely strayed into the realm of pure indeterminacy. The radio noises heard in *Imaginary Landscape No. IV* were subject to whatever signals that might happen to be in the air at the time of a performance, but the actions of the performers are strictly predetermined.

Cage employed a highly inventive and complex randomizing system based on both the *I Ching* and the tarot in his electronic composition *Williams Mix*, composed between 1951 and 1953, to arrange eight loops of taped noise to be played back simultaneously. Yet, although the ordering, duration and shape of the tape splices was determined by chance, they were nonetheless subject to a 193-page graphical score specifying cues and timings.¹⁰⁰⁹ Nor were the sounds themselves chosen at random. Cage delegated Louis and Bebe Barron, who would later compose an all-electronic soundtrack for the 1956 science fiction classic *Forbidden Planet*, to make hundreds of field recordings of sounds in six specific categories: 'city sounds, country sounds, manually produced sounds (including musical instruments), wind-produced sounds, and small sounds requiring amplification to be heard.'¹⁰¹⁰ *Williams Mix* was composed for the Project of Music for Magnetic Tape, organized by Cage and funded by the architect Paul Williams in 1953. Feldman, Brown and Wolff produced electronic compositions of their

¹⁰⁰⁹ Cage, "Williams Mix," in Kostelanetz, *John Cage*, 109-111. Pritchett, 91.

¹⁰¹⁰ Holmes, 115.

own but by 1954 the project had "run its course," Holmes notes, "largely because the participants became disenchanted with the restrictions of formal tape composition."¹⁰¹¹ If anything the assembly of sounds on tape produced a fixed and determinate performance. Cage sought to introduce an element of indeterminacy in *Fontana Mix*, composed five years later. In this composition the order, duration and parameters of recorded sound events for every performance were determined by randomly laying transparencies of the graphical score over a grid defining spatial and temporal coordinates.¹⁰¹²

Neither Wolff, Feldman, nor Brown continued to explore the electronic medium, but the influence of Cage's conception of sound and noise had an enormous influence on their music. He made "no distinction between sounds and noise," Wolff says. "These are not categories that he thinks of as opposed. Whether you have a violin playing a beautiful C#, or you have paper being crumpled, for him, those are equally legitimate sources of music. And he might include the sound of a paper being crumpled in a composition."¹⁰¹³ Cage's younger colleagues eagerly embraced this idea, which he had most dramatically demonstrated in *4'33"*. "Within the context of a composition, the sounds that happen to be going on around the composition in the acoustic environment which, in a concert situation is supposed to be relatively pure, as people are supposed be very quiet, and so on, there are always other sounds," Wolff says. "Normally the feeling is that those are interruptions of the music. The music is supposed to be sort of in its cocoon... We felt that music is part of a larger sonic environment, and the two can accommodate each other perfectly well."¹⁰¹⁴

¹⁰¹¹ Holmes, 117.

¹⁰¹² Holmes, 123.

¹⁰¹³ Wolff, interview by author.

¹⁰¹⁴ Wolff, interview by author.

What the composers of the New York School proposed, each in their own way, was an equivalence of sounds. The discursive barrier between music and its other, whose interruption was noise, would simply not exist. "We like the silences from that sort of aesthetic point of view," Wolff says. "They're space – the music is spacey, and so forth – but there is something that comes into that silence which is not part of our composition, it is not disturbing. The piece simply becomes a conversation with the larger acoustic environment, and we enjoy that."¹⁰¹⁵ Noise, itself, was the key to this new music, Feldman wrote in 1958. "Noise is a word of which the aural image is all too evasive," he observed. "On one hand sound is comprehensible in that it evokes a sentiment, though the sentiment itself may be incomprehensible and far reaching. But it is noise that we really understand. It is only noise which we secretly want, because the greatest truth lies behind the greatest resistance."¹⁰¹⁶

As the New York Philharmonic would demonstrate in 1964, the avant-garde met with continual resistance from performers. The problem, Feldman wryly noted, was that music is a public art. This was particularly the case of indeterminate music that existed only in the moment of its creation. "To play is the thing," he wrote. "This is the reality of music."¹⁰¹⁷ Consequently, without performers both willing and able to perform their works, the downtown avant-garde would never have been heard. "In those days it was very thin, especially to find musicians who were willing to play the music, who were willing to take a chance on playing it or dealing with the technical issues involved," Wolff recalls. That made Tudor, the one member of the New York School who was not a composer, "absolutely essential" to the avant-garde. "It was exactly what he wanted to be

¹⁰¹⁵ Wolff, interview by author.

¹⁰¹⁶ Feldman, "Sound, Noise, Varèse, Boulez," *Give My Regards to Eighth Street*, 2.

¹⁰¹⁷ Feldman, "The Anxiety of Art," 24.

doing, and he had these extraordinary technical capacities which he wanted to exercise. So, the more challenging the music you made for him was, the more he liked it. You couldn't have asked for anything better."¹⁰¹⁸

Tudor came to the downtown music scene through Feldman, with whom he had studied composition under Wolpe at Black Mountain College in 1948.¹⁰¹⁹ His New York performance of Boulez's fiendish second Piano Sonata – its American premiere – in December 1950 had established him as the avant-garde performer *par excellence*: fearless, focused and scholarly. Cage was impressed, noting in a letter that the pianist had devoted three months to studying Boulez's score. "Tudor had spontaneously devoted himself to the labor of understanding and playing the Sonata," Cage wrote to Boulez. "He studied French in order to read your articles in *Contrepoint* and *Polyphonie*."¹⁰²⁰ Tudor was in the front lines from that moment on. The avant-garde was more than his specialty. "In some ways he's entirely responsible for it," Feldman told Schonberg. "Meeting David enabled me to hear and see possibilities I never dreamed of. I'm sure that's true for Cage too."¹⁰²¹ Tudor's energy and virtuosity impressed even those listeners and critics who reviled the music that he chose to play. "There, to the astonishment and admiration of his audience, Tudor can be found more or less simultaneously hitting a keyboard, manipulating one of several tape recorders," Schonberg wrote, "standing up to lean into the piano and sweep its strings, kneeling down to lean under the piano and rap its

¹⁰¹⁸ Wolff, interview by author.

¹⁰¹⁹ Gann, 8.

¹⁰²⁰ Cage, letter to Boulez, 18 December 1950, in Nattiez, 77.

¹⁰²¹ Schonberg, "The Far-Out Pianist," 52.

sounding board, swiveling around to blow a whistle or a kazoo, or at times merely looking intently, with frozen immobility, at the keyboard for four minutes or so."¹⁰²²

Through Tudor's efforts, avant-garde music was indeed a public art, with frequent performances at the Living Theatre, Carl Fischer Concert Hall, as well as other small recital spaces and galleries throughout New York in the 1950s and 1960s, normally arranged with the help of Cage's reputation and his colleagues' meagre pooled resources. "It was limited," Wolff says. "It meant piano music, but on the other hand, of all the gigs to get, piano in a way were the easiest. Most establishments have a piano, and if you have a pianist, you're all set."¹⁰²³ Some of those limitations were both minimized by and contributed to the practice of indeterminacy. Wolff's *Duet I*, for piano four hands, was composed in 1960 for two pianists interacting with separate indeterminate scores, picking up cues for each other, "as aware of all the other's possible openings as possible." He devised a set of graphical symbols to indicate possible choices of cues, dynamics, timbre and duration. Wolff found writing the instructions "like trying to explain how to tie a square knot without pictures or string."¹⁰²⁴

All four of the downtown composers created works for "free instrumentation." Feldman's 1953 composition *Intersection 6*, for example, was scored for one or two pianos, depending on what was available. Wolff had begun to experiment with variable instrumentation with *For Six or Seven Players*, for an ensemble that included violin, viola, trumpet, trombone, piano, and double bass in 1959. Brown's highly indeterminate *25 Pages* was dedicated to Tudor and consisted of a complex, notated score that specified that the pages "may be played in any sequence; each page may be played either side up;

¹⁰²² Schonberg, "The Far-Out Pianist," 49.

¹⁰²³ Wolff, interview by author.

¹⁰²⁴ Wolff, letter to Cage and Tudor, n.d. (1960), typescript, David Tudor Papers, Box 60, Folder 6.

events within each 2 line system may be read as either treble or bass clef." In addition, Brown indicated that "the piece may be played by any number of pianos up to 25."¹⁰²⁵ Wolff made liberal use of his graphical notations in *For 1, 2 or 3 People*, published in 1964, but the piece was not scored for any instrument in particular. "Players can use any ways of making sounds, allowing for the following specifications," the score indicated. "Some notes are on staves; play the indicated pitch (reading either bass or treble clef); sound at pitch; if pitch not available in range, transpose at least two octaves...Where no pitches specified, they are free (recognizable or not)."¹⁰²⁶

Cage's experiments with indeterminacy were rarely as extreme as those of his younger colleagues. Although determined by the operations of chance, his compositions of the 1950s and 1960s relied on complex systems of temporal and spatial cues to allow indeterminate sound events to appear. His scores had been "fixed by chance procedures, not by his choice," Wolff says. "But even so, it's there."¹⁰²⁷ He had, in fact, originally developed the multilayered score used in *Fontana Mix* for *Variations I*, scored for any number of performers on any kind and number of instruments. "The randomizing materials for *Variations I*... are six large squares of transparent plastic, one with points of various sizes, the others with intersecting lines," Michael Nyman writes. The size of the points indicated the number of sound events to be produced, overlaid on a grid indicating frequency, overtone structure, amplitude and cues. "*Variations I* is thus a score which deals with the unique interpenetration of a sound event, since a different spatial

¹⁰²⁵ Earle Brown, "2 Pages from 25 Pages," in La Monte Young, *An Anthology of Chance Operations* (New York: La Monte Young and Jackson Mac Low, 1963), 19.

¹⁰²⁶ Gardner Read, Review of *For 1, 2, or 3 People* by Christian Wolff, *Tempo* 28, December 1971, 304.

¹⁰²⁷ Wolff, interview by author.

arrangement of points to lines would bring about a different combination of characteristics."¹⁰²⁸

Premiered at the avant-garde art dealer Jean-Pierre Wilhelm's Galerie 22 in Dusseldorf in October 1958, *Variations I* provided the template with which Cage would explore free instrumentation and indeterminacy over the next decade. "His own view of writing music is that one should not repeat existing work, not duplicate effort," Wolff observed.¹⁰²⁹ The *Variations* – eight in all – were elaborate and complex experiments. Inspired by the Black Mountain College happening of 1952, Cage sought increasingly to dissolve distinctions between sound and noise, between the arts, and between performance space and the outside environment. "I would like the happenings to be arranged in such a way that I could at least see through the happening to something that wasn't it," he told Kostelanetz.¹⁰³⁰ By 1967, these "happenings" had become, Kostelanetz wrote, "immensely intricate theatrical spectacles, full of interesting aural and, usually, visual activity."¹⁰³¹ *Time* magazine dismissed the happenings staged by Cage and Allen Kaprow as dada-inspired "antics" and predicted in 1966, not without justification, that the "novelty" would soon wear off.¹⁰³² At the time, however, the art-form Kostelanetz called "mixed-means theatre" seemed to be a revolutionary movement, and Cage was its acknowledged "father."¹⁰³³ In an era of cultural revolution, his example authorized anything, particularly in music. "John Cage opened the field to a broader spectrum of

¹⁰²⁸ Michael Nyman, *Experimental Music: Cage and Beyond* (New York: Schirmer Books, 1974), 55-56.

¹⁰²⁹ Wolff, "Under the Influence," in Jonathan Brent, ed., *A John Cage Reader: In Celebration of his 70th Birthday* (New York: C.F. Peters Corporation, 1982), 74.

¹⁰³⁰ Kostelanetz, *The Theatre of Mixed Means*, 55.

¹⁰³¹ Kostelanetz, *The Theatre of Mixed Means*, 51.

¹⁰³² "Happenings are Happening," *Time*, 4 March 1966, 80.

¹⁰³³ Kostelanetz, *The Theatre of Mixed Means*, 51.

possibility in terms of the crafting of music with sound," Oliveros says.¹⁰³⁴ In the 1960s, a generation of avant-garde composers eager walked through the opening he created.

V. Chance Operations

Schonberg was perhaps justified in seeing *Atlas Eclipticalis* as further evidence of "the breakup in contemporary life and thought." By the time Tudor debuted *4'33"*, noises of social and cultural discontent were already coming through the cracks in the postwar consensus. At first it was more of a whisper. John Clellon Jones introduced the readers of the *New York Times* to his literary generation, the Beats in 1952. Kerouac had coined the label four years earlier, to imply "the feeling of having been used, of being raw," Jones wrote. "A man is beat whenever he goes for broke and wagers the sum of his resources on a single number; and the young generation has done that continually from early youth."¹⁰³⁵ They gambled on the promises of progress, Jones wrote, and found them empty. The more cynical of his generation called their world a "nightmare" and protested "that they have indeed lost something," he wrote, "the future."¹⁰³⁶ Their poems and novels were saturated with themes of escape from restrictions and conformity. As they prepared to depart New York in Kerouac's *On the Road*, Sal Paradise and Dean Moriarty reflected that they "were performing our one and noble function of the time, *move*. And we moved!"¹⁰³⁷ The "angelheaded hipsters" of Ginsberg's "Howl!" who burned "for the ancient heavenly connection to the starry dynamo in the machinery of night" escaped, ran

¹⁰³⁴ Oliveros, interview by author.

¹⁰³⁵ Clellon Jones, "This Is the Beat Generation," *New York Times*, 16 November 1952, SM10.

¹⁰³⁶ Jones, SM19.

¹⁰³⁷ Kerouac, *On the Road* (Harmondsworth: Penguin Books, 1976), 134.

and tripped across borders, "toward poles of Canada & Paterson, illuminating all the motionless world of Time between."¹⁰³⁸

MacAdams notes that the discontent of the Beats tapped into something broader and deeper than poetry readings in Greenwich Village coffeehouses and peyote trips on the Pacific coast. Postwar affluence came at the cost of a deadening conformity, and that produced doubt. The break came in 1949, he writes, the year "the first fully air-conditioned, fluorescent-lit office buildings opened in midtown Manhattan," and of the sod-turning of the first Levittown in Hempstead, Long Island. "It was a year of unparalleled American economic expansion, yet at the same time every incoming message for America said to hunker down, pull back, buckle up, and conform,"¹⁰³⁹ he writes. "Absolutes were shaken; relativity entered the world."¹⁰⁴⁰

Progressive utopianism was not quite dead, as the Century 21 Exposition in Seattle, the New York World's Fair in 1964, and NBC's *Star Trek* amply demonstrate. Yet, even Lewis Mumford, the apostle of technical progress of a generation before, whose utopian vision informed the promise of "The World of Tomorrow" had lost hope by the beginning of the 1960s. Progress had pursued the Platonic ideal of a rational society where "disorder and confusion" were eliminated by rational management – an "insect community" and a "living hell" that stifled human potential. "If we continue in science and technology along the lines we are now following, without changing our direction, lowering our rate of speed, and re-orienting our mechanisms toward more valid

¹⁰³⁸ Allen Ginsberg, "Howl," *Collected Poems 1947-1980* (New York: HarperPerennial, 1984), 126.

¹⁰³⁹ MacAdams, 78.

¹⁰⁴⁰ MacAdams, 23.

human goals, the end is already in sight."¹⁰⁴¹ Modern civilization had become "a gigantic motor car" careening down the highway of progress. "Unfortunately as now constructed the car lacks both steering wheel and brakes, and the only form of control the driver exercises consists in making the car go faster, though in his fascination with the machine itself and his commitment to achieving the highest speed possible, he has quite forgotten the purpose of his journey," he wrote. Progress was a "state of helpless submission to the economic and technological mechanisms," and "every permission [had] become a morbid compulsion."¹⁰⁴²

Cage's subversion of music's most basic categories occurred against the background of a rising confrontation between the forces of rationality, progress and order and an ever-increasing impulse for escape and liberation. In some cases, as with the Beats, the impulse turned inward and underground; in others, it turned outward toward the strongholds of official culture, power and taste. The comedian Lenny Bruce violated the latter in his nightclub act using "unscrubbed words that are common gutter patois for incest, sodomy and excrement," *Time* reported. "His words would hardly shock Army veterans, let alone Chaucer readers. But the two-judge majority found him guilty under a New York State law which forbids any 'obscene, indecent, immoral or impure' public performances."¹⁰⁴³ Bruce was fined \$42,000. More momentously, civil rights activists crossed the lines of White privilege and institutionalized racism. James Meredith violated

¹⁰⁴¹ Mumford, *The City in History: Its Origins, Its Transformations and Its Prospects* (New York, Harcourt, Brace & World, 1961), 175-176.

¹⁰⁴² Mumford, *The City in History*, 559.

¹⁰⁴³ "Profane Comedy," *Time*, 13 November 1964, 98.

the sanctum of the University of Mississippi in 1962, to a chorus of condemnation from guardians of order who considered his violation just as obscene.¹⁰⁴⁴

The confrontation was no less dramatic within America's institutions of higher learning. "We are people of this generation, bred in at least modest comfort, housed now in universities, looking uncomfortably to the world we inherit," Students for a Democratic Society proclaimed in the *Port Huron Statement* in 1962. The world they stood to inherit was troubling, but the leaders of the student movement were equally critical of the authority of the institutions in which they were housed. Some of their rhetoric expressed an oedipal antagonism to academic authority. "The academic world is founded in a teacher-student relation analogous to the parent-child relation which characterizes in loco parentis," they wrote as justification for their rebellion. "That which is studied, the social reality, is 'objectified' to sterility, dividing the student from life."¹⁰⁴⁵ Student leader Mario Savio at the University of California Berkeley assailed "autocratic" university bureaucrats and the ambitions of a "sterile" academy that had been coopted by corporate power. "America is becoming ever more the utopia of sterilized, automated contentment," he told a crowd of demonstrators outside Berkeley's Sproul Hall in 1964. "This chrome-plated consumers' paradise would have us grow up to be well-behaved children"¹⁰⁴⁶

The Berkeley demonstrations focused initially on the limits the university administration had placed on students' freedom of speech and political activism but as it gained support on campuses across the country, many commentators reflected on a much

¹⁰⁴⁴ "'Ole Miss' Fights the Union," *New York Times*, 23 September 1962, 196.

¹⁰⁴⁵ Students for a Democratic Society, "The Port Huron Statement," in Tom Hayden, *Writings for a Democratic Society: The Tom Hayden Reader* (San Francisco: City Lights Publishers, 2008), 37.

¹⁰⁴⁶ Mario Savio, "And End to History," in Van Gosse, editor, *The Movements of the New Left, 1950-1975: A Brief History with Documents* (New York: Bedford/St.Martin's, 2005), 80/

deeper crisis. The "Berkeley crisis and its myriad interpretations and misinterpretations were certain to linger long and spread far," *Time* reported during a brief respite.¹⁰⁴⁷ It had shaken the university's authority as the guardian of knowledge and culture. Central to the dispute was University of California President Clark Kerr's vision of the university as a component of the postwar "knowledge industry." American prosperity was based on knowledge, he wrote in 1963. "What the railroads did for the second half of the last century and the automobile for the first half of this century may be done for the second half of this century by the knowledge industry: that is, to serve as the focal point for national growth," Kerr wrote. "And the university is at the center of the knowledge process."¹⁰⁴⁸ Other university administrators agreed, though they might have differed with Kerr's approach to the Berkeley crisis.¹⁰⁴⁹

Things looked different on the campus green. Critics of the technocratic university rearticulated Kerr's vision of the university's role in the "knowledge industry" as a critique of what they charged was a "knowledge factory." "Resentment against the 'factory' atmosphere was evident [at Berkeley] in signs which the protesting students carried," Claudio Segre reported. "Typical among the slogans was 'Protest the University Machine' and '(President) Kerr: Students Aren't IBM Cards – Don't Program Our Minds.'"¹⁰⁵⁰ The lesson of the Berkeley crisis was that, in focusing on corporate-government research partnerships, the large American university had become a bloated bureaucracy which had abdicated its responsibilities to nurture free inquiry and

¹⁰⁴⁷ "Bonaparte's Retreat," *Time*, 7 May 1965, 64.

¹⁰⁴⁸ Clark Kerr, *The Uses of the University*, Fifth Edition (Cambridge: Harvard University Press, 2001), 66.

¹⁰⁴⁹ "The Role of the University," *New York Times*, 7 November 1965, E12.

¹⁰⁵⁰ Claudio Segre, "Berkeley's Lesson: Student Unrest There Points Up Problem of Big Colleges," *Wall Street Journal*, 23 December 1964, 8.

knowledge. That was certainly how a growing community of avant-garde composers on the West Coast understood it.

For the founding members of the San Francisco Tape Music Center, free inquiry lay outside university walls. The Center was an outgrowth of a series of concerts entitled "Sonics," presented by composers Pauline Oliveros, Ramon Sender, Terry Riley and Philip Winsor, most of whom had studied with Robert Erickson at the San Francisco Conservatory of Music. They established the center, in part, for purely practical reasons. It was necessary, Oliveros remembers, "because there was no access to any kind of electronic music-making available in any academic institution around where we were. The only one was the Columbia-Princeton and maybe something in Illinois. We had to create our own way to make music and to work together."¹⁰⁵¹ However, the founders also had far-reaching aesthetic and political goals. The center was meant to answer the "immediate need for a studio for the production of sounds by electronic means and for a concert hall in which to present programs of an experimental nature," Sender wrote in 1964, "the sort that might not readily fit into the concerts of already existing music organizations."¹⁰⁵² It was also explicitly intended to remain "independent of any university or college connection" and retain "a balance in our relation to the community between our activities as a cultural agency on the one hand and a sound recording studio on the other."¹⁰⁵³

In those roles, the center pursued an agenda diametrically opposed to the Columbia-Princeton Electronic Music Center, and allied with Cage and the New York

¹⁰⁵¹ Oliveros, interview by author.

¹⁰⁵² Ramon Sender, "The San Francisco Tape Music center – A Report, 1964," in David W. Bernstein, *The San Francisco Tape Music Center: 1960s Counterculture and the Avant-Garde* (Berkeley: The University of California Press, 2008), 42.

¹⁰⁵³ Chadabe, 86.

School. Rather than focus on hermetic research into music science, the San Franciscans sought to break down the barriers between contemporary music and its public.

"Somewhere there should be a place where the fragmented elements of our musical life could be melted together and recast through the reestablishment of the artist's dialogue with his community in a new and vital way," Sender wrote. "A place where a new music would find a dynamic and vital expression for our own era, and by its own vitality not countenancing the isolative practices of the cliques and factions that sicken the musical life of today."¹⁰⁵⁴ The sought to explore "the whole field of sound, and possibilities for music and of daily life, and the importance of the daily," Oliveros says. That meant "a kind of listening that is inclusive, and is continuous, and is not dependent on a cultural concept. So it's more integrative and holistic rather than 'exclusive and elite.'"¹⁰⁵⁵

Although Sender and co-founder Morton Subotnick were professors at nearby Mills College, David Bernstein notes that the San Francisco center had its roots in the "intellectual community that protested against the oppressiveness and homogeneity of postwar American society" that had blossomed as the Beat poets settled in California in the 1950s.¹⁰⁵⁶ The center was directly implicated in the growing activism against the monuments of official knowledge and culture, nurtured by the "dynamic interplay between avant garde art and the counterculture that emerged in the freethinking cultural environment of San Francisco," Bernstein writes.¹⁰⁵⁷ It was an environment already receptive to Cage's notion of the equivalence of sounds. Oliveros remembers that her curiosity was piqued after hearing him on local radio in the late-1950s. "I was very

¹⁰⁵⁴ Sender, 43.

¹⁰⁵⁵ Oliveros, interview by author.

¹⁰⁵⁶ David W. Bernstein, "The San Francisco Tape Music Center: Emerging Art Forms and the American Counterculture, 1961-1966," in Bernstein, 8.

¹⁰⁵⁷ Bernstein, 38.

interested in sound quality, and I was interested in new sounds," she says. "So when I started working with tape, it opened up the field for me."

The center also marked the shrinking hegemony of the academic modernists. The Columbia-Princeton Electronic Music Center had already lost its monopoly on once-dear audiophonic technologies and electronic instruments by the mid-1960s. In its earliest days, the San Franciscans had to make do with what was available – a tape recorder supplied by Subotnick, some odds and ends from Sender, scattered equipment borrowed from a local high school or through a fortuitous connection with the local Ampex representative.¹⁰⁵⁸ What they couldn't borrow, they improvised and invented. "The main thing was that we were able to record," Oliveros says. "The understanding that you could manipulate tape by cutting and splicing was very intriguing for composers, and it opened up a new way of making music."¹⁰⁵⁹ In his composition *Music for the Gift*, Riley used multiple tape recorders to feed the audio output of a recorded jazz ensemble back on the recording head to create a tape delay technique.¹⁰⁶⁰ By the time the San Francisco Tape Music Center came under the aegis of Mills College in 1966, however, its members had built an impressive facility with a large inventory of state-of-the-art tools.

Even the synthesizer, the centrepiece of the Columbia-Princeton Electronic Music Center, soon slipped outside of the academy's walls. Moog had the opportunity to see the RCA synthesizer close-up in 1965 when Ussachevsky hired him to design a voltage-controlled envelope filter – an electronic component used to shape the instrument's

¹⁰⁵⁸ Chadabe, 88.

¹⁰⁵⁹ Oliveros, interview by author.

¹⁰⁶⁰ Holmes, 83.

tones.¹⁰⁶¹ The device became the basis of a new and much more powerful synthesizer that Moog and colleague Herb Deutsch designed and sold commercially starting in 1965. Among its most radical features was a piano-style keyboard. Ussachevsky and his colleagues at the Electronic Music Center were hostile to the very idea of such a keyboard, as it seemed to make the instrument more accessible, thus contradicting the Center's research focus. It was central to the Moog's commercial appeal, but more importantly, it provided what the RCA synthesizer lacked – real-time control over sound. Donald Buchla developed a similar design at almost the same time in California to Subotnick's and Sender's specifications, to be used by the San Francisco Tape Music Center.¹⁰⁶² It lacked a piano keyboard, but offered even finer real-time control.

That control was key to the to the center's mission. "Cutting and splicing tape is one thing, but actually being able to synthesize sounds became another step in this whole process," Oliveros says. "The RCA Synthesizer was a stepping stone toward that, but the San Francisco Tape Music Center – Ramon and Morton and myself, and others – were interested in being able to have control over synthesized sound."¹⁰⁶³ For Oliveros, that control opened up access to an aural palette that included sounds conventionally represented as disruptive and noise in postwar discourse. "In the distance a bulldozer is eating away a hillside while its motor is a cascade of harmonics defining the space between it and the Rock and Roll radio playing in the next room," she wrote epigrammatically in 1966. "Now... the bulldozer has stopped for a while. The freeway one-half mile away, unmasked, sends its ever-shifting drone to join with the train whistle

¹⁰⁶¹ Trevor Pinch and Frank Trocc, *Analog Days: The Invention and Impact of the Moog Synthesizer* (Cambridge: Harvard University Press, 2002), 59.

¹⁰⁶² Holmes, 182.

¹⁰⁶³ Oliveros, interview by author.

from Encinitas... I would like to amplify the sound of a bull dozing."¹⁰⁶⁴ That summer, she recalls, Oliveros "did a big noise piece" at a festival in Toronto called *Big Mother is Watching You*. "I used white noise; I used filter, maybe and the delay system that I established that allowed me to improvise and play with the studio, rather than cutting and splicing tape," she says. "So I found that I was very interested in noise."¹⁰⁶⁵

Oliveros and other Tape Music center musicians met Tudor on a West Coast tour in 1963. The pianist was impressed by what he heard and saw, and agreed to curate the music for a festival to be held the following April. The program for Tudorfest included works by Oliveros, Alvin Lucier, Cage collaborator Toshi Ichiyanagi and Cage himself, including the ill-fated *Atlas Eclipticalis*. Cage was in attendance. "He was passing through San Francisco on his way to the East-West Center for some conference there," Oliveros recalls. "It so happened that he came through two weeks after that infamous New York Philharmonic affair where the orchestra musicians sabotaged *Atlas Eclipticalis* with very juvenile behaviour. So we performed *Atlas Eclipticalis* with David Tudor, and Winter Music. Cage was there, and very happy about our performance."¹⁰⁶⁶

By the mid-1960s, the San Francisco musicians were connected to the New York avant-garde in a personal and professional network that included the ONCE group, founded by Gordon Mumma and Robert Ashley in Ann Arbor, and the Theatre of Eternal Music, founded by La Monte Young and John Cale, a Welsh violist who had come to New York to study with Cage. "People would collect," Wolff says. "Out in Michigan, in Ann Arbor, there was Ahsley, and Mumma, and a couple of other people who periodically would come East because they were very interested in what we were doing,

¹⁰⁶⁴ Oliveros, "Some Sound Observations," *Software for People*.

¹⁰⁶⁵ Oliveros, interview by author.

¹⁰⁶⁶ Oliveros, interview by author.

and we wanted to know what they were up to. So they would come and we would see each other and compare music and stuff like that."¹⁰⁶⁷ As the publication of Young's *Anthology of Chance Operations* demonstrated, the avant-garde network was already well-established as early as 1963, and included a wide range of poets and visual artists as well as composers inspired by, or at least sympathetic to Cage's aesthetic philosophy. The anthology contained works by Cage, Brown and Wolff, as well as Young and Californians Terry Jennings and Riley. Interspersed between the often abstruse musical scores were poems by Jackson Mac Low and Yoko Ono and, among other things, an essay on concept art by Henry Flynt.

By the end of the decade, Cage remained the most celebrated – and equally reviled – representative of the avant-garde. Van Meter Ames credited Cage for unleashing a polyvalent avant-garde that crossed disciplinary boundaries and what, for "traditional taste" was "like riots in the streets and revolts in the universities."¹⁰⁶⁸ The aesthetic philosopher Arnold Berleant cited the composer, "who is responsive to sounds of all sorts, and considers any kind of noise as musical material" as critical influence in the development of pop art.¹⁰⁶⁹ *Life* magazine blamed Cage for "meaningless" contemporary architecture.¹⁰⁷⁰ Alan Rich blamed him for his insomnia: "I worry a lot about a man who has been without doubt one of the major shaping forces on the contemporary musical language, who has written about the arts in a manner both witty and important, who is described by all who have met him (I haven't) as extremely

¹⁰⁶⁷ Wolff, interview by author.

¹⁰⁶⁸ Van Meter Ames, "Is it Art?" *The Journal of Aesthetics and Art Criticism* 30, Autumn 1971, 39. (39-48)

¹⁰⁶⁹ Arnold Berleant, "Aesthetics and the Contemporary Arts," *The Journal of Aesthetics and Art Criticism* 29, Winter 1970, 163. (155-168)

¹⁰⁷⁰ "It's What's There," *Life*, 28 July 1967, 44A.

charming – and whose music I cannot abide."¹⁰⁷¹ Yet by the end of the 1960s, avant-garde composers had begun to push well beyond even Cage's aesthetic purposes.

Steve Reich, who drove a taxi in San Francisco to pay his way through Mills College and participated in the Tape Music Center in the early-1960s, wanted to explore the process of music. "I do not mean the process of composition but rather pieces of music that are, literally, processes," he wrote in 1968. Cage had opened up the possibilities by exploring "impersonal" processes in the application of chance procedures, but that wasn't enough for Reich. "The compositional processes and the sounding music have no audible connection," he wrote. "What I'm interested in is a compositional process and a sounding music that are one and the same."¹⁰⁷² He began working with fragments of found sound, such as the voice of a preacher delivering a hellfire and brimstone sermon in *It's Gonna Rain* in 1965, or the voice of a young man injured in the Harlem riots of 1964 *Come Out* in 1966. Playing the loops back he found that, "because of minute differences between the machines, the phrase was marginally out of synchronization with itself," Nyman notes.¹⁰⁷³ Rerecorded into a series of tape-recorders and played back and rerecorded again, the resulting interference produced unearthly sounds beating to the rhythm of speech. The emotional feeling is that you're going through the cataclysm," Reich wrote, "you're experiencing what it's like to have everything dissolve."¹⁰⁷⁴ Lucier's 1969 work "I Am Sitting in a Room" erased a live performer reciting a text in real-time, using a similar arrangement of tape recorders, in the resonance of the room in which the performance was held. "I was interested in the

¹⁰⁷¹ Alan Rich, "Up the Wall with John Cage," *New York Magazine*, 6 October 1969, 54.

¹⁰⁷² Steve Reich, "Music as Gradual Process," *Writings on Music, 1965-2002* (New York: Oxford University Press, 2002), 34-35.

¹⁰⁷³ Nyman, 131.

¹⁰⁷⁴ Reich, "It's Gonna Rain," *Writings on Music*, 21.

process, the step-by-step, slow process of the disintegration of the speech and the reinforcement of the resonant frequencies," Lucier wrote.¹⁰⁷⁵ In practice as well as theory, Reich and Lucier dissolved rationality and meaning in, and *into* non-meaning.

VI. Coda: The Electric Ear

The East Village was a longer distance from Columbia University than the 35-minute subway ride along the A Train, and a short walk east from the West 4th Street station indicated. The distance from the McMillin Theatre to the Electric Circus nightclub at 23 Saint Mark's Place in the late-1960s could be better measured in cultural miles. That much would have been clear to Subotnick, who had come East to take a position as composer-in-residence at New York University. The recording of his electronic composition *Silver Apples of the Moon*, performed on the Buchla synthesizer and commissioned by Nonesuch Records in 1967, a label better known for providing light classical and baroque music to a mass market, "was an unprecedented success: the reviews were almost unanimously good and the first pressing run sold out."¹⁰⁷⁶ Its success encouraged Nonesuch to release other challenging works, including Cage's Piano Concerto and the *Spectrum* new music compilations. Three years later, Nonesuch would release *Time's Encomium*. Moreover, the impact of *Silver Apples of the Moon* reached far beyond the rarefied spaces of elite musical taste. In 1967, two aspiring musicians in the East Village dubbed their electronic psychedelic group *The Silver Apples*.

¹⁰⁷⁵ Alvin Lucier, quoted in Joel Chadabe, *Electric Sound: The Past and Promise of Electronic Music* (Upper Saddle River: Prentice-Hall, 1997), 76.

¹⁰⁷⁶ Tod Dockstader, Review of The Wild Bull a Composition for Electronic-Music Synthesizer by Morton Subotnick, *The Musical Quarterly* 55, January 1969, 136.

The happenings had begun to taper off by 1969, but interest in avant-garde music had never been stronger, or broader. Young's Theatre of Eternal Music would play continuously in downtown venues like The Kitchen in Soho for at least another decade, often to sold-out crowds. "Those who feel that the term 'avant-garde' is still appropriate for works by Boulez or Carter or Schuller or Crumb are probably in for a rude awakening if they attend any of the performances by LaMonte Young and Marian Zazeela and their Theatre of Eternal Music this week," Tom Johnson wrote in 1974.¹⁰⁷⁷ Cale departed to join Brill Building songwriter Lou Reed in *The Velvet Underground* in 1965. The following year, Andy Warhol hired the band to provide the sounds, if not exactly music, for his *Exploding Plastic Inevitable!* cabaret, playing at the Dom, a converted Polish community centre downstairs from the Electric Circus. "We all knew something revolutionary was happening, we just felt it," Warhol recalled with characteristic hyperbole. "Things couldn't look this strange and new without some barrier being broken."¹⁰⁷⁸

Subotnick broke barriers. Starting in the summer of 1968, he directed an ongoing series of avant-garde, usually electronic, music at the Electric Circus called "The Electric Ear." The critics continued to complain. Writing in the *Times*, Donal Henahan moaned about the unconventional space at a performance of Subotnick's *The Wild Bull*. "If the avant-garde is going to give us traditional concerts, let it give us back out theater seats."¹⁰⁷⁹ The Electric Circus was meant to provide anything but a civilized, academic atmosphere. After all, on Saint Mark's place, wrote John Leo in the *Times*, "the scene is

¹⁰⁷⁷ Tom Johnson, "In Their 'Dream House', Music Becomes a Means of Meditation," *New York Times*, 28 April 1974, 135.

¹⁰⁷⁸ Andy Warhol and Pat Hackett, *Popism: The Warhol Sixties* (New York: Harcourt Books, 1980), 204.

¹⁰⁷⁹ Donal Henahan, "Blinking Machine Joins 'Wild Bull,'" *New York Times*, 27 August 1968, 37.

more important than the dance... Stars glower in a black sky. The curved walls crawl with huge protoplasmic blobs of colored light throbbing with the beat."¹⁰⁸⁰ A photograph accompanying the article shows young hipsters in ironed hair and mod suits chiaroscuro in flashing lights against an abstract-painted backdrop. Yet it was also home to avant-garde.

Subotnick's guests included Oliveros, who performed *Big Mother is Watching You* and *Beautiful Soop*, "in which cultured voices, electronically fractured, read poems of Lewis Carroll over a whippoorwill-like accompaniment (among other sounds), while a nostalgic, childlike light show based on the alphabet and on simple words such as 'cat' and 'bat' was projected on the walls."¹⁰⁸¹ Riley, equally influenced by Indian ragas, happenings and indeterminacy, had emerged as a bearded guru of a West Coast avant-garde scene that eschewed structure and embraced altered states. His April 1969 appearance at the Electric Circus featured near-endless, repetitive improvisations on an electronic organ, looped and re-looped in a battery of tape recorders. "The other nights of the week will see the normal dancing and allied entertainment" that the Electric Circus was known for, Schonberg reported."¹⁰⁸² The avant-garde had "made the scene."

¹⁰⁸⁰ John Leo, "Swinging in the East Village Has Its Ups and Downs," *New York Times*, 15 July 1967, 20.

¹⁰⁸¹ Theodore Strongin, "Music and Theater Share Same Circuit at Electric Circus," *New York Times*, 9 July 1968, 30.

¹⁰⁸² Schonberg, "Music: The Medium Electric, the Message Hypnotic," *New York Times*, 15 April 1969, 42.

CONCLUSION:
NO SOUNDS ARE FORBIDDEN

Bernstein issued a parting shot as he announced, in the face of steadily eroding attendance, that he would be stepping down as director of the New York Philharmonic at the end of the 1968-1969 season: orchestras had become museums and conductors their curators.¹⁰⁸³ Though never a friend of the avant-garde and not prepared to pronounce the death of the symphony orchestra, Schonberg himself had nevertheless conceded that the great institutions of art music had to change. "We cannot have 19th-century formulae representing life in the atomic age," he wrote. "Indeed, we cannot have the same kind of orchestra to represent the new music." There was hope, however. "For what it's worth, I believe that music today is in the process of breaking free from the incredible stranglehold imposed on it by the post-war serialists."¹⁰⁸⁴ Indeed, he had observed three weeks earlier in a scathing critique of the Philharmonic's plans for a "conventional" and "static" program in Bernstein's last season at the podium that the avant-garde had actually begun "to attract a public."¹⁰⁸⁵ It was a lesson he hoped the Philharmonic's management would heed as they searched for a successor to Bernstein. Evidently, they did.

Boulez's appointment as director of the New York Philharmonic in 1969 seemed to signal a sea change in American music. Throughout the 1960s Bernstein had built the Philharmonic into the United States' preeminent symphony orchestra with media

¹⁰⁸³ Paul Hume, Lukas Foss, Elliott Carter, Paul Kirchner, "The Symphony: Is It Alive? Or Just Embalmed?" *New York Times*, 22 September 1968, 117.

¹⁰⁸⁴ Schonberg, "Are Reports of Its Death Greatly Exaggerated?" *New York Times*, 29 September 1968, D21.

¹⁰⁸⁵ Schonberg, "Music Establishment Offering a Standard Season," *New York Times*, 6 September, 1968, 36.

appearances and record releases that far outstripped the orchestras of Boston and Chicago and more than matched the output of Eugene Ormandy's Philadelphia Orchestra. He had also introduced American audiences to hitherto-neglected composers like Mahler and celebrated French and Russian neo-classicists with definitive performances and recordings. Bernstein had championed American music with bestselling albums of music by Copland, Ives, and Barber; the recording of his third symphony, with the composer at the podium, won the 1965 Grammy Award for Best Classical Album. At the beginning of his 11-year tenure as music director, *Life* gushed that the Maestro "personifies America's serious music in an era when the leadership of world music has shifted to the U.S."¹⁰⁸⁶ Although *Time* magazine noted that "Bernstein's reputation as a champion of new music is a trifle inflated," by the end of the 1960s his name had become synonymous with exciting music and youthful vigour.¹⁰⁸⁷

The New York Philharmonic, like most of the other major symphony orchestras in the United States, had made the cultivation of modern American music a critical element in its public mission by commissioning and performing – often over the objections of its subscribers – works by contemporary composers throughout the 1950s and 1960s. However, these were almost invariably composers, like Copland and Carter, whose reputations were founded in the canon of inter-war neo-Classicism, conservatives like Barber and, above all, high-modernists whose stature was validated by the academy. The institutions of official culture endorsed high-modernism while completely ignoring the unruly avant-garde after the *Atlas Eclipticalis* fiasco.

¹⁰⁸⁶ "People at the Top of Entertainment's World," *Life*, 22 December 1958, 168.

¹⁰⁸⁷ "Laureate's Farewell," *Time*, 23 May 1969, 60.

However, Schonberg noted that the significance of the appointment of Bernstein's successor, "as far as the intellectual life of New York is concerned, is Mr. Boulez's place as a spokesman for the avant-garde." Recognized as one of the great postwar French composers, Boulez had spent most of the decade focusing his efforts on conducting. He had a reputation as an anti-Romantic, and had "expressed his scorn for a good deal of the music that is considered basic repertory – the symphonies of Brahms and Tchaikovsky, the tone poems of Strauss."¹⁰⁸⁸ Boulez also expressed barely-disguised contempt for the dominance of academic art music. "European music is not connected with the university," he told Joan Peyser in an interview shortly before assuming the directorship of the Philharmonic. "There is no ivory castle for us. But here, university people and practical musicians ignore each other. It's a very unhealthy state of affairs."¹⁰⁸⁹ Cage might have felt optimistic that his old friend would now be at the helm of the orchestra that had sabotaged his work five years earlier, but their creative paths had diverged, and their friendship had become attenuated.¹⁰⁹⁰ Schonberg wondered if New York audiences would be receptive to a repertoire "much more representative of the 20th century and of the music up through Beethoven than of the 19th century."¹⁰⁹¹

Boulez probably wondered the same thing. He modeled his plans for the 1971-1972 season on an art museum. "Museums, he noted, always have masterpieces on display," Raymond Ericson wrote approvingly of the plan, "but they also arrange special exhibitions devoted to a big painter, an important period, special phases of art, research

¹⁰⁸⁸ Schonberg, "A Significant Philharmonic Selection," *New York Times*, 11 June 1969, 40.

¹⁰⁸⁹ Joan Peyser, "A Fighter from Way Back," *New York Times*, 9 March 1969, D19.

¹⁰⁹⁰ Nattiez, "Introduction," in Nattiez, 23.

¹⁰⁹¹ Schonberg, "A Significant Philharmonic Selection," 40.

and experimentation."¹⁰⁹² The orchestra would perform more conventional music at Philharmonic Hall, leavened with retrospective series of the works of Berg and the then rarely-heard Franz Liszt, and move downtown for a "Prospective Encounters" series of avant-garde music at downtown venues like the Public Theater and the Cooper Union auditorium. It was a bitter pill for the Philharmonic's usual patrons. The avant-garde concerts were well-attended but Boulez came under a storm of criticism from the Philharmonic's core audience and charges of "arrogance" and "intolerance" from the musicians themselves. He responded in a two-page defence in the *Times*. "Even the most resolute adventurers have had their moments of panic and reflection; and yet they have gone ahead, moved by that force which is more powerful than fear – curiosity," he wrote. "Why should we not awaken that curiosity?"¹⁰⁹³ Boulez conceded that his great challenge was to balance the demands of audiences for both the conventional and the unfamiliar. "A fruitful exchange takes place between the two realms, and any number of reluctances would disappear if a flow of current were to be permanently established between discovering new works and visiting works of the past."¹⁰⁹⁴ Wuorinen added his voice to the debate a month later. Boulez, he wrote, had failed to bring the Philharmonic out of the 19th century, and the audience had failed to listen. It was time for a change. "It seems to me that the reform of our elephantine institutions must be attempted merely because they exist in the present," he wrote prophetically, "their future survival is a question that will settle itself."¹⁰⁹⁵

¹⁰⁹² Raymond Ericson, "Boulez Outlines Orchestra Plans," *New York Times*, 28 January 1971, 42.

¹⁰⁹³ Boulez, "To Awaken Curiosity in Our Music," *New York Times*, 6 August 1972, D11.

¹⁰⁹⁴ Boulez, D18.

¹⁰⁹⁵ Wuorinen, "The Bulk of Hostility to New Music Would Pass If..." *New York Times*, 10 September, 1972, D25."

Boulez abruptly announced in 1975 that he would leave the New York Philharmonic at the end of the 1976-1977 season. He had originally been hired to attract a younger audience more attuned to contemporary music, like the crowds of young people who came out for an eclectic, 24-hour long festival of avant-garde music, art, poetry and theatre in Central Park in the summer of 1966.¹⁰⁹⁶ The Philharmonic said that it had "gained almost as many subscribers as it had lost," but it still lost subscribers.¹⁰⁹⁷ The orchestra musicians, who had dubbed him "the French Correction," were not sad to see him go. The new maestro would be Zubin Mehta, who was expected "to bring a rather traditional kind of musical excitement back to Avery Fisher hall."¹⁰⁹⁸ The downtown encounters with avant-garde music were canceled and, though the Philharmonic continued to commission and perform contemporary music, Mehta's choices cleaved to the conservative, as with the premiere of Barber's *Ambiguities*, and representatives of the avant-garde of the past, such as Carter.¹⁰⁹⁹ Though a consummate showman, Mehta's 12-year tenure at the podium was no less controversial than his predecessor's, and did little to halt the orchestra's decline. "Does anyone care anymore?" Peter Davis asked in a 1985 *New York Magazine* cover story. "Whatever controversy remains is carried on in a gray, listless fashion that reflects the kind of unimaginative programs and uneventful music-making heard too frequently these days at Avery Fisher Hall."¹¹⁰⁰

It was a common refrain. The art music establishment that Koussevitzky and Stokowski had built, which had provided the aural and cultural space where modern

¹⁰⁹⁶ Dan Sullivan and Richard F. Shepard, "Avant-Garde Day in Park Goes On and On," *New York Times*, 10 September 1966, 19.

¹⁰⁹⁷ Schonberg, "Boulez to Leave Philharmonic in '77," *New York Times*, 15 May 1975, 50.

¹⁰⁹⁸ Henahan, "Mehta Excites the Philharmonic," *New York Times*, 24 September 1977, 11.

¹⁰⁹⁹ Ericson, "Mehta Plans Barber Premiere to Open Philharmonic Season," *New York Times*, 14 March 1978, 30.

¹¹⁰⁰ Peter G. Davis, "Mehta Faces the Music," *New York Magazine*, 14 January 1985, 27.

music flourished for more than half a century, and which had nurtured Copland, Thomson and Sessions faced a difficult present and an uncertain future. In 1980, the National Symphony Orchestra in Washington celebrated its 50th anniversary facing a crisis "like every other orchestra, opera and ballet company in the country." Slumping ticket sales had made it hard to pay the bills.¹¹⁰¹ Lincoln Center itself, the home of the New York Philharmonic, the Metropolitan Opera and the New York City Ballet had been "hemorrhaging money" from the day it opened in 1955 and had instituted an ongoing "membership drive" to raise funds.¹¹⁰² Former president William Schuman, who was fired for failing to stanch the bleeding, was blunt in his assessment. "I think the center itself, aside from its educational program, is really no longer an artistic force," he said.¹¹⁰³ The traditional institutional spaces of art music were dying from inside their acoustically-controlled interiors. The music of the 20th century was irrelevant to their audiences, and orchestras turned their backs on modernism to stay alive. "Why go out of your way to create a big loss?" Lincoln Center President John W. Mazzola asked in 1980. "As it is, Mostly Mozart fills 95 percent of the seats, and we lose \$200,000 a year."¹¹⁰⁴

The survival of Lincoln Center, the Philharmonic or for that matter any symphony orchestra was little more than an academic question for most avant-garde composers. "We long ago gave up on trying to get commissions from the New York Philharmonic," Wolff says, "or even thinking about it."¹¹⁰⁵ The traditional concert hall had indeed become a museum. Avant-garde composers had, both intentionally and of necessity,

¹¹⁰¹ Paul Hume, "The National Symphony at 50: After Half a Century of Solid Progress, Its Future Is Suddenly Uncertain," *Washington Post*, 21 September 1980, L1.

¹¹⁰² Hillel Levin. "The Selling of Lincoln Center," *New York Magazine*, 3 November 1980, 69.

¹¹⁰³ Levin, 66.

¹¹⁰⁴ Levin, 72.

¹¹⁰⁵ Wolff, interview by author.

spent the 1960s largely outside of the boundaries of conventional art music. Banished from concert hall and conspicuously absent from the programs of the institutional music societies, they had found both performance spaces and audiences antagonistic to conventional boundaries. "It's very expensive to rent Alice Tully Hall, and it's much cheaper to find some gallery owner who you happen to know, and lets you use their space for next to nothing," Wolff says. So they performed their art in concerts they arranged themselves, in art galleries and at the blossoming number of eclectic music and arts festivals around the world. Wolff remembers performing his composition *Burdocks* at one such festival in Lugano in the 1970s. "We did *Burdocks*, and the next group to come on was an alternative rock group called Henry Cow," he recalls "And I realized that we were the warm-up act for Henry Cow!"¹¹⁰⁶

It should not have been such a surprise. Exiled from conventional performance spaces, the avant-garde had planted itself in fertile ground around the fringes of art music – in galleries, at the Electric Circus and in spaces of their own devising. As the high-modernists remained hermetically sealed within the academy, and the cultural boundaries of the concert hall became increasingly impermeable to penetration from the outside, avant-garde composers found themselves in a lively conversation with a growing counterculture that crossed and re-crossed disciplinary lines. Free jazz pioneer Cecil Taylor adopted the prepared piano as a signature instrument in the mid-1960s on albums like *Student Studies* in 1966; jazz musician Rahsaan Roland Kirk appeared with Cage in Dick Fontaine's avant-garde 1967 documentary *Sound??* The composer recited from a text in his book *Silence*. "Sounds are just vibrations, isn't that true? Why didn't I say that

¹¹⁰⁶ Wolff, interview by author.

before? Doesn't that stir the imagination?" he asked, intercut with scenes of Kirk improvising on a variety of instruments at the Bronx Zoo.¹¹⁰⁷

The creative dialogue in places like Greenwich Village and San Francisco was fluid and far-ranging. As postmodernist novelist Ronald Sukenick noted in his memoir of the Village art scene of the 1960s *Down and In*, "Dissolving the boundaries between art and life was part of the tide of the sixties."¹¹⁰⁸ Dissolving the boundaries between the arts, and between conventionally high art and low, was part of it as well. Centred around the San Remo Bar on Bleecker Street, the Minetta Tavern around the corner on MacDougall and the Public Theater on Lafayette street, New York's avant-garde underground provided an unbounded social space where "John Cage, George Kleinsinger, and Miles Davis, dancer Merce Cunningham, artists William Streig and Jackson Pollock, Julian Beck and Judith Malina of the Living Theater," and others drank, talked and shared ideas and philosophies.¹¹⁰⁹ The avant-garde was not the enclosed property of any art, or even art itself, but consciously all arts and, Sukenick notes, life.

The extent of its multivocality was evident at the second Festival of the Arts Today, held over sixteen days in Buffalo New York in the winter of 1968. *Time* reported that Cage wandered through the audience at one recital "gunning down musicians on the stage with the ack-ack-ack of a toy tommy gun." Elsewhere, "Taylor's combo roamed off and on stage at random. And leaving Taylor's concert, the audience was confronted by the same dedication to happenstance in a collection of devil-may-care props and costumes by Robert Rauschenberg, composed for Merce Cunningham's ballets.

Rauschenberg assembled his props in the same spirit as his famous 'combine' of goat and

¹¹⁰⁷ Dick Fontaine, dir., *Sound??* (USA, 1965).

¹¹⁰⁸ Ronald Sukenick, *Down and In: Life in the Underground* (New York: Beech Tree Books, 1987), 149.

¹¹⁰⁹ Sukenick, 36-37,

tire —out of whatever happened to be at hand when inspiration hit."¹¹¹⁰ It did not take a great leap of imagination for Cale to join a rock band. Nor was it much of a stretch for listeners of jazz and rock music and admirers of the paintings of Rauschenberg and Jasper Johns to give Cage and his colleagues from both coasts the kind of appreciative hearing that they never received at Lincoln Center. There were no boundaries.

That much was abundantly clear in 1975, when Lou Reed, formerly Cale's partner and the frontman of The Velvet Underground, released a two-disc album of "screaming, steady-state electronic noise." *Metal Machine Music* was never a best seller for Reed, who was better known for quirky songs like "Take a Walk on the Wild Side" and "Satellite of Love." Yet it made a statement about avant-garde music, and how far it had come at a time when the institutions of official musical culture seemed to be dying, and high-modernist music had become a museum piece. "Mr. Reed's latest musical experimentation is hardly unprecedented in the world of the classical avant-garde. Mr. Reed makes specific reference in his notes to La Monte Young (even if he does misspell the name)."¹¹¹¹ Significantly, *Metal Machine Music* was not heard live until the ten-piece German avant-garde ensemble Zeitkratzer presented it at the Berlin Opera House in 2002.¹¹¹²

Avant-garde music continued to thrive. In 1981, the Neuberger Museum in Purchase, NY, mounted a huge show on avant-garde "sound in art," the "most intensive such exhibition one is likely to find, barring some colossal conversion of the

¹¹¹⁰ "Where the Militants Roam," *Time*, 15 March 1968, 94.

¹¹¹¹ John Rockwell, "The Pop Life: Lou Reed Turns Up the Volume," *New York Times*, 20 June 1975, 24.

¹¹¹² Nick Johnstone, ed., *Lou Reed Talking: Lou Reed in His Own Words* (London: Omnibus Press, 2005), 57.

Metropolitan or the National Gallery into an avant-garde showcase."¹¹¹³ The show featured a sound installation by Tudor, now a composer in his own right, Keith Sonnier, Max Neuhaus and the genre-straddling Laurie Anderson. It was a diverse and vital mix, Kay Larson wrote, noting that the "godfather of recent sound art is of course John Cage."¹¹¹⁴ Two years later, the Brooklyn Academy of Music inaugurated its still-running Next Wave Festival. Cage, Anderson, Philip Glass and other composers rubbed shoulders with corporate sponsors. The festival brought exposure, resources and funding to the avant-garde and, Amy Virshup noted, "when the 1987 version of the festival opens, they'll have even more to celebrate, because in just five years the Next Wave has become one of America's most powerful cultural forces."¹¹¹⁵

There was no Nirvana moment of compositional intent, of course; there couldn't be. Even the indeterminacy of Young's "Composition 1960 #5" was an intentional act determined by a conscious composer. "Turn a butterfly (or any number of butterflies) loose in the performance area... When the composition is over, be sure to allow the butterfly to fly away outside," Young's score specified. "The composition may be any length but if an unlimited amount of time is available, the doors and windows may be opened before the butterfly is turned loose and the composition may be finished when the butterfly flies away."¹¹¹⁶ The lepidopteral trajectory and the barely-audible sound of wingbeats disturbing the air were beyond the composer's control, but someone had to choose the time and place of the performance, and someone had to open the jar. Moreover, even if the composition was never *meant* to be performed, Young's

¹¹¹³ Kay Larson, "The Patter of Little Feats," *New York Magazine*, 12 October 1981, 78.

¹¹¹⁴ Larson, 81.

¹¹¹⁵ Amy Virshup, "BAM Goes Boom," *New York Magazine*, 12 October 1987, 40.

¹¹¹⁶ La Monte Young, "Compositions," in La Monte Young, ed., 112.

instructions reinforced compositional intent in their exacting specificity. The real significance is that the butterfly flew away and outside of the performance space.

The postwar avant-garde had shattered the unity of art music. It had been inaugurated a critique of the discursive limits that contained and defined music, and which modernism reinforced throughout the 20th century to preserve rational order and hold chaos at bay. Yet the avant-garde's interruption of the aural, social and, above all, rhetorical categories of music and sound had invited chaos. If the unintentional sounding of a random note at the piano, the mechanical groan of a bulldozer, the beat of butterfly wings or the sounds of an audience fidgeting nervously in a concert hall as the pianist deliberately and explicitly did not play the piano, could be music, then anything could be music. If a composer's agency consisted of "allowing sounds to appear," then the authority of the conventional artistic economy that authorized music was fatally subverted. If art music could be performed and heard anywhere – in Central Park, the Electric Circus, the Staten Island Ferry as well as in the concert hall – then the social and spatial boundaries that had disciplined it had no meaning.

The avant-garde validated all sounds, any action that produced sounds, and any space and soundfield where sounds resonated, as equally legitimate artistic expressions. The corollary was that, while Cage and his colleagues had subverted the hegemony of conventional art music and its institutions, it did not delegitimize them. High modernists would continue to compose their great works for orchestra, synthesizer and tape in a serial idiom and have them heard by presumably-appreciative audiences at Lincoln Center and Carnegie Hall, but they no longer represented the *sine qua non* of serious music. The New York Philharmonic performed Babbitt's *Correspondences* for strings and

synthesized tape and *Occasional Variations* for synthesizer in 1973 alongside the yelps, moans and grunts of Hungarian composer Gyorgy Ligeti's *Aventures* "and, to be blunt," the *Times'* Allen Hughes wrote, "Ligeti won easily."¹¹¹⁷

Paradoxically, the avant-garde critique and the subversion of modernism enabled a "return to tonality" widely remarked upon by critics and musicologists in the early-1980s.¹¹¹⁸ Riley's experiments with flexible, repetitive forms in *In C* in 1964 had already led in that direction. It was a composition which would exert a powerful influence on the emergence of minimalist music in the following decade. "With its insistent, unyielding pulse on the high C of a piano and the sunny, upbeat fragments of melodies recirculating over and over in a loose polyphony, *In C* captured the congenial hippie spirit of the West Coast while at the same time proposing a new, slowly evolving approach to musical form," composer John Adams recalled in his memoirs. "It was also marvelously provocative, giving an R. Crumb middle finger to the crabbed, pedantic world of academic modernism."¹¹¹⁹

In C inspired Reich, who had participated in its first performance, to explore the possibilities of repetitive patterns in *Come Out* and *It's Gonna Rain*.¹¹²⁰ With his 1967 composition *Piano Phase*, Reich applied the principles of his tape compositions, themselves suggested by the use of live instruments in *In C*, to conventional instruments. "The process of *Piano Phase*... is the same as that of *Come Out* though they are coloured by human fallibility and adapted to musical, not spoken sound," Nyman writes. The work

¹¹¹⁷ Allen Hughes: "Music: New Encounters," *New York Times*, 1 April 1973, 77.

¹¹¹⁸ See Jonathan Harvey, "Reflection after Composition," *Tempo* 140, March 1982), 2-4, and Paul Rapoport, "Towards the Infinite Expansion of Tonal Resources," *Tempo* 144, March 1983, 7-11.

¹¹¹⁹ John Adams, *Hallelujah Junction: Composing an American Life* (New York: Farrar Strauss and Giroux, 2008), 89.

¹¹²⁰ Reich, "It's Gonna Rain," 20.

begins with two pianists playing a simple, 12-note melody in unison. Soon, "the lead player gradually speeds up very slightly until he has moved one semiquaver ahead and continues this process of phasing until both instruments are back in unison."¹¹²¹ *Piano Phase* produced a pulsating effect remarkably similar to Reich's tape works and provided the template for most of his compositions throughout the next three decades. "The pulse and the concept of clear tonal center will reemerge as basic sources of new music," Reich confidently declared in 1970.¹¹²² That was an overstatement. While familiar – and unfamiliar – tonal systems had begun to make a reappearance in the works of avant-garde composers, musicologist Paul Rapoport noted in 1983 that "that the tonality implied in the so-called return to tonality which many composers are revealing or discussing is but one possibility among very many."¹¹²³

When, as Cage had hoped to demonstrate in 1949, "no sounds are forbidden even the most familiar," the boundaries and conventions of music had lost their disciplinary power. There was no noise. Tonality and harmony had become sound materials like any other, both as empty and full of meaning as environmental sounds, the squeak of a slide whistle or the clunk of a prepared piano. Even Feldman and Wolff, who continued to explore the possibilities of chance and indeterminacy, made liberal use of the materials of now-impotent tonality. Feldman's *Rothko Chapel*, composed in 1971, deploys autobiographical musical quotations, including "certain intervals" with "the ring of the synagogue" and a soprano melody he composed on the day of Stravinsky's funeral. Most striking is the lyrical viola melody that repeatedly emerges from and fades back into the

¹¹²¹ Nyman, 131.

¹¹²² Reich, "Some Optimistic Predictions (1970) About the Future of Music," *Writings on Music*, 52.

¹¹²³ Paul Rapoport, "Towards the Infinite Expansion of Tonal Resources," *Tempo* 144, March 1983, 10.

cloud of a choral tone cluster at the end of the work, and which he had composed at the age of fifteen.¹¹²⁴

Wolff's *Accompaniments* of 1972 contains "echoes of tonality and intimations of harmonic language, continuity and chains of pitches," Philip Thomas writes.¹¹²⁵ By the mid-1970s, Wolff had begun to experiment with using pre-existing material "loaded with cultural meaning" but presented in an indeterminate context.¹¹²⁶ The words and melodies of *Wobbly Music* came from songs associated with the Industrial Workers of the World and articulated Wolff's own political commitments. However, the composer "does not allow the broader harmonic and gestural shape of the songs to dominate the music," Stephen Chase notes. Rather, Wolff's fluid, shifting and indeterminate presentation that prevents "the music from ever quite settling into a key" is a critique of the temporal and historical context of the songs and the failures of the American Left. "What seemingly begins as a nostalgic celebration of a more optimistic time for the American Left becomes unsettled through the way in which Wolff proceeds during the piece."¹¹²⁷ The indeterminate process, and not the melodies themselves, are the music. It is pastiche, "the imitation of a peculiar or unique style, the wearing of a stylistic mask, speech in a dead language."¹¹²⁸

The "return to tonality" represented neither evidence of surrender nor the restoration of the hegemonic musical conventions from which the modernists had strayed throughout the 20th century. "Over the course of the last hundred years, a tremendous

¹¹²⁴ Feldman, "Rothko Chapel," *Give My Regards to Eighth Street*, 126.

¹¹²⁵ Philip Thomas, "For Pianist: The Solo Piano Music," in Stephen Chase and Philip Thomas, eds., *Changing the System: The Music of Christian Wolff* (Farnham, UK: 2010), 68.

¹¹²⁶ Stephen Chase, "'There is Always a Time:' Words, Music, Politics and Voice," in Chase and Thomas, 180.

¹¹²⁷ Chase, 181.

¹¹²⁸ Jameson, 114.

amount of intellectual energy has been expended on preventing inadvertent lapses back into tonality," Susan McClary writes. Despite the efforts of modernist composers, however, "the paradox remains that atonal projects themselves derive their meaning from tonality. Throughout the years of its exile, tonality was kept simultaneously at bay and in its place of privilege by what Jean-François Lyotard describes as a negative theology: it reigned as the seductive idol against which composers and listeners were expected to practice apostasy."¹¹²⁹ The return of, if not always the return to, tonality in contemporary art music was thus a denial and subversion of the linear teleology of progress that high modernism articulated. There was no goal of ever-refined, rational music. There was only sound.

¹¹²⁹ Susan McClary, *Conventional Wisdom: The Content of Musical Form* (Berkeley: The University of California Press, 2000), 140.

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