AUDIO CULTURE READINGS IN MODERN MUSIC



REVISED EDITION

Edited by Christoph Cox and Daniel Warner

BLOOMSBURY

Audio Culture Revised Edition

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Readings in Modern Music

Edited by Christoph Cox and Daniel Warner

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Introduction to the Revised Edition: Music and the New Audio Culture

A new audio culture emerged in the late twentieth century, a culture of musicians, composers, improvisors, sound artists, scholars, and listeners attentive to sonic substance, the act of listening, and the creative possibilities of sound recording, playback, and transmission. This culture of the ear has become particularly marked since the late 1990s, as evidenced by a constellation of distinct but interrelated phenomena. The academy has witnessed the emergence of "sound studies," an interdisciplinary field of inquiry led by historians, anthropologists, musicologists, and cultural theorists who have turned their attention to sound as a marker of temporal and cultural difference.¹ At the same time, sound art has become a prominent field of artistic practice, presented at major museums and galleries all across the globe.² In music, oncemarginal sonic and auditory explorers-Luigi Russolo, John Cage, Pierre Schaeffer, Pauline Oliveros, R. Murray Schafer, Maryanne Amacher, Éliane Radigue, and others—have come to be acknowledged as ancestors and influences by an extraordinary number and range of musicians and producers working across the boundaries of classical, jazz, rock, and dance music.

What accounts for this auditory turn in contemporary culture? Technological innovations have certainly played a central role. "Sound recording, audio tracking of movies and video, online MP3s, all have resounded our ways of thinking," notes historian Richard Cullen Rath, recapitulating a view advocated by media theorist Marshall McLuhan in the 1960s.³ McLuhan argued that the rise of electronic media was causing a shift in the sensorium, ousting the visual from its long hegemony and giving way to an immersive experience exemplified by the auditory.⁴ In his persuasive history of musical technology, musician and theorist Chris Cutler offers a related view, arguing that sound recording has deposed the culture of the eye exemplified by the highly literate and score-governed field of European art music, and has "throw[n] the life of music production back onto the ear." As with the orally transmitted folk music that was

eclipsed by the European classical tradition, "the first matter is again Sound. Recording *is* memory of sound."⁵

Invented in the mid-1930s, but commercially unavailable until a decadeand-a-half later, the tape recorder revolutionized music. Early experimenters such as Cage and Schaeffer noted that this device opened music to "the entire field of sound,"⁶ rather than merely the restricted body of sounds produced by traditional musical instruments. Indeed, trained as a radio engineer instead of a composer, Schaeffer came to represent a new breed of musician: an amateur explorer working directly ("concretely," as he put it) with sound material rather than going through the detours of musical notation, conductors, and performers. And just as Schaeffer prefigured today's music producer, who manipulates sound with inexpensive hardware and software on a home computer, he also prefigured the age of the remix. For recorded sound obscures the difference between the original and the copy, and is available for endless improvisatory manipulations and transformations. Finally, the tape recorder (and related technologies such as the phonograph and the radio) made possible a new mode of listening, what Schaeffer termed "acousmatic listening": listening to sounds in the absence of their sources and visual contexts, a listening that thus gives access to sound-as-such.

A second technological revolution has also contributed to the rise of audio culture over the past few decades: the advent of digital media. Compact discs, the Internet, MP3, peer-to-peer networks, podcasts, streaming media—all these digital technologies and platforms have led to the creation of a vast virtual archive of sound and music available on a massive scale. The pristine clarity of digital sound fosters an attention to sonic matter and detail; its replicability and microscopic malleability allows even a novice to become a sound artist or remixer. Finally, the internet enables new audio communities, networks, and resources to form and flourish.

Exploiting these technologies and networks, the emergent audio culture manifests a new kind of sonic literacy, history, and memory. If the traditional conception of history as a continuous, linear unfolding can be thought of as *analog*, this new sonic sensibility might be conceived as a *digital* one. It flattens the distinction between "high art" and "mass culture," and treats music history as a database from which to draw random-access sonic alliances and affinities that ignore established genre categories. Thus, the avant-rock quartet Sonic Youth links punk rock to the

work of experimental music founders Pauline Oliveros, Christian Wolff, and Takehisa Kosugi. Derek Bailey puts free improvisation into conversation with drum 'n' bass. Composer Anthony Braxton uses iPods to sample his own work in live performance and collaborates with the noise band Wolf Eyes. House and Techno producers sample, emulate, and remix the music of minimalist masters. Pop experimentalist Björk pays homage to Karlheinz Stockhausen and collaborates with Free Jazz drummer Chris Corsano, electronic duo Matmos, and improvising harpist Zeena Parkins. Composer Michael Pisaro quotes the music of DJ Screw on a record with art-pop singer Julia Holter, and combines field recordings and sine tones with instrumental composition.⁷ The combinations are myriad and the cross-fertilizations ongoing.

Indeed, across the field of modern music, one discovers a host of shared practices and theoretical concerns. For example, John Cage's critique of the composer's authority is also explicitly an issue in contemporary electronica and DJ culture, in which producers take on a protean array of aliases and make their mark by mixing and remixing the music of others. The boundary between "music" and "noise" is challenged as much by Jana Winderen's environmental sound compositions as by the cacophonous compositions of Merzbow and Fe-mail. Issues around technology and aesthetic originality pervade the contemporary musical spectrum, from the early collages of James Tenney to the work of composer/improviser John Oswald, rock renegades Negativland, HipHop turntablists DJ QBert and the X-Ecutioners, and electronica artists Jason Forrest, Girl Talk, and Oneohtrix Point Never.

Audio Culture attempts to map the musical terrain of this new culture of sound. Rather than offering a *history* of contemporary music, the book traces the *genealogies* of contemporary musical practices and theoretical concerns, drawing lines of connection between recent musical forms and earlier moments of sonic experimentation. It aims to foreground the various rewirings of musical composition and performance that have taken place in the past several decades and to provide a critical and theoretical language for this new audio culture. As such, the book poses, and seeks to answer, questions such as: What new modes of production, circulation, reception, and discourse are mobilized by vanguard musical production today? How do musical practices within the new audio culture complicate the definition of "music" and its distinction from "silence," "noise," and "sound"? In what ways do they challenge traditional conceptions of

authorship, textuality, and ownership? How are musical strategies such as indeterminacy, minimalism, free improvisation, turntablism, and electronic experimentation employed by artists from different backgrounds?

The texts included here are drawn from a heterogeneous array of sources. Statements by composers, improvisers, and producers are printed alongside essays by theorists and critics who provide lines of connection and historical contexts. Excerpts from books sit beside magazine articles, liner notes, and essays that first appeared on the internet. This heterogeneity reflects the fact that the new audio culture is a *discourse*, a loose collection of terms, concepts, and statements gathered from across the cultural field. This discourse not only challenges aesthetic distinctions between "high art" and "popular culture." In the age of the Internet, it also flattens traditional hierarchies between "high" and "low" venues for publishing. Most of the texts were written within the past half-century, though the book also includes several earlier texts that have been reanimated by the new audio culture.

The group of texts in Part I explores some key ontological and epistemological issues that have shaped music and sound over the past few decades. These texts investigate the shifting definition of "music" and examine the various modes of listening necessitated by the contemporary soundscape. Several texts discuss changes in the production and reception of sound that have resulted from newer technologies such the iPod, the sampler, and the laptop computer, and from reappropriations of older technologies such as magnetic tape and the phonograph. The incursion of music into everyday life and the spaces of everyday living raises political issues concerning the ways that sound constructs us as human subjects and locates us in particular social and cultural contexts; hence, several texts in Part I suggest strategies for navigating the current sonic landscape.

Part II more closely examines a spectrum of musical practices that are currently providing resources for musicians from different generations and backgrounds. Practices such as minimalism, open-form composition, free improvisation, and experimentalism are taken here not as fixed historical entities but as ongoing musical strategies that are continually being adopted and reshaped for new contexts. Hence, each section attempts to give a sense of the particular practice as a general strategy, to trace some of its genealogical strands, and to examine some of its current inhabitations.

Throughout the book, we have tried to foreground the ways that these

theoretical concerns and practices, though to some degree distinct, significantly overlap or flow into one another. All the issues in Part I are interlinked: musical ontology is shaped by musical technologies and by modes of listening and aural attention. The practices explored in Part II similarly overlap. At its limit, open-form composition becomes experimental music; Reich's early tape works and Alvin Lucier's Music on a Long Thin Wire propel experimental music into the minimalist domain; minimalist methodologies drive a great deal of contemporary electronica. Turntablists such as Christian Marclay, Otomo Yoshihide, and Marina Rosenfeld merge DJ culture with free improvisation, which is also currently practised by electronica producers such as Marcus Schmickler, AGF, and Christian Fennesz. Indeed, all contemporary music is, in some sense, electronic music; thus, texts on electronic music are not confined to the final section but are spread throughout the book. Moreover, most of the authors and musicians presented in the book are linked to one another via myriad networks of influence or collaboration. Several of these-John Cage, Pierre Schaeffer, Brian Eno, and David Toop, for example-form key nodal points to which most of the developments in contemporary music can be linked. Hence, their names are ubiquitous and constantly cross-referenced

This second edition of Audio Culture contains twenty-four new essays. Several of these present classic and archival texts by important artists neglected in the first edition, among them Maryanne Amacher, Éliane Radigue, La Monte Young, Wadada Leo Smith, Lawrence "Butch" Morris, and Anne Carson. Other essays present the perspectives of artists who have become prominent voices over the past decade and a half: Vijay Iyer, Marina Rosenfeld, Ulra-red, Lawrence Abu Hamdan, Mattin, Yan Jun, Trio Sowari, Jennifer Walshe, Holly Herndon, and Kevin Quashie. Several essays (for example, those by Herndon, Kenneth Goldsmith, Tara Rodgers, and Annahid Kassabian) trace the impact of digital technologies and platforms on music, cultural production, and reception. The book also includes four newly commissioned essays. Kevin Quashie meditates on "quiet" as a critical strategy in African-American music and culture. Philip Sherburne tracks Minimalist tendencies in electronic music. Marina Rosenfeld reflects on the material and conceptual conditions of her turntablist practice. And Holly Herndon discusses the intimacy of the laptop and how the internet has affected composition and performance.

It will have been noticed that what we are calling "contemporary music"

or "modern music" has a peculiar character. Though it cuts across classical music, jazz, rock, reggae, and dance music, it is resolutely avant gardist in character and all but ignores the more mainstream inhabitations of these genres. In our view, it is the vanguard fringe within each of these generic categories that fully and richly challenges prevailing assumptions about the nature of music and sound, *and* challenges these genre categories themselves. These vanguard practices destabilize the obvious, and push our aesthetic and conceptual sensibilities to their limits. They force us to confront the unheard core of all music—the sonic and auditory as such—and, hence, provide the musical currency of the new audio culture.

Notes

- A sampling of such work can be found in *The Auditory Culture Reader*, ed. Michael Bull and Les Back (Oxford: Berg, 2003) *Hearing History: A Reader*, ed. Mark M. Smith (Athens, GA: University of Georgia Press, 2004); *The Sound Studies Reader*, ed. Jonathan Sterne (New York: Routledge, 2012); *The Oxford Handbook of Sound Studies*, ed. Trevor Pinch and Karin Bijsterveld (Oxford: Oxford University Press, 2012); and *Keywords in Sound*, ed, David Novak and Matt Sakakeeny (Durham: Duke University Press, 2015).
- 2 International survey exhibitions include: "Sonic Boom," Hayward Gallery, London, April–June 2000; "Sounding Spaces: Nine Sound Installations," NTT InterCommunication Center, Tokyo, July–September 2003; "Sons et Lumières: A History of Sound in 20th Century Art," Centre Pompidou, Paris, September 2004– January 2005; "Sonambiente Berlin 2006," June–July 2006; "See This Sound: Promises in Sound and Vision," Lentos Kunstmuseum, Linz, Austria, August 2009–January 2010; "Sound Art: Sound as a Medium of Art," ZKM, Karlsruhe, Germany, March 2012–January 2013; "Soundings: A Contemporary Score," Museum of Modern Art, New York, August–November 2013; "Art or Sound," Fondazione Prada, June–November 2014
- 3 Richard Cullen Rath, interviewed by Emily Eakin in "History You Can See, Hear, Smell, Touch, and Taste," *New York Times* (December 20, 2003).
- 4 This view is presented most fully in Marshall McLuhan and Bruce R. Powers, *The Global Village: Transformations in World Life and Media in the 21st Century* (Oxford: Oxford University Press, 1989), particularly the chapter "Visual and Acoustic Space" (see Chapter 10, below).
- 5 Chris Cutler, "Necessity and Choice in Musical Forms," in File Under Popular: Theoretical and Critical Writings on Music (New York: Autonomedia, 1993), 33.

Cutler's historical account is richly developed and explored in the "Probes" podcast series he curates for Ràdio Web MACBA: http://rwm.macba.cat/en/probes_tag.

- 6 John Cage, "Future of Music: Credo," Chapter 5 below.
- 7 Sonic Youth, Goodbye 20th Century, SYR 4; Derek Bailey, Guitar, Drums 'n' Bass, Avant AVAN 060; Anthony Braxton, 3 Compositions (EEMHM) 2011, Firehouse 12 Records FH12-01-02-020; Wolf Eyes & Anthony Braxton, Black Vomit, Les Disques Victo VICTO CD 099; Various Artists, Reich Remixed, Nonesuch 79552-2, and The Orb, "Little Fluffy Clouds," The Orb's Adventures Beyond the Ultraworld, Big Life BLR 98; Björk, "Why I Love Stockhausen," The Guardian (October 29, 2008); Michael Pisaro, Tombstones, Human Ear HEMK0026, and Michael Pisaro, Continuum Unbound, Gravity Wave gw 011– 013.

Part One

Theories

Background noise [*le bruit de fond*] is the ground of our perception, absolutely uninterrupted, it is our perennial sustenance, the element of the software of all our logic. It is the residue and cesspool of our messages [...] The background noise never ceases; it is limitless, continuous, unending, unchanging. It has itself no background, no contradictory [...] Noise cannot be made a phenomenon; every phenomenon is separated from it, a silhouette on a backdrop, like a beacon against the fog, as every message, every cry, every call, every signal must be separated from the hubbub that occupies silence.

- Michel Serres¹

The twentieth century is, among other things, the Age of Noise. Physical noise, mental noise, and noise of desire—we hold history's record for them. And no wonder; for all the resources of our almost miraculous technology have been thrown into the current assault against silence. That most popular and influential of all recent inventions, the radio, is nothing but a conduit through which pre-fabricated din can flow into our homes. And this din goes far deeper, of course, than the ear-drums. It penetrates the mind, filling it with a babel of distractions— news items, mutually irrelevant bits of information, blasts of corybantic or sentimental music, continually repeated doses of drama that bring no catharsis, but merely create a craving for daily or even hourly emotional enemas. And where, as in most countries, the broadcasting stations support themselves by selling time to advertisers, the noise is carried from the ears, through the realms of phantasy, knowledge and feeling to the ego's central core of wish and desire. Spoken or printed, broadcast over the ether or on wood-pulp, all advertising copy has but one purpose—to prevent the will from ever achieving silence.

– Aldous Huxley²

Our biggest competitor is silence.

- A member of the marketing department at Muzak³

Look at it this way: there are many here among us for whom the life force is best represented by the livid twitching of one tortured nerve, or even a full-scale anxiety attack. I do not subscribe to this point of view 100%, but I understand it,

have lived it. Thus the shriek, the caterwaul, the chainsaw gnarlgnashing, the yowl and the whizz that decapitates may be reheard by the adventurous or emotionally damaged as mellifluous bursts of unarguable affirmation.

— Lester Bangs⁴

Post-Renaissance music differs from nearly all other musics, which love to use noise—sounds, that is, of no precise pitch or definite harmonic structure—as well as those pitches which lie between our twelve divisions of the octave, and which our music considers to be "out of tune" [...] Post-Renaissance musicians could not tolerate these acoustically illogical and unclear sounds, sounds which were not susceptible to total control.

— Christopher Small⁵

Edgard Varèse described himself as an "organizer of sound." That concept is probably more valid today than in any previous era.

— John Zorn⁶

There is no such thing as an empty space or an empty time. There is always something to see, something to hear. In fact, try as we may to make a silence, we cannot. For certain engineering purposes, it is desirable to have as silent a situation as possible. Such a room is called an anechoic chamber [...] a room without echoes. I entered one at Harvard University several years ago and heard two sounds, one high and one low. When I described them to the engineer in charge, he informed me that the high one was my nervous system in operation, the low one my blood in circulation. Until I die there will be sounds. And they will continue following my death.

— John Cage⁷

Noise may have lost its power to offend. Silence hasn't.

— Dan Warburton⁸

The fear of silence is nothing new. Silence surrounds the dark world of death. Sometimes the silence of the vast universe hovers over us, enveloping us. There is the intense silence of birth, the quiet silence of one's return to the earth. Hasn't art been the human creature's rebellion against silence? Poetry and music were born when man first uttered sound, resisting the silence.

— Toru Takemitsu⁹

There is no difference between noise and music in my work. I have no idea what

you term "music" and "noise." It's different depending on each person. If noise means uncomfortable sound, then pop music is noise to me.

— Masami Akita (a.k.a. Merzbow)¹¹

Is there censorship for sound, experimental music, sound art [in China]? The disappointing fact is, as long as there are no words or lyrics involved, sound is harmless to the state. That is why extreme noise acts are not censored, even when Torturing Nurse performed in Shanghai, in 2007, with nude in bondage and hot wax dripping. With Chinese urban centers being huge, high-volume noise generators in themselves, such small events in tiny venues can hardly raise an eyebrow.

— Dajuin Yao¹²

I. Music and Its Others: Noise, Sound, Silence

Introduction

What is music? A little more than a century ago, the question was fairly easy to answer. But, ever since the early decades of the twentieth century, it has become increasingly difficult to distinguish music from its others: noise, silence, and non-musical sound.

The reasons for this are many. The music of Claude Debussy, Arnold Schoenberg, and Igor Stravinsky challenged tonality on a number of fronts. Not long after, Henry Cowell, Edgard Varèse, and John Cage began to explore non-pitched sounds. Ethnomusicological research into music outside Europe began to suggest a need to expand the concept of music beyond the narrow and specialized domain it demarcated in the West.

Audio recording played a crucial role in blurring the lines of distinction between music and its others. It gave composers access to what John Cage called "the entire field of sound," making conventional distinctions between "musical" and "non-musical" sounds increasingly irrelevant. And tape composition allowed the composer to bypass musical notation, instruments, and performers in one step. In 1948, Pierre Schaeffer broadcast over French radio a "Concert of Noises," a set of pieces composed entirely from recordings of train whistles, spinning tops, pots and pans, canal boats, percussion instruments, and the occasional piano. Schaeffer called his new music "musique concrète," in contrast with traditional "musique abstraite," which passed through the detours of notation, instrumentation, and performance. Trained as a radio engineer rather than a musician, Schaeffer's method of composition bore a closer resemblance to cinematic montage than it did to traditional musical composition. The most prominent European avant-garde composers (Stockhausen, Boulez, etc.) flocked to his Paris studio; but, ultimately, the impact of Schaeffer's work was felt most strongly outside classical music, for example, in the early tape experiments of Les Paul, the studio manipulations of Beatles producer George Martin, the concrète pranks of Frank Zappa, the live tape-loop systems of Terry Riley, and the sampling practices of DJs and turntablists from Grandmaster Flash to Maria Chavez.

In his 1913 manifesto, Russolo wrote that the traditional orchestra was no longer capable of capturing the imagination of a culture immersed in noise, and that the age of noise demanded new musical instruments he called "noise instruments" (*intonarumori*). Composer Edgard Varèse dismissed the conventional distinction between "music" and "noise," preferring to define his work as "organized sound." In his writings of the 1930s, he described his own music as the "collision of sound-masses," blocks of sound "moving at different speeds and at different angles." Varèse's use of sirens in the ground-breaking percussion piece *Ionisation* (1929–31) gestured back to Russolo and forward to the development of electronic instruments that could provide the "parabolic and hyperbolic trajectories of sound" of which he dreamt. Two decades later, in the early 1950s, the European avant-garde became captivated by the extraordinary powers of these electronic instruments, which extended the domain of music far beyond that of traditional instrumental sonorities.

In the decades that followed, commercial synthesizers tamed these unruly powers and made tidy electronic instruments available to the general public. By the 1970s, such instruments had become the norm in rock and dance music. Aiming to revive and celebrate the powers of noise, British and European "industrial" bands merged punk rock attitudes, performance art sensibilities, and a Russolian fascination with mechanical noise to forge a retro-futurist music made with found objects: chains, tire irons, oil drums, and other industrial debris. "Industrial music" and the "noise bands" that followed highlighted certain cultural and political features of noise: noise as disturbance, distraction, and threat.

Noise has also functioned as a vehicle for ecstasy and transcendence, shaping the musical aesthetic of drone-based minimalists La Monte Young and Tony Conrad as well as free jazz players from Albert Ayler and John Coltrane through David S. Ware and Matana Roberts. Punk, hiphop, and heavy metal have also revalued the notion of noise, transforming it into a marker of power, resistance, and pleasure; and the same is true of feminist and queer artists whose noises have been relegated to the social and cultural margins.

The rise of interest in "noise" in contemporary music has gone hand-inhand with a renewed interest in its conceptual opposite: silence. With his Zen embrace of contradiction, John Cage attempted to erase the distinctions between silence, music, and noise, while simultaneously noting that perfect silence is never more than a conceptual ideal, an aural vanishing point. In the face of rising noise levels in urban and rural environments, composer and acoustic ecologist R. Murray Schafer called for "the recovery of positive silence" and a subtle attention to the endangered non-musical sounds of our environment. Microphones and headphones brought the vanishing point of silence within aural reach, forever transforming the relationship of silence to sound, giving them equal ontological status.

What is music? According to Jacques Attali, it is the constant effort to codify and stratify noise and silence, which, for their part, always resist and threaten it from without. From Russolo through "noise music," experimental musical practices have inhabited that borderland where noise and silence become music, and vice versa.

1

Noise and Politics

Jacques Attali

During the 1980s, economic theorist Jacques Attali was Special Counselor to French President François Mitterand. He subsequently headed the European Bank for Reconstruction and Development and was an economic advisor under President Nicolas Sarkozy. With the publication of Noise: The Political Economy of Music in 1977, Attali quickly became one of Europe's leading philosophers of music. For Attali, music, like economics and politics, is fundamentally a matter of organizing dissonance and subversion – in a word, "noise." Yet Attali argues that, an all-but-immaterial force, music moves more quickly than economics and politics, and hence prefigures new social relations.

[...] Listening to music is listening to all noise, realizing that its appropriation and control is a reflection of power, that it is essentially political. More than colors and forms, it is sounds and their arrangements that fashion societies. With noise is born disorder and its opposite: the world. With music is born power and its opposite: subversion. In noise can be read the codes of life, the relations among men. Clamor, Melody, Dissonance, Harmony; when it is fashioned by man with specific tools, when it invades man's time, when it becomes sound, noise is the source of purpose and power, of the dream—Music. It is a refuge for residual irrationality; it is a means of power and a form of entertainment.

Everywhere codes analyze, mark, restrain, train, repress, and channel the primitive sounds of language, of the body, of tools, of objects, of the relations to self and others.

All music, any organization of sounds is then a tool for the creation or consolidation of a community, of a totality. It is what links a power center to its subjects, and thus, more generally, it is an attribute of power in all of its forms. Therefore, any theory of power today must include a theory of the localization of noise and its endowment with form. Among birds a tool for marking territorial boundaries, noise is inscribed from the start within the panoply of power. Equivalent to the articulation of a space, it indicates the limits of a territory and the way to make oneself heard within it, how to survive by drawing one's sustenance from it.¹ And since noise is the source of power, power has always listened to it with fascination. In an extraordinary and little-known text, Leibniz describes in minute detail the ideal political organization, the "Palace of Marvels," a harmonious machine within which all of the sciences of time and every tool of power are deployed.

These buildings will be constructed in such a way that the master of the house will be able to hear and see everything that is said and done without himself being perceived, by means of mirrors and pipes, which will be a most important thing for the State, and a kind of political confessional.²

Eavesdropping, censorship, recording, and surveillance are weapons of power. The technology of listening in on, ordering, transmitting, and recording noise is at the heart of this apparatus. The symbolism of the Frozen Words,³ of the Tables of the Law, of recorded noise and eavesdropping—these are the dreams of political scientists and the fantasies of men in power: to listen, to memorize—this is the ability to interpret and control history, to manipulate the culture of a people, to channel its violence and hopes. Who among us is free of the feeling that this process, taken to an extreme, is turning the modern State into a gigantic, monopolizing noise emitter, and at the same time, a generalized eavesdropping device. Eavesdropping on what? In order to silence whom?

The answer, clear and implacable, is given by the theorists of totalitarianism. They have all explained, indistinctly, that it is necessary to ban subversive noise because it betokens demands for cultural autonomy, support for differences or marginality: a concern for maintaining tonalism, the primacy of melody, a distrust of new languages, codes, or instruments, a refusal of the abnormal—these characteristics are common to all regimes of that nature [...]

The economic and political dynamics of the industrialized societies living under parliamentary democracy also lead power to invest art, and to invest in art, without necessarily theorizing its control, as is done under dictatorship. Everywhere we look, the monopolization of the broadcast of messages, the control of noise, and the institutionalization of the silence of others assure the durability of power. Here, this channelization takes on a new, less violent, and more subtle form: laws of the political economy take the place of censorship laws. Music and the musician essentially become either objects of consumption like everything else, recuperators of subversion, or meaningless noise.

Musical distribution techniques are today contributing to the establishment of a system of eavesdropping and social surveillance. Muzak, the American corporation that sells standardized music, presents itself as the "security system of the 1970s" because it permits use of musical distribution channels for the circulation of orders. The monologue of standardized, stereotyped music accompanies and hems in a daily life in which in reality no one has the right to speak any more. Except those among the exploited who can still use their music to shout their suffering, their dreams of the absolute and freedom. What is called music today is all too often only a disguise for the monologue of power. However, and this is the supreme irony of it all, never before have musicians tried so hard to with their audience. and never before has communicate that communication been so deceiving. Music now seems hardly more than a somewhat clumsy excuse for the self-glorification of musicians and the growth of a new industrial sector. Still, it is an activity that is essential for knowledge and social relations.

Notes

- 1 "Whether we inquire into the origin of the arts or observe the first criers, we find that everything in its principle is related to the means of subsistence." Jean-Jacques Rousseau, *Essai sur l'inégalité*.
- Gottfried Wilhelm Leibniz, "Drôle de pensée touchant une nouvelle sorte de représentation," ed. Yves Belaval, *La Nouvelle Revue Francaise* 70 (1958): 754–68. Quoted in Michel Serres, "Don Juan ou le Palais des Merveilles," *Les Eludes Philosophiques* 3 (1966): 389.
- 3 [A reference to Rabelais, Gargantua and Pantagruel, b. 4, chap. 54. TR.]
- From Jacques Attali, Noise: The Political Economy of Music, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1985). Used by permission of the publisher.

2

The Art of Noises: Futurist Manifesto

Luigi Russolo

A prominent painter in the Italian Futurist movement, Luigi Russolo is best known for "The Art of Noises: Futurist Manifesto" (1913), one of the most important and influential texts in twentieth-century musical aesthetics. Written as a letter to his friend, the Futurist composer Francesco Balilla Pratella, this manifesto sketches Russolo's radical alternative to the classical musical tradition. Drawing inspiration from the urban and industrial soundscape, Russolo argues that traditional orchestral instruments and composition are no longer capable of capturing the spirit of modern life, with its energy, speed, and noise. A year after composing this letter, Russolo introduced his intonarumori ("noise instruments") in a series of concerts held in London. None of Russolo's music remains; and the intonarumori were destroyed in a fire during World War II. Yet, since the War, *Russolo's manifesto has become increasingly important, inspiring a host of* musicians, composers, and sound artists, among them musique concrète pioneers Pierre Schaeffer and Pierre Henry, 1980s dance-pop outfit The Art of Noise, "industrial" bands such as Einstürzende Neubauten and Test Dept., turntablist DJ Spooky, and sound artist Francisco López.

Dear Balilla Pratella, Great Futurist Composer,

In Rome, at the very crowded Teatro Costanzi, while I was listening to the orchestral performance of your revolutionary MUSICA FUTURISTA with my friends Marinetti, Boccioni, and Balla, I conceived a new art: The Art of Noises, the logical consequence of your marvelous innovations.

Ancient life was all silence. In the 19th Century, with the invention of machines, Noise was born. Today, Noise is triumphant and reigns sovereign over the sensibility of men. Through many centuries life unfolded silently, or at least quietly. The loudest of noises that interrupted this silence was neither intense, nor prolonged, nor varied. After all, if we overlook the exceptional movements of the earth's crust, hurricanes, storms, avalanches, and waterfalls, nature is silent.

In this scarcity of *noises*, the first *sounds* that men were able to draw from a pierced reed or a taut string were stupefying, something new and

wonderful. Among primitive peoples, *sound* was attributed to the gods. It was considered sacred and reserved for priests, who used it to enrich their rites with mystery. Thus was born the idea of sound as something in itself, as different from and independent of life. And from it resulted music, a fantastic world superimposed on the real one, an inviolable and sacred world. The Greeks greatly restricted the field of music. Their musical theory, mathematically systematized by Pythagoras, admitted only a few consonant intervals. Thus, they knew nothing of harmony, which was impossible.

The Middle Ages, with the developments and modifications of the Greek tetrachord system, with Gregorian chant and popular songs, enriched the musical art. But they continued to regard sound in its unfolding in time, a narrow concept that lasted several centuries, and which we find again in the very complicated polyphony of the Flemish contrapuntalists. The chord did not exist. The development of the various parts was not subordinated to the chord that these parts produced in their totality. The conception of these parts, finally, was horizontal not vertical. The desire, the search, and the taste for the simultaneous union of different sounds, that is, for the chord (the complete sound) was manifested gradually, moving from the consonant triad to the consistent and complicated dissonances that characterize contemporary music. From the beginning, musical art sought out and obtained purity and sweetness of sound. Afterwards, it brought together different sounds, still preoccupying itself with caressing the ear with suave harmonies. As it grows ever more complicated today, musical art seeks out combinations more dissonant, stranger, and harsher for the ear. Thus, it comes ever closer to the noisesound.

This evolution of music is comparable to the multiplication of machines, which everywhere collaborate with man. Not only in the noisy atmosphere of the great cities, but even in the country, which until yesterday was normally silent. Today, the machine has created such a variety and contention of noises that pure sound in its slightness and monotony no longer provokes emotion.

In order to excite and stir our sensibility, music has been developing toward the most complicated polyphony and toward the greatest variety of instrumental timbres and colors. It has searched out the most complex successions of dissonant chords, which have prepared in a vague way for the creation of MUSICAL NOISE. The ear of the Eighteenth Century man would not have been able to withstand the inharmonious intensity of certain chords produced by our orchestra (with three times as many performers as that of the orchestra of his time). But our ear takes pleasure in it, since it is already educated to modern life, so prodigal in different noises. Nevertheless, our ear is not satisfied and calls for ever greater acoustical emotions.

Musical sound is too limited in its variety of timbres. The most complicated orchestras can be reduced to four or five classes of instruments different in timbres of sound: bowed instruments, metal winds, wood winds, and percussion. Thus, modern music flounders within this tiny circle, vainly striving to create new varieties of timbre.

We must break out of this limited circle of sounds and conquer the infinite variety of noise-sounds.

Everyone will recognize that each sound carries with it a tangle of sensations, already well-known and exhausted, which predispose the listener to boredom, in spite of the efforts of all musical innovators. We futurists have all deeply loved and enjoyed the harmonies of the great masters. Beethoven and Wagner have stirred our nerves and hearts for many years. Now we have had enough of them, *and we delight much more in combining in our thoughts the noises of trams, of automobile engines, of carriages and brawling crowds, than in hearing again the "Eroica" or the "Pastorale."*

We cannot see the enormous apparatus of forces that the modern orchestra represents without feeling the most profound disillusionment before its paltry acoustical results. Do you know of a more ridiculous sight than that of twenty men striving to redouble the mewling of a violin? Naturally, that statement will make the musicomaniacs scream-and perhaps revive the sleepy atmosphere of the concert halls. Let us go together, like futurists, into one of these hospitals for anemic sounds. There-the first beat brings to your ear the weariness of something heard before, and makes you anticipate the boredom of the beat that follows. So let us drink in, from beat to beat, these few qualities of obvious tedium, always waiting for that extraordinary sensation that never comes. Meanwhile, there is in progress a repugnant medley of monotonous impressions and of the cretinous religious emotion of the Buddha-like listeners, drunk with repeating for the thousandth time their more or less acquired and snobbish ecstasy. Away! Let us leave, since we cannot for long restrain ourselves from the desire to create finally a new musical

reality by generously handing out some resounding slaps and stamping with both feet on violins, pianos, contrabasses, and organs. Let us go!

It cannot be objected that noise is only loud and disagreeable to the ear. It seems to me useless to enumerate all the subtle and delicate noises that produce pleasing sensations.

To be convinced of the surprising variety of noises, one need only think of the rumbling of thunder, the whistling of the wind, the roaring of a waterfall, the gurgling of a brook the rustling of leaves, the trotting of a horse into the distance, the rattling jolt of a cart on the road, and of the full, solemn, and white breath of a city at night. Think of all the noises made by wild and domestic animals, and of all those that a man can make, without either speaking or singing.

Let us cross a large modern capital with our ears more sensitive than our eyes. We will delight in distinguishing the eddying of water, of air or gas in metal pipes, the muttering of motors that breathe and pulse with an indisputable animality, the throbbing of valves, the bustle of pistons, the shrieks of mechanical saws, the starting of trams on the tracks, the cracking of whips, the flapping of awnings and flags. We will amuse ourselves by orchestrating together in our imagination the din of rolling shop shutters, the varied hubbub of train stations, iron works, thread mills, printing presses, electrical plants, and subways.

Nor should the newest noises of modern war be forgotten. Recently, the poet Marinetti, in a letter from the trenches of Adrianopolis, described to me with marvelous *free words* the orchestra of a great battle

every 5 seconds siege cannons gutting space with a chord ZANG-TUMB-TUUUMB mutiny of 500 echos smashing scattering it to infinity. In the center of this hateful ZANG-TUMB-TUUUMB area 50 square kilometers leaping bursts lacerations fists rapid fire batteries. Violence ferocity regularity this deep bass scanning the strange shrill frantic crowds of the battle Fury breathless ears eyes nostrils open! load! fire! what a joy to hear to smell completely *taratatata* of the machine guns screaming a breathlessness under the stings slaps *traak-traak* whips *pic-pac-pum-tumb* weirdness leaps 200 meters range Far far in back of the orchestra pools muddying huffing goaded oxen wagons *pluff-plaff* horse action *flic flac zing zing shaaack* laughing whinnies the *tiiinkling jiiingling* tramping 3 Bulgarian battalions marching *croooc-craaac* [slowly] Shumi Maritza or Karvavena ZANG-TUMB-TUUUMB toc-toc-toc-toc [fast] crooc-craaac [slowly] crys of officers slamming about like brass plates *pa n* here *paak* there *BUUUM*
ching chaak [very fast] cha-cha-cha-cha-chaak down there up there all around high up look out your head beautiful! Flashing flashing flashing flashing flashing flashing footlights of the forts down there behind that smoke Shukri Pasha communicates by phone with 27 forts in Turkish in German Allo! Ibrahim! Rudolf! allo! allo! actors parts echos of prompters scenery of smoke forests applause odor of hay mud dung I no longer feel my frozen feet odor of gunsmoke odor of rot Tympani flutes clarinets everywhere low high birds chirping blessed shadows cheep-cheep-cheep green breezes flocks don-dan-don-din-baaah Orchestra madmen pommel the performers they terribly beaten playing playing Great din not erasing clearing up cutting off slighter noises very small scraps of echos in the theater area 300 square kilometers Rivers Maritza Tungia stretched out Rodolpi Mountains rearing heights loges boxes 2000 shrapnels waving arms exploding very white handkerchiefs full of gold srrrrr-TUMB-TUMB 2000 raised grenades tearing out bursts of very black hair ZANG-srrrr-TUMB-ZANG-TUMB-TUUUMB the orchestra of the noises of war swelling under a held note of silence in the high sky round golden balloon that observes the firing ...

We want to give pitches to these diverse noises, regulating them harmonically and rhythmically. Giving pitch to noises does not mean depriving them of all irregular movements and vibrations of time and intensity but rather assigning a degree or pitch to the strongest and most prominent of these vibrations. Noise differs from sound, in fact, only to the extent that the vibrations that produce it are confused and irregular. Every noise has a pitch, some even a chord, which predominates among the whole of its irregular vibrations. Now, from this predominant characteristic pitch derives the practical possibility of assigning pitches to the noise as a whole. That is, there may be imparted to a given noise not only a single pitch but even a variety of pitches without sacrificing its character, by which I mean the timbre that distinguishes it. Thus, some noises obtained through a rotary motion can offer an entire chromatic scale ascending or descending, if the speed of the motion is increased or decreased.

Every manifestation of life is accompanied by noise. Noise is thus familiar to our ear and has the power of immediately recalling life itself. Sound, estranged from life, always musical, something in itself, an occasional not a necessary element, has become for our ear what for the eye is a too familiar sight. Noise instead, arriving confused and irregular from the irregular confusion of life, is never revealed to us entirely and always holds innumerable surprises. We are certain, then, that by selecting, coordinating, and controlling all the noises, we will enrich mankind with a new and unsuspected pleasure of the senses. Although the characteristic of noise is that of reminding us brutally of life, the *Art of Noises should not limit itself to an imitative reproduction*. It will achieve its greatest emotional power in acoustical enjoyment itself, which the inspiration of the artist will know how to draw from the combining of noises.

Here are the six *families of noises* of the futurist orchestra that we will soon realize mechanically:

- 1. Roars, Thunderings, Explosions, Hissing roars, Bangs, Booms
- 2. Whistling, Hissing, Puffing
- 3. Whispers, Murmurs, Mumbling, Muttering, Gurgling
- 4. Screeching, Creaking, Rustling, Humming, Crackling, Rubbing
- 5. Noises obtained by beating on metals, woods, skins, stones, pottery, etc.
- 6. Voices of animals and people, Shouts, Screams, Shrieks, Wails, Hoots, Howls, Death rattles, Sobs.

In this list we have included the most characteristic of the fundamental noises. The others are only associations and combinations of these.

The rhythmic motions of a noise are infinite. There always exists, as with a pitch, a predominant rhythm, but around this there can be heard numerous other, secondary rhythms.

Conclusions

1. Futurist composers should continue to enlarge and enrich the field of sound. This responds to a need of our sensibility. In fact, we notice in the talented composers of today a tendency toward the most complicated dissonances. Moving ever farther from pure sound, they have almost attained the *noise-sound*. This need and this tendency can be satisfied only *with the addition and the substitution of noises for sounds*.

2. Futurist musicians should substitute for the limited variety of timbres that the orchestra possesses today the infinite variety of timbres in noises, reproduced with appropriate mechanisms.

3. The sensibility of musicians, being freed from traditional and facile rhythms, must find in noise the means of expanding and renewing itself, given that every noise offers a union of the most diverse rhythms, in addition to that which predominates. 4. Every noise having in its irregular vibrations *a predominant general pitch*, a sufficiently extended variety of tones, semitones, and quartertones is easily attained in the construction of the instruments that imitate it. This variety of pitches will not deprive a single noise of the characteristics of its timbre but will only increase its tessitura or extension.

5. The practical difficulties involved in the construction of these instruments are not serious. Once the mechanical principle that produces a noise has been found, its pitch can be changed through the application of the same general laws of acoustics. It can be achieved, for example, through the decreasing or increasing of speed, if the instrument has a rotary motion. If the instrument does not have a rotary motion, it can be achieved through differences of size or tension in the sounding parts,

6. It will not be through a succession of noises imitative of life but through a fantastic association of the different timbres and rhythms that the new orchestra will obtain the most complex and novel emotions of sound. Thus, every instrument will have to offer the possibility of changing pitches and will need a more or less extended range.

7. The variety of noises is infinite. If today, having perhaps a thousand different machines, we are able to distinguish a thousand different noises, tomorrow, with the multiplication of new machines, we will be able to distinguish ten, twenty, or *thirty thousand different noises, not simply by imitation but by combining according to our fancy.*

8. Therefore, we invite talented and audacious young musicians to observe all noises attentively, to understand the different rhythms that compose them, their principal pitch, and those which are secondary. Then, comparing the various timbres of noises to the timbres of sounds, they will be convinced that the first are much more numerous than the second. This will give them not only the understanding of but also the passion and the taste for noises. Our multiplied sensibility, having been conquered by futurist eyes, will finally have some futurist ears. Thus, the motors and machines of our industrial cities can one day be given pitches, so that every workshop will become an intoxicating orchestra of noises.

Dear Pratella, I submit to your futurist genius these propositions of mine, inviting your discussion. I am not a musician by professionand therefore, I have no acoustical prejudices, nor works to defend. I am a futurist painter who projects beyond himself, into an art much-beloved and studied, his desire to renew everything. Thus, bolder than a professional musician, not worried about my apparent incompetence, and convinced that audacity has all rights and all possibilities, I was able to divine the great renewal of music through the Art of Noises.

From Luigi Russolo, *The Art of Noises*, trans. Barclay Brown (New York: Pendragon, 1986). Used by permission of the publisher.

The Liberation of Sound

Edgard Varèse

Born in France, Edgard Varèse emigrated to the United States in 1915. Like Russolo, he called for a new concept of music and new musical instruments. Yet, where Russolo was inspired by the concrete noises of everyday life, Varèse's new musical vision was sparked by metaphors drawn from chemistry, astronomy, cartography, and geology. Describing himself as "a worker in rhythms, frequencies, and intensities," Varèse redefined music as "organized sound," sidestepping the conventional distinction between "music" and "noise." Varèse's music focuses on the matter of sound—on timbre, texture, and musical space, elements that would become increasingly important in later electronic and Ambient music. Indeed, in the 1950s, Varèse composed two early masterpieces of electronic music: Déserts (1950–54), realized in Pierre Schaeffer's Paris studio, and Poème Électronique (1957–58), part of a "spectacle of sound and light" installed in the Phillips Pavilion designed by Le Corbusier for the World's Fair in Brussels. Varèse's description of music as "the movement of sound-masses, of shifting planes" and "beams of sound" aptly describes not only his own music but a good deal of modern experimental music as well, from Musica Elettronica Viva's live electronic music and Maryanne Amacher's installations to Merzbow's noise composition and the work of laptop ensembles such as M.I.M.E.O. The following text is taken from a series of lectures given by Varèse from 1936 to 1962 and compiled by his student Chou Wen-Chung.

New instruments and new music (1936)

[...] When new instruments will allow me to write music as I conceive it, the movement of sound-masses, of shifting planes, will be clearly perceived in my work, taking the place of the linear counterpoint. When these sound-masses collide, the phenomena of penetration or repulsion will seem to occur. Certain transmutations taking place on certain planes will seem to be projected onto other planes, moving at different speeds and at different angles. There will no longer be the old conception of melody or interplay of melodies. The entire work will be a melodic totality. The

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entire work will flow as a river flows.

We have actually three dimensions in music: horizontal, vertical, and dynamic swelling or decreasing. I shall add a fourth, sound projection—that feeling that sound is leaving us with no hope of being reflected back, a feeling akin to that aroused by beams of light sent forth by a powerful searchlight—for the ear as for the eye, that sense of projection, of a journey into space.

Today with the technical means that exist and are easily adaptable, the differentiation of the various masses and different planes as well as these beams of sound, could be made discernible to the listener by means of certain acoustical arrangements. Moreover, such an acoustical arrangement would permit the delimitation of what I call "zones of intensities." These zones would be differentiated by various timbres or colors and different loudnesses. Through such a physical process these zones would appear of different colors and of different magnitude, in different perspectives for our perception. The role of color or timbre would be completely changed from being incidental, anecdotal, sensual or picturesque; it would become an agent of delineation, like the different colors on a map separating different areas, and an integral part of form. These zones would be felt as isolated, and the hitherto unobtainable non-blending (or at least the sensation of non-blending) would become possible.

In the moving masses you would be conscious of their transmutations when they pass over different layers, when they penetrate certain opacities, or are dilated in certain rarefactions. Moreover, the new musical apparatus I envisage, able to emit sounds of any number of frequencies, will extend the limits of the lowest and highest registers, hence new organizations of the vertical resultants: chords, their arrangements, their spacings—that is, their oxygenation. Not only will the harmonic possibilities of the overtones be revealed in all their splendor, but the use of certain interferences created by the partials will represent an appreciable contribution. The neverbefore-thought-of use of the inferior resultants and of the differential and additional sounds may also be expected. An entirely new magic of sound!

I am sure that the time will come when the composer, after he has graphically realized his score, will see this score automatically put on a machine that will faithfully transmit the musical content to the listener. As frequencies and new rhythms will have to be indicated on the score, our actual notation will be inadequate. The new notation will probably be seismographic. And here it is curious to note that at the beginning of two eras, the Mediaeval primitive and our own primitive era (for we are at a new primitive stage in music today), we are faced with an identical problem: the problem of finding graphic symbols for the transposition of the composer's thought into sound. At a distance of more than a thousand years we have this analogy: our still primitive electrical instruments find it necessary to abandon staff notation and to use a kind of seismographic writing much like the early ideographic writing originally used for the voice before the development of staff notation. Formerly the curves of the musical line indicated the melodic fluctuations of the voice; today the machine-instrument requires precise design indications [....]

Music as an art-science (1939)

Personally, for my conceptions, I need an entirely new medium of expression: a sound-*producing* machine (not a sound-*reproducing* one). Today it is possible to build such a machine with only a certain amount of added research.

If you are curious to know what such a machine could do that the orchestra with its man-powered instruments cannot do, I shall try briefly to tell you: whatever I write, whatever my message, it will reach the listener unadulterated by "interpretation." It will work something like this: after a composer has set down his score on paper by means of a new graphic notation, he will then, with the collaboration of a sound engineer, transfer the score directly to this electric machine. After that, anyone will be able to press a button to release the music exactly as the composer wrote it—exactly like opening a book.

And here are the advantages I anticipate from such a machine: liberation from the arbitrary, paralyzing tempered system; the possibility of obtaining any number of cycles or, if still desired, subdivisions of the octave, and consequently the formation of any desired scale; unsuspected range in low and high registers; new harmonic splendors obtainable from the use of sub-harmonic combinations now impossible; the possibility of obtaining any differentiation of timbre, of sound-combinations; new dynamics far beyond the present human-powered orchestra; a sense of sound-projection in space by means of the emission of sound in any part or in many parts of the hall, as may be required by the score; cross-rhythms unrelated to each other, treated simultaneously, or, to use the old word, "contrapuntally," since the machine would be able to beat any number of desired notes, any subdivision of them, omission or fraction of them—all these in a given unit of measure or time that is humanly impossible to attain [...]

Rhythm, form, and content (1959)

My fight for the liberation of sound and for my right to make music with any sound and all sounds has sometimes been construed as a desire to disparage and even to discard the great music of the past. But that is where my roots are. No matter how original, how different a composer may seem, he has only grafted a little bit of himself on the old plant. But this he should be allowed to do without being accused of wanting to kill the plant. He only wants to produce a new flower. It does not matter if at first it seems to some people more like a cactus than a rose [...]

Because for so many years I crusaded for new instruments¹ with what may have seemed fanatical zeal, I have been accused of desiring nothing less than the destruction of all musical instruments and even of all performers. This is, to say the least, an exaggeration. Our new liberating medium—the electronic—is not meant to replace the old musical instruments, which composers, including myself, will continue to use. Electronics is an additive, not a destructive, factor in the art and science of music. It is because new instruments have been constantly added to the old ones that Western music has such a rich and varied patrimony [...]

The electronic medium (1962)

First of all, I should like you to consider what I believe is the best definition of music, because it is all-inclusive: "the corporealization of the intelligence that is in sound," as proposed by Hoëne Wronsky.² If you think about it you will realize that, unlike most dictionary definitions, which make use of such subjective terms as beauty, feelings, etc., it covers all music, Eastern or Western, past or present, including the music of our new electronic medium. Although this new music is being gradually accepted, there are still people who, while admitting that it is "interesting," say: "but is it music?" It is a question I am only too familiar with. Until quite recently I used to hear it so often in regard to my own works that, as far back as the twenties, I decided to call my music "organized sound" and myself, not a musician, but "a worker in rhythms, frequencies, and intensities." Indeed, to stubbornly conditioned ears, anything new in music

has always been called noise. But after all, what is music but organized noises? And a composer, like all artists, is an organizer of disparate elements. Subjectively, *noise* is any sound one doesn't like.

Our new medium has brought to composers almost endless possibilities of expression, and opened up for them the whole mysterious world of sound. For instance, I have always felt the need of a kind of continuous flowing curve that instruments could not give me. That is why I used sirens in several of my works. Today such effects are easily obtainable by electronic means. In this connection, it is curious to note that it is this lack of flow that seems to disturb Eastern musicians in our Western music. To their ears, it does not glide, sounds jerky, composed of edges of intervals and holes and, as an Indian pupil of mine expressed it, "jumping like a bird from branch to branch." To them, apparently, our Western music seems to sound much as it sounds to us when a record is played backward. But playing a Hindu record of a melodic vocalization backward, I found that I had the same smooth flow as when played normally, scarcely altered at all.

The electronic medium is also adding an unbelievable variety of new timbres to our musical store, but most important of all, it has freed music from the tempered system, which has prevented music from keeping pace with the other arts and with science. Composers are now able, as never before, to satisfy the dictates of that inner ear of the imagination. They are also lucky so far in not being hampered by esthetic codification—at least not yet! But I am afraid it will not be long before some musical mortician begins embalming electronic music in rules.

We should also remember that no machine is a wizard, as we are beginning to think, and we must not expect our electronic devices to compose for us. Good music and bad music will be composed by electronic means, just as good and bad music have been composed for instruments. The computing machine is a marvelous invention and seems almost superhuman. But in reality it is as limited as the mind of the individual who feeds it material. Like the computer, the machines we use for making music can only give back what we put into them. But, considering the fact that our electronic devices were never meant for making music, but for the sole purpose of measuring and analyzing sound, it is remarkable that what has already been achieved is musically valid. These devices are still somewhat unwieldy and time-consuming, and not entirely satisfactory as an art-medium. But this new art is still in its infancy, and I hope and firmly believe, now that composers and physicists are at last working together and music is again linked with science as it was in the Middle Ages, that new and more musically efficient devices will be invented.

Notes

- 1 As early as 1916, Varèse was quoted in the New York Morning Telegraph as saying: "Our musical alphabet must be enriched. We also need new instruments very badly.... In my own works I have always felt the need of new mediums of expression ... which can lend themselves to every expression of thought and can keep up with thought." And in the Christian Science Monitor, in 1922: "The composer and the electrician will have to labor together to get it."
- 2 Hoëne Wronsky (1778–1853), also known as Joseph Marie Wronsky, was a Polish philosopher and mathematician, known for his system of *Messianism*. Camille Durutte (1803–81), in his *Technie Harmonique* (1876), a treatise on "musical mathematics," quoted extensively from the writings of Wronsky.
- * From Perspectives of New Music 5, No. 1 (Fall–Winter 1966). Used by permission of Chou Wen-Chung for the Estate of Edgard Varèse.

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The Joys of Noise

Henry Cowell

John Cage called Henry Cowell "the open sesame for new music in America." Through his New Musical Edition, Cowell championed experimental music, publishing Varèse's Ionisation and other scores. Cowell's own theoretical text, New Musical Resources (1930) laid out his compositional innovations, most significantly extended piano techniques such as the use of "tone clusters" and the practice of striking or plucking the piano strings. This impulse to treat conventional instruments in unconventional ways directly influenced Cage's "prepared piano" and, more generally, the unorthodox performance practices of free jazz, avant-rock, and turntablism.

Cowell was probably the earliest twentieth-century composer to study African and Asian musics (a path later followed by Lou Harrison, Steve Reich, and Leo Smith, among others); and his own musical practice draws on those resources, extending the boundaries of compositional practice in the areas of rhythm and timbre.

Russolo offered a largely historical argument in favor of noise, embodying the Futurist idea that speed, power, and noise will progressively overtake music and art traditionally conceived. Cowell's argument in the following piece, first published in 1929, is more conceptual. It presents a deconstruction of the binary opposition between music and noise, arguing that the latter is always already contained in the former.

Music and noise, according to a time-honored axiom, are opposites. If a reviewer writes "It is not music, but noise," he feels that all necessary comment has been made.

Within recent times it has been discovered that the geometrical axioms of Euclid could not be taken for granted, and the explorations outside them have given us non-Euclidian geometry and Einstein's physically demonstrable theories.

Might not a closer scrutiny of musical axioms break down some of the hard-and-fast notions still current in musical theory, and build up a nonBachian counterpoint, a non-Beethovenian harmony, or even a non-Debussian atmosphere, and a non-Schoenbergian atonality? [...]

In almost any reliable book on harmony, you will find the axiom that the primary elements of music are melody, harmony and rhythm. If noise were admitted at all, and I doubt if it ever has been, it would unquestionably be classified as part of rhythm. This, however, is a faulty idea of rhythm. Rhythm is a conception, not a physical reality. It is true that, to be realized in music, rhythm must be marked by some sort of sound, but this sound is not itself the rhythm. Rhythmical considerations are the duration of sounds, the amount of stress applied to sounds, the rate of speed as indicated by the movement of sounds, periodicity of sound patterns, and so on.

Sound and rhythm thus are the primary musical elements, sound comprising all that can be heard, and rhythm the formulating impulse behind the sound. Before sound can be divided into melody and harmony, another and more primary, division must take place: a division into tone— or sound produced by periodic vibration—and noise—or sound produced by non-periodic vibration. Tone may then be divided into melody and harmony; noise remains a much-used but almost unknown element, little developed from its most primitive usages, perhaps owing to its ill-repute [...]

We are less interested [...] in primitive and oriental uses of percussion than in our own employment of it, and its power of moving. Noise-making instruments are used with telling effect in our greatest symphonies, and were it not for the punctuation of cymbal and bass drum, the climaxes in our operas would be like jelly-fish.

In the search for music based on pure tone, we may turn hopefully to vocal works, only to find that they too are riddled by noises; for it is only while singing a vowel that a singer makes anything like a "pure" tone—the pronunciation of most consonants produces irregular vibrations, hence noise.

But most shocking of all is the discovery that there is a noise element in the very tone itself of all our musical instruments. Consider the sound of a violin. Part of the vibrations producing the sound are periodic, as can be shown by a harmonic analyzer. But others are not—they do not constantly re-form the same pattern, and consequently must be considered noise. In varying proportions all other instruments yield similar combinations. A truly pure tone can be made only in an acoustical laboratory, and even there it is doubtful whether, by the time the tone has reached our ear, it has not been corrupted by resonances picked up on the way.

As musical sound grows louder, the noise in it is accentuated and the tone element reduced. Thus a loud sound is literally noisier than a soft one; yet music does not touch our emotional depths if it does not rise to a dynamic climax. Under the best circumstances, the emotions are aroused by musical noise and lulled musical tone.

Since the "disease" of noise permeates all music, the only hopeful course is to consider that the noise-germ, like the bacteria of cheese, is a good microbe, which may provide previously hidden delights to the listener, instead of producing musical oblivion.

Although existing in all music, the noise-element has been to music as sex to humanity, essential to its existence, but impolite to mention, something to be cloaked by ignorance and silence. Hence the use of noise in music has been largely unconscious and undiscussed. Perhaps this is why it has not been developed, like the more talked-of elements, such as harmony and melody. The use of noise in most music today is little beyond the primitive; in fact, it is behind most native music, where the banality of the thumps often heard in our concerts would not be tolerated.

Men like Varèse, in his *Hyperprism* or *Arcana* or Bartôk, in his *Piano Concerto*, where he uses percussion noises canonically, render a service by opening a wide field for investigation—although they arrive at nothing conclusive. If we had scales of percussion-sounds, with each "key" determined by some underlying quality, such as drum-sound, cymbal-sound, and so on, we could produce music through the conscious use of the melodic steps that would then be at the disposal of the composer. Perhaps this is one of the things music is coming to, and a new chemistry of sound will be the result.

From *Essential Cowell: Selected Writings on Music*, ed. Dick Higgins (Kingston, NY: McPherson & Company, 2002). Used by permission of the publisher.

The Future of Music: Credo

John Cage

No figure has had a more profound influence on contemporary musical thought and practice than John Cage (see also Chapters 29 and 36). A student of Schoenberg and Cowell, Cage pioneered a host of techniques and practices that have become central to contemporary music-making. In his early percussion ensembles, he included tin cans and other found objects alongside standard orchestral instruments. His Imaginary Landscape No. 1 (1939) was among the very first compositions to employ turntables; he was an early proponent of live electronics, composing pieces for radio, phonograph cartridges, computers, and other electronic devices. In 1940, Cage began composing for "prepared piano," which called for the insertion of screws, bolts, cardboard, weather stripping, and other objects into the piano's strings to highlight the instrument's percussive character and to extend its sonorous possibilities. In the early 1950s, he pioneered the use of "chance" or "indeterminate" techniques in composition. Cage's most famous composition 4'33" (1952) calls for the performer(s) to make no intentional sound, thus shifting the audience's attention to ambient sounds and to the background noise we call "silence."

In the following essay, written in 1937, Cage joins Russolo and Varèse in imagining a musical future in which "noise" will be a crucial resource. "Whereas in the past," Cage writes, "the point of disagreement has been between dissonance and consonance, it will be, in the immediate future, between noise and so-called musical sounds." The future of music—from musique concrète and the classical avant-garde to soundscape composition, free jazz, industrial music, hiphop and beyond—would certainly bear out Cage's prediction.

I BELIEVE THAT THE USE OF NOISE

Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating. The sound of a truck at fifty miles per hour. Static between the stations. Rain. We want to capture and control these sounds, to use them not as sound effects but as musical instruments. Every film studio has a library of

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"sound effects" recorded on film. With a film phonograph it is now possible to control the amplitude and frequency of any one of these sounds and to give to it rhythms within or beyond the reach of the imagination. Given four film phonographs, we can compose and perform a quartet for explosive motor, wind, heartbeat, and landslide.

TO MAKE MUSIC

If this word "music" is sacred and reserved for eighteenth- and nineteenth-century instruments, we can substitute a more meaningful term: organization of sound.

WILL CONTINUE AND INCREASE UNTIL WE REACH A MUSIC PRODUCED THROUGH THE AID OF ELECTRICAL INSTRUMENTS

Most inventors of electrical musical instruments have attempted to imitate eighteenth- and nineteenth- century instruments, just as early automobile designers copied the carriage. The Novachord and the Solovox are examples of this desire to imitate the past rather than construct the future. When Theremin provided an instrument with genuinely new possibilities, Thereministes did their utmost to make the instrument sound like some old instrument, giving it a sickeningly sweet vibrato, and performing upon it, with difficulty, masterpieces from the past. Although the instrument is capable of a wide variety of sound qualities, obtained by the turning of a dial, Thereministes act as censors, giving the public those sounds they think the public will like. We are shielded from new sound experiences.

The special function of electrical instruments will be to provide complete control of the overtone structure of tones (as opposed to noises) and to make these tones available in any frequency, amplitude, and duration.

WHICH WILL MAKE AVAILABLE FOR MUSICAL PURPOSES ANY AND ALL SOUNDS THAT CAN BE HEARD. PHOTOELECTRIC, FILM, AND MECHANICAL MEDIUMS FOR THE SYNTHETIC PRODUCTION OF MUSIC

It is now possible for composers to make music directly, without the assistance of intermediary performers. Any design repeated

often enough on a sound track is audible. Two hundred and eighty circles per second on a sound track will produce one sound, whereas a portrait of Beethoven repeated fifty times per second on a sound track will have not only a different pitch but a different sound quality.

WILL BE EXPLORED. WHEREAS, IN THE PAST, THE POINT OF DISAGREEMENT HAS BEEN BETWEEN DISSONANCE AND CONSONANCE, IT WILL BE, IN THE IMMEDIATE FUTURE, BETWEEN NOISE AND SO-CALLED MUSICAL SOUNDS.

THE PRESENT METHODS OF WRITING MUSIC, PRINCIPALLY THOSE WHICH EMPLOY HARMONY AND ITS REFERENCE TO PARTICULAR STEPS IN THE FIELD OF SOUND, WILL BE INADEQUATE FOR THE COMPOSER, WHO WILL BE FACED WITH THE ENTIRE FIELD OF SOUND.

The composer (organizer of sound) will be faced not only with the entire field of sound but also with the entire field of time. The "frame" or fraction of a second, following established film technique, will probably be the basic unit in the measurement of time. No rhythm will be beyond the composer's reach.

NEW METHODS WILL BE DISCOVERED, BEARING A DEFINITE RELATION TO SCHOENBERG'S TWELVE-TONE SYSTEM

Schoenberg's method assigns to each material, in a group of equal materials, its function with respect to the group. (Harmony assigned to each material, in a group of unequal materials, its function with respect to the fundamental or most important material in the group.) Schoenberg's method is analogous to a society in which the emphasis is on the group and the integration of the individual in the group.

AND PRESENT METHODS OF WRITING PERCUSSION MUSIC

Percussion music is a contemporary transition from keyboard-influenced music to the all-sound music of the future. Any sound is acceptable to the composer of percussion music; he explores the academically forbidden "non-musical" field of sound insofar as is manually possible.

Methods of writing percussion music have as their goal the rhythmic structure of a composition. As soon as these methods are crystallized into

one or several widely accepted methods, the means will exist for group improvisations of unwritten but culturally important music. This has already taken place in Oriental cultures and in hot jazz.

AND ANY OTHER METHODS WHICH ARE FREE FROM THE CONCEPT OF A FUNDAMENTAL TONE.

THE PRINCIPLE OF FORM WILL BE OUR ONLY CONSTANT CONNECTION WITH THE PAST. ALTHOUGH THE GREAT FORM OF THE FUTURE WILL NOT BE AS IT WAS IN THE PAST, AT ONE TIME THE FUGUE AND AT ANOTHER THE SONATA, IT WILL BE RELATED TO THESE AS THEY ARE TO EACH OTHER:

Before this happens, centers of experimental music must be established. In these centers, the new materials, oscillators, turntables, generators, means for amplifying small sounds, film phonographs, etc., available for use. Composers at work using twentiethcentury means for making music. Performances of results. Organization of sound for extra-musical purposes (theatre, dance, radio, film).

THROUGH THE PRINCIPLE OF ORGANIZATION OR MAN'S COMMON ABILITY TO THINK.

From Silence: Lectures and Writings by John Cage (Hanover, NH: University Press of New England/Wesleyan University Press, 1973. Used by permisson of the publisher. 6

The Music of the Environment

R. Murray Schafer

Canadian composer and theorist R. Murray Schafer came to prominence in the early 1970s with a series of writings on environmental sound and noise pollution. In 1977, Schafer published The Tuning of the World, which presented his most sustained argument for what he termed "acoustic ecology." Inspired by the Pythagorean (and, later, Cagean) idea that the cosmos itself is a musical composition, the book looked back on the history of modern literature, music, and audio theory (Russolo, Cage, Schaeffer, etc.) and offered prescriptions for a new kind of listening to the world "soundscape," a term Schafer coined. Schafer also founded the World Soundscape Project, which drew attention to the sonic environment through location recordings and environmental advocacy. The "acoustic ecology" movement is still thriving today, notably represented by The World Forum for Acoustic Ecology and the work of environmental sound artists such as Hildegard Westerkamp, David Dunn, Douglas Quin, Chris Watson, and Jana Winderen. The following piece is drawn from Schafer's The Music of the Environment, a 1973 pamphlet that presents, in distilled form, the argument Schafer elaborated in The Tuning of the World.

The soundscape of the world is changing. Modern man is beginning to inhabit a world with an acoustical environment radically different from any he has hitherto known. These new sounds, which differ in quality and intensity from those of the past, have already alerted researchers to the dangers of the imperialistic spread of more and larger sounds into every corner of man's life. In various parts of the world important research is being undertaken in many independent areas of sonic studies: acoustics, psychoacoustics, otology, audiology, noise abatement practices and procedures, communications and sound recording engineering (electroacoustics and electronic music), aural pattern perception and the structural analysis of speech and music. These researches are related; each is dealing with aspects of the world soundscape, the vast musical composition which is unfolding around us ceaselessly. In one way or another researchers engaged on these various themes are asking the same questions: what is

the relationship between man and the sounds of his environment and what happens when these sounds change? Is the soundscape of the world an indeterminate composition over which we have no control or are we its composers and performers, responsible for giving it form and beauty? These researches have been given an additional impetus lately since noise pollution has now emerged as a world problem. It would seem that the world soundscape has reached an apex of vulgarity in our time and many experts have predicted universal deafness as the ultimate consequence unless the problem can be brought quickly under control. Noise pollution results when man does not listen carefully. Noises are the sounds we have learned to ignore. Noise pollution today is being resisted by noise abatement. This is a negative approach. We must seek a way to make environmental acoustics a *positive* study program. Which sounds do we want to preserve, encourage, multiply? When we know this, the boring or destructive sounds will be conspicuous enough and we will know why we must eliminate them. Only a total appreciation of the acoustic environment can give us the resources for improving the orchestration of the world. Ear cleaning in the schools to eliminate audiometry in factories. Clairaudience, not ear muffs.

The following thoughts are crosshatchings on this theme designed to suggest how a new subject of acoustic design might develop, knitting together scientific discipline and artistic imagination.

The musician is an architect of sounds

Throughout this essay I am going to treat the world soundscape as a macrocosmic musical composition. This is perhaps an unusual idea but I am going to nudge it forward relentlessly. The definition of music has undergone radical change in recent years. In one of the more contemporary definitions John Cage has declared: "Music is sounds, sounds heard around us whether we're in or out of concert halls (cf. Thoreau)."¹ The reference is to Thoreau's *Walden* where the author experiences in the sounds and sights of nature an inexhaustible entertainment.

There are two basic ideas of what music is or ought to be. These may be seen clearly in two Greek myths dealing with the origin of music. Pindar's twelfth Pythian Ode tells how the art of aulos playing was invented by Athena on hearing the heart-rending cries of Medusa's sisters after Perseus had killed the Gorgon. In a Homeric hymn to Hermes an alternative origin is proposed. The lyre is said to have been invented by Hermes when he surmised that the shell of the turtle, if used as a body of resonance, could produce sound.

In the first of these myths music arises as subjective emotion; in the second it arises with the discovery of sonic properties in the materials of the universe. These are the cornerstones on which all subsequent theories of music are founded. In the former myth, music is conceived as subjective emotion breaking forth from the human breast; in the latter it is external sound possessing secret unitary properties. This is the *anahata* of the Indian theorists and the music of the spheres of Pythagoras. It suggests that the universe is held together by the harmonies of some precise acoustic design, serene and mathematical. For many decades, however, it is the other view of music that has dominated Western musical thought. This is the musical expression of the romanticist. Its tempo fluctuations, dynamic shadings and tonal colourings are the means by which the subjective and irrational art of the virtuoso artist is created.

The research I am about to describe represents a reaffirmation of music as a search for the harmonizing influence of sounds in the world about us. In Robert Fludd's *Utriusque Cosmi Historia* there is an illustration entitled "The Tuning of the World" in which the earth forms the body of an instrument across which strings are stretched and are tuned by a divine hand. We must try once again to find the secret of that tuning [...]

Clairaudience

We will not argue for the priority of the ear. Modern man, who seems to be in the process of deafening himself apparently regards this as a trivial mechanism. In the West the ear has given way to the eye as the most important gatherer of environmental information. One of the most evident testaments of this change is the way in which we have come to imagine God. It was not until the Renaissance that God became portraiture. Previously He had been conceived as sound or vibration. In the Middle East the message of Mohammed is still heard through the recitation of his Koran. *Sama* is the Sufi word for audition or listening. The followers of Jalal al-Din Rumi worked themselves into the *sama* state by whirling in mystical dances. Their dancing is thought by some scholars to have represented the solar system, recalling also the deep-rooted mystical belief in the music of the spheres, which the attuned soul could at times hear. In the Zoroastrian religion the priest Srosh (representing the genius of hearing) stands between man and the pantheon of the gods transmitting the divine messages to humanity.

When man was fearful of the dangers of an unexplored environment, the whole body was an ear. In the virgin forests of North America, where vision was restricted to a few feet, hearing was the most important sense. *The Leatherstocking Tales* of Fenimore Cooper are full of beautiful and terrifying surprises.

... for, though the quiet deep of solitude reigned in that vast and nearly boundless forest, nature was speaking with her thousand tongues, in the eloquent language of night in the wilderness. The air sighed through ten thousand trees, the water rippled, at places, even roared along the shores and now and then was heard the creaking of a branch, or a trunk as it rubbed against some object similar to itself, under the vibrations of a nicely balanced body ... When he desired his companions, however, to cease talking, in the manner just mentioned, his vigilant ear had caught the peculiar sound that is made by the parting of a dried branch of a tree, and which, if his senses did not deceive him, came from the western shore. All who are accustomed to that particular sound will understand how readily the ear receives it, and how easy it is to distinguish the tread which breaks the branch from every other noise of the forest ... "Can the accursed Iroquois have crossed the river, already, with their arms and without a boat?"²

The rural soundscape

When men lived mostly in isolation or in small communities their ears operated with seismographic delicacy. In the rural soundscape sounds are generally uncrowded, surrounded by pools of stillness. For the farmer, the pioneer or the woodsman the minutest sounds have significance. The shepherd, for instance, can determine from sheep bells the precise state of his flock.

Just before dawn he was assisted in waking by the abnormal reverberation of familiar music ... In the solemn calm of the awakening morn that note was heard by Gabriel beating with unusual violence and rapidity. This exceptional ringing may be caused in two ways—by the rapid feeding of the sheep bearing the bell, as when the flock breaks into new pasture, which gives it an intermittent rapidity, or by the sheep starting off in a run, when the sound has a regular palpitation.³

The sounds of the environment signalled in many ways.

He was disturbed in his meditation by a grating noise from the coach-house. It was the vane on the roof turning round, and this change in the wind was the signal for a disastrous rain.⁴

Even when sounds had no special messages, poets among men knew how to make larger interpretations of them. Goethe, his ear pressed to the grass:

When I hear the humming of the little world among the stalks, and am near the countless indescribable forms of the worms and insects, then I feel the presence of the Almighty, Who created us in His own image \dots^5

When Phillip Grove travelled the Manitoba prairies in his buggy in 1916, often by night or in dense marsh fog, he travelled by ear as much as eye.

I had become all ear. Even though my buggy was silent and though the road was coated with a thin film of soft clay-mud, I could distinctly hear from the muffled thud of the horses' hoofs on the ground that they were running over a grade ... I listened intently for the horses' thump. Yes, there was that hoof-beat again—I was on the last grade that led to the angling road across the corner of the marsh ⁶

The hi-fi and the lo-fi soundscape

A hi-fi system is one possessing a favourable signal to noise ratio. The hifi soundscape is one in which discrete sounds can be heard clearly because of the low ambient noise level. The country is generally more hi-fi than the city; night more than day; ancient times more than modern. In a hi-fi soundscape even the slightest disturbance can communicate interesting or vital information. The human ear is alert, like that of an animal.

 \dots footfalls followed a round drive in the rear of the hotel, taking their tone in turn from the dust road, the crushed-stone walk, the cement steps and then reversing the process in going away.⁷

In a lo-fi soundscape individual acoustic signals are obscured in an overdense population of sounds. The pellucid sound—a footstep in the snow, a train whistle in the distance or a church bell across the valley—is masked by broad-band noise. Perspective is lost. On a downtown street corner there is no distance; there is only presence. Everything is close-

miked. There is cross-talk on all the channels, and in order for the most ordinary sounds to be heard they have to be monstrously amplified. In the ultimate lo-fi soundscape the signal to noise ratio is 1 to 1 and it is no longer possible to know what, if anything, is to be listened to.

Muscle sounds [...]: The industrial revolution

The industrial revolution began to produce the lo-fi soundscape. Let us briefly chronicle its development. When industry first intruded into town life it was immediately conspicuous by the aberration of its novel noises. Stendhal, writing in 1830, noticed how it upset the rhythms of French provincial towns.

No sooner has one entered the town than one is startled by the din of a noisy machine of terrifying aspect. A score of weighty hammers, falling with a clang which makes the pavement tremble, are raised aloft by a wheel which the water of the torrent sets in motion. Each of these hammers turns out, daily, I cannot say how many thousands of nails. A bevy of fresh, pretty girls subject to the blows of these enormous hammers, the little scraps of iron which are rapidly transformed into nails.⁸

By the early twentieth century such sounds had become more acceptable to the urban ear, "blending" with the natural rhythms of antiquity. As Thomas Mann described it,

We are encompassed with a roaring like that of the sea; for we live almost directly on the swift-flowing river that foams over shallow ledges at no great distance from the popular avenue ... Upstream, in the direction of the city, construction troops are building a pontoon bridge. Shouts of command and the thump of heavy boots on the planks sound across the river; also, from the further bank, the noise of industrial activity, for there is a locomotive foundry a little way downstream. Its premises have been lately enlarged to meet increased demands, and light streams all night long from its lofty windows. Beautiful glittering new engines roll to and fro on trial runs; a steam whistle emits wailing head-tones from time to time; muffled thunderings of unspecified origin shatter the air, smoke pours out of the many chimneys to be caught up by the wind and borne away over the wooded country beyond the river, for it seldom or never blows over to our side. Thus in our half-suburban, half-rural seclusion the voice of nature mingles with that of man, and over all lies the bright-eyed freshness of the new day.⁹ Ultimately the throb of the machine began to intoxicate man everywhere with its incessant vibrations.

As they worked in the fields, from beyond the now familiar embankment came the rhythmic run of the winding engines, startling at first, but afterwards a narcotic to the brain.¹⁰

Before long, the noises of modern industrial life swung the balance against those of nature. This significant flashpoint occurred about the time of the First World War, the first mechanized war of history. In 1913 the futurist Luigi Russolo proclaimed the event in his manifesto *The Art of Noises* $[...]^{11}$

Russolo invented an orchestra of noise makers, consisting of buzzers, howlers and other gadgets calculated to advance his philosophy. The "pastorale" and the "nocturne" give way before machine-music like Honegger's *Pacific 231* (1924), an imitation of a locomotive, Antheil's *Ballet méchanique* (1926), which employed a number of airplane propellers, Prokofiev's *Pas d'acier* (Dance of Steel), Mossolov's *Iron Foundry* and Carlos Chávez's *HP* (Horse-power) all dating from 1928. This blurring of the edges between music and environmental sounds is the most striking feature of twentieth century music. Finally in the practices of *musique concrète* it became possible to insert any sound from the environment into a composition via tape; while in electronic music the hard-edge sound of the tone generator may be indistinguishable from the police siren or the electric tooth-brush [...]

Schizophonia

The Greek prefix *schizo* means split, separated. Schizophonia refers to the split between an original sound and its electroacoustical transmission or reproduction. It is another twentieth-century development.

Originally all sounds were originals. They occurred at one time and in one place only. Sounds were then indissolubly tied to the mechanisms which produced them. The human voice travelled only as far as one could shout. Every sound was uncounterfeitable, unique. Sounds bore resemblances to one another, such as the phonemes which go to make up the repetition of a word, but they were not identical. Tests have shown that it is physically impossible for nature's most rational and calculating being to reproduce a single phoneme in his own name twice in exactly the same manner.

Since the invention of electroacoustical equipment for the transmission and storage of sound, any sound, no matter how tiny, can be blown up and shot around the world, or packaged on tape or record for the generations of the future. We have split the sound from the maker of the sound. Sounds have been torn from their natural sockets and given an amplified and independent existence. Vocal sound, for instance, is no longer tied to a hole in the head but is free to issue from anywhere in the landscape. In the same instant it may issue from millions of holes in millions of public and private places around the world.

The twentieth century has given us the ability to dislocate sounds in time as well as in space. A record collection may contain items from widely diverse cultures and historical periods in what would seem, to a person from any century but our own, an unnatural and surrealistic juxtaposition.

Most recently, the quadraphonic sound system has made possible a 360 degree soundscape of moving and stationary sound events which allows any sound environment to be simulated in time and space. This provides for the complete portability of acoustic space. Any sonic environment can now become any other sonic environment. When I originally coined schizophonia in *The New Soundscape* I said it was intended to be a nervous word. Related to schizophrenia, I intended it to convey the same sense of aberration and drama. The benefits of electroacoustic transmission and reproduction of sound are well-enough celebrated, but they should not obscure the fact that at precisely the time hi-fi was being engineered, the world soundscape was slipping into a lo-fi condition. Indeed the overkill of hi-fi gadgetry contributes generously to the lo-fi problem.

A character in one of Borges' stories dreads mirrors because they multiply men. The same might be said of radios. As the cry broadcasts distress, the loudspeaker communicates anxiety. "We should not have conquered Germany without ... the loudspeaker," wrote Hitler in 1938.¹² In the USA, Americans were listening to 268,000,000 radios by 1969. Modern life has been ventriloquized.

Towards the integrity of inner space

The desire to dislocate sounds in time and space has been evident for some time in the history of Western music, so that the recent technological developments are merely the consequences of aspirations that have been building for some centuries. The introduction of dynamics, echo effects, the splitting of resources, the separation of soloist from the ensemble, are all attempts to create virtual spaces which are larger or different from natural room acoustics; just as the simultaneous breaking forward to find new musical resources and the turning back to recover the past represents a desire to transcend the present.

If I speak of music it is because I believe music to be a barometer giving clues to our whole attitude towards making and hearing sound. Certainly in the growth of the orchestra we have a clue to the present day imperialistic spread of sounds of all kinds. And there is little difference between Beethoven's attempts to *épater le bourgeois* with sforzando effects and that of the modern teen-ager with his motorcycle. The one is an embryo of the other.

The concert hall made concentrated listening possible, just as the art gallery encouraged, focused and selected viewing. Music designed for outdoor performance—such as most folk music—does not demand great attention to detail, but brings into play what we might call "peripheral hearing," similar to the way the eye drifts over an interesting landscape. Today the transistor is reviving interest in the outdoor concert while headphone listening is isolating the listener in a private acoustic space.

Messages on earphones are always private property. "Head space" is a popular expression with the young, referring to the geography of the mind, which can be reached by no telescope. Drugs and music are the means of invoking entry. In the headspace of earphone listening, the sounds not only circulate around the listener, they literally seem to emanate from points in the cranium itself, as if the archetypes of the unconscious were in conversation. There is a clear resemblance here to the functioning of Nada Yoga in which interiorized sound (vibration) removes the individual from this world and elevates him towards higher spheres of existence. When the yogi recites his mantra he *feels* the sound surge through his body. His nose rattles. He vibrates with its dark, narcotic powers. Similarly when sound is conducted directly through the skull of the headphone listener, he is no longer regarding events on the acoustic horizon; no longer is he surrounded by a sphere of moving elements. He is the sphere. He is universe. While most twentieth-century developments in sound production tend to fragment the listening experience and break up concentration, headphone listening directs the listener towards a new integrity with

himself [...]

Acoustic design [...]: Quiet groves and times

The huge noises of our civilization are the result of imperialistic ambitions. Territorial expansion has always been one of our aims. Just as we refuse to leave a space of our environment uncultivated, unmastered, so too we have refused to leave an acoustic space quiet and unpunctured by sound. The moon probes are undoubtedly a great achievement, but they may likewise be interpreted as an expression of that same imperialism that made Western man a world colonial power.

The amplifier was also invented by an imperialist; for it responds to the instinct to dominate others with one's own sound. But in a crowded and restless world, imperialism loops back on itself; its proponents become its victims as the locus of the battlefield shifts. For the first time in history, Constantin Doxiadis reminds us, man is less safe in the heart of his city than outside the city gates.

Just as man requires time for sleep to refresh and renew his life energies, so too he requires quiet periods for mental and spiritual recomposure. At one time stillness was a precious article in an unwritten code of human rights. Man held reservoirs of stillness in his life to facilitate this restoration of the spiritual metabolism. Even in the hearts of cities there were the dark, still vaults of churches and libraries, or the privacy of drawing-room and bedroom. Outside the throb of cities the countryside was accessible with its lulling whir of natural sounds. There were still times too. The holy days were quiet before they became holidays. In Christendom Sunday was the quietest day before it became Fun-day. The importance of these quiet groves far transcended the particular purposes to which they were put. We see this now that they are being destroyed. The city park is situated next to the parkway, the library is next to a construction or demolition site, the church is next to a heliport.

Acoustic design will want to pay special attention to the repatriation of quiet groves and times. Genclik Park in Ankara is merely one of many in the cities of the world today that has been wired throughout for background music, though the volume at which it is played is louder than most. This practice betrays an important principle of acoustic design: always to let nature sing for itself.

A park or a garden is a place where nature is cultivated. It is a

humanized treatment of landscape. It may contain human artifacts (a bench, a swing) but they must harmonize with the natural inheritance (trees, water)—otherwise we no longer have a park but a highway or a slum. If synthetic sounds are introduced, if we venture to produce what I would call "the soniferous garden," care must be taken to ensure that they are sympathetic vibrations of the garden's original notes. The wind chimes of the Japanese, or the once-popular aeolian or wind harp, are reinforcements of natural sounds in the same way as the trellis reinforces the presence of the rose. The object in creating a soniferous garden would be to work up from natural sounds, materials, formations [...]

The recovery of positive silence

In October 1969 the General Assembly of the International Music Council of UNESCO passed a most interesting resolution.

We denounce unanimously the intolerable infringement of individual freedom and of the right of everyone to silence, because of the abusive use, in private and public places, of recorded or broadcast music. We ask the Executive Committee of the International Music Council to initiate a study from all angles—medical, scientific and juridical—without overlooking its artistic and educational aspects, and with a view to proposing to UNESCO, and to the proper authorities everywhere, measures calculated to put an end to this abuse.

For the first time in history an organization involved primarily in the *production* of sounds suddenly turned its attention to their *reduction*. In the present article I have been suggesting that a saturation point has been reached with regard to all sounds. It remains to discuss how best to accomplish their reduction. I have suggested that the least effective way would be by the introduction of more noise abatement bylaws, sound-proof walls or ear plugs. An uncomprehending public with a developed appetite for noise would scarcely accept these means, unless they were necessary for public health—though in many instances this can now be demonstrated to be the case.

My approach, over which I do [not] wish to exercise permanent ownership, has been to treat the world soundscape as a huge macrocosmic composition which deserves to be listened to as attentively as a Mozart symphony.¹³ Only when we have truly learned how to listen can we make effective judgements about the world soundscape. I am especially anxious

that musicians should take the initiative in this field, because musicians are the architects of sounds; they are concerned with making balances and arrangements of interesting sounds to produce desired aesthetic effects.

Silence is the most potentialized feature of Western music. Because it is being lost, the composer today is more concerned with silence; he composes with it. Anton Webern moved composition to the brink of silence. The ecstasy of his music is enhanced by his sublime use of rests. By this means he produces hi-fi works in which diminutive but stunning musical gestures inhabit containers of stillness.

Simultaneous with Webern's rediscovery of the value of silence in music, his compatriot Freud discovered its value for psychoanalysis. "The analyst is not afraid of silence. As Saussure remarked, the unconscious monologue of the patient on the one side and the almost absolute silence of the psychiatrist on the other was never made a methodological principle before Freud."¹⁴

In the West, silence has for many centuries been unfashionable. It will be recalled that when Galileo's telescope first suggested the infinity of space, the philosopher Pascal was deeply afraid of the prospect of an infinite and eternal silence. "Le silence éternal de ces espaces infinis m'effraye [The eternal silence of these infinite spaces frightens me]."¹⁵

When silence is conceived as the rejection of the human personality, the ultimate silence is death. Then man likes to surround himself with sounds in order to nourish his fantasy of perpetual life. In Western society silence is negative, an embarrassment, a vacuum. Silence for Western man equals communication hang-up. If one does not speak, the other will speak. This has not always been so, nor is it so for all peoples today. I have seen Arabs sitting quietly in a circle saying nothing for long stretches of time. Even the conversation of farmers is much more leisurely than that of citydwellers.

In the West we may assume that silence as a condition of life and a workable concept disappeared sometime towards the end of the thirteenth century, with the death of Meister Eckhart, Ruysbroeck, Angela de Foligno and the anonymous English author of *The Cloud of Unknowing*. This is the era of the last great Christian mystics and contemplation as a habit and skill began to disappear about that time.

I am about to suggest that the soundscape will not again become ecological and harmonious until silence is recovered as a positive and felicitous state in itself. We need to regain that state in order that fewer sounds could intrude on it with pristine brilliance. The Indian mystic Kirpal Singh expresses this eloquently:

The essence of sound is felt in both motion and silence, it passes from existent to nonexistent. When there is no sound, it is said that there is no hearing, but that does not mean that hearing has lost its preparedness. Indeed, when there is no sound, hearing is most alert, and when there is sound the hearing nature is least developed.¹⁶

It is this same idea that Rilke expresses in his *Duineser Elegien* when he speaks of "*die unterbrochene Nachricht der Stille*" ["the endless report that grows out of silence"]. Silence is indeed news for those possessing clairaudience.

Among our students we have declared days of moratorium on speech. In our classes we have also been trying to employ some yogic or relaxing exercises as a preparation to the listening and creating experience. Little by little the muscles and the mind relax and the whole body becomes an ear. This may take some time but at the conclusion, students have told me, they have heard music as never before.

It is in exercises such as these that I have come to believe our ultimate hope lies in improving the acoustic design of the world. Still the noise in the mind: that is the first task—then everything else will follow in time.

Notes

- 1 R. Murray Schafer, *The New Soundscape*, Universal Edition, London and Vienna, 1971, p. 1.
- 2 J. Fenimore Cooper, *The Pathfinder*, New York, 1961, pp. 113–14.
- 3 Thomas Hardy, *Far from the Madding Crowd*, London, 1902, p. 43.
- 4 Ibid., p. 254.
- 5 Johann Wolfgang von Goethe, *Die Leiden des jungen Werther*, Leipzig, 1774, p. 9.
- 6 F. Phillip Grove, *Over Prairie Trails*, Toronto, 1922, p. 34.
- 7 F. Scott Fitzgerald, *Tender is the Night*, New York, 1962, p. 40.
- 8 R. Stendhal, *The Red and the Black*, New York, 1926, p. 10.
- 9 Thomas Mann, Stories of Three Decades, "A Man and His Dog," New York, 1936, pp. 440–41.
- 10 D. H. Lawrence, *The Rainbow*, New York, 1915, p. 7.
- 11 [See Chapter 2, above.]

- 12 "Ohne Kraftwagen, ohne Flugzeug und ohne Lautsprecher hätten wir Deutschland nicht erobert," Adolf Hitler, Manual of the German Radio, 1938–39.
- These ideas are expounded more fully in my booklets, *Ear Cleaning, The New Soundscape*, and *When Words Sing*, Universal Edition, London and Vienna, 1970–71.
- 14 Theodor Reik, *Listening With the Third Ear*, New York, 1949, pp. 122–23.
- 15 Pascal, Pensées, Ch. M. des Granges, ed., Granier Frères, 1964, p. 131.
- 16 Kirpal Singh, *Naam or Word*, Ruhani Satsang, Delhi, India, 1970, p. 59.
- From R. Murray Schafer, *The Music of the Environment* (Wien: Universal Edition, 1973). Used by permission of the author.

The Gender of Sound

Anne Carson

Since the late 1980s, Canadian poet and classicist Anne Carson has published volumes of poetry, verse fiction, essays, and translations of ancient Greek literature. Indeed, her writing often combines these genres and forms, melding poetry with memoir, essay, and literary analysis, frequently on classical themes. Her verse novel Autobiography of Red (1998), for example, modernizes the mythological story of the three-headed giant Geryon, and includes both an analysis of the Greek poet Stesichoros and translations of his fragments on Geryon. In "The Gender of Sound," Carson reflects on the problem of the female voice in patriarchal culture, which associates the vocal utterance of women with irrationality, animality, immorality, and political danger. Carson's examples are primarily classical, though she argues that the attitudes and prohibitions established by the Greeks are still with us today. Carson's analysis of the female voice resonates with the vocal experiments and provocations of Yoko Ono, Joan La Barbara, Diamanda Galas, Maja Ratkje, Amy Yoshida, and others.

Physiognomics

It is in large part according to the sounds people make that we judge them sane or insane, male or female, good, evil, trustworthy, depressive, marriageable, moribund, likely or unlikely to make war on us, little better than animals, inspired by God. These judgments happen fast and can be brutal. Aristotle tells us that the high pitched voice of the female is one evidence of her evil disposition, for creatures who are brave or just (like lions, bulls, roosters and the human male) have large deep voices.¹ If you hear a man talking in a gentle or high pitched voice you know he is a *kinaidos* ("catamite").² The poet Aristophanes puts a comic turn on this cliché in his *Ekklesiazousai*. As the women of Athens are about to infiltrate the Athenian assembly and take over political process, the feminist leader Praxagora reassures her fellow female activists that they have precisely the right kind of voices for this task. Because, as she says, "You know that among the young men the ones who turn out to be terrific

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talkers are the ones who get fucked a lot" (113–14).

This joke depends on a collapsing together of two different aspects of sound production, quality of voice and use of voice. We will find the ancients continually at pains to associate these two aspects under a general rubric of gender. High vocal pitch goes together with talkativeness to characterize a person who is deviant from or deficient in the masculine ideal of self-control. Women, catamites, eunuchs and androgynes fall into this category. Their sounds are bad to hear and make men uncomfortable. Just how uncomfortable may be measured by the lengths to which Aristotle is willing to go in accounting for the gender of sound physiognomically; he ends up ascribing the lower pitch of the male voice to the tension placed on a man's vocal cords by his testicles functioning as loom weights.³ In Hellenistic and Roman times doctors recommended vocal exercises to cure all sorts of physical and psychological ailments in men, on the theory that the practice of declamation would relieve congestion in the head and correct the damage that men habitually do to themselves in daily life by using the voice for high pitched sounds, loud shouting or aimless conversation. Here again we note a confusion of vocal quality and vocal use. This therapy was not on the whole recommended to women or eunuchs or androgynes, who were believed to have the wrong kind of flesh and the wrong alignment of pores for the production of low vocal pitches, no matter how hard they exercised. But for the masculine physique vocal practice was thought an effective way to restore body and mind by pulling the voice back down to appropriately manly pitches.⁴ I have a friend who is a radio journalist and he assures me that these suppositions about voice quality are still with us. He is a man and he is gay. He spent the first several years of his career in radio fending off the attempts of producers to deepen, darken and depress his voice, which they described as "having too much smile in it." Very few women in public life do not worry that their voices are too high or too light or too shrill to command respect. Margaret Thatcher trained for years with a vocal coach to make her voice sound more like those of the other Honourable Members and still earned the nickname Attila the Hen.⁵ This hen analogy goes back to the publicity surrounding Nancy Astor, first female member of the British House of Commons in 1919, who was described by her colleague Sir Henry Channon as "a queer combination of warmheartedness, originality and rudeness ... she rushes about like a decapitated hen ... intriguing and enjoying the smell of blood ... the mad witch."⁶ Madness and witchery as well as bestiality are conditions commonly associated with the use of the female voice in public, in ancient as well as modern contexts. Consider how many female celebrities of classical mythology, literature and cult make themselves objectionable by the way they use their voice. For example, there is the heart-chilling groan of the Gorgon, whose name is derived from a Sanskrit word *garg meaning "a guttural animal howl that issues as a great wind from the back of the throat through a hugely distended mouth."⁷ There are the Furies whose high pitched and horrendous voices are compared by Aiskhylos to howling dogs or sounds of people being tortured in hell (Eumenides, 117, 131, 189). There is the deadly voice of the Sirens and the dangerous ventriloquism of Helen (Odyssey, 4.275) and the incredible babbling of Kassandra (Aiskhylos' Agamemnon, 1213-14) and the fearsome hulabaloo of Artemis as she charges through the woods (Homeric Hymn to Aphrodite, 18–20). There is the seductive discourse of Aphrodite which is so concrete an aspect of her power that she can wear it on her belt as a physical object or lend it to other women (Iliad, 14.216). There is the old woman of Eleusinian legend, Iambe, who shrieks obscenities and throws her skirt up over her head to expose her genitalia.⁸ There is the haunting garrulity of the nymph Echo (daughter of Iambe in Athenian legend) who is described by Sophokles as "the girl with no door on her mouth" (Philoktetes, 188).

Beefsteak

Putting a door on the female mouth has been an important project of patriarchal culture from antiquity to the present day. Its chief tactic is an ideological association of female sound with monstrosity, disorder and death. Consider this description by one of her biographers of the sound of Gertrude Stein:

Gertrude was hearty. She used to roar with laughter, out loud. She had a laugh like a beefsteak. She loved beef.⁹

These sentences, with their artful confusion of factual and metaphorical levels, carry with them, as it seems to me, a whiff of pure fear. It is a fear that projects Gertrude Stein across the boundary of woman and human and animal kind into monstrosity. The simile "she had a laugh like a beefsteak" which identifies Gertrude Stein with cattle is followed at once by the statement "she loved beef" indicating that Gertrude Stein ate cattle.

Creatures who eat their own kind are regularly called cannibals and regarded as abnormal. Gertrude Stein's other abnormal attributes, notably her large physical size and lesbianism, were emphasized persistently by critics, biographers and journalists who did not know what to make of her prose. The marginalization of her personality was a way to deflect her writing from literary centrality: if she is fat, funny-looking and sexually deviant she must be a marginal talent, is the assumption.

One of the literary patriarchs who feared Gertrude Stein most was Ernest Hemingway. And it is interesting to hear him tell the story of how he came to end his friendship with Gertrude Stein because he could not tolerate the sound of her voice. The story takes place in Paris. Hemingway tells it from the point of view of a disenchanted expatriate just realizing that he cannot after all make a life for himself amid the alien culture where he is stranded. One spring day in 1924 Hemingway comes to call on Gertrude Stein and is admitted by the maid:

The maidservant opened the door before I rang and told me to come in and wait. Miss Stein would be down at any moment. It was before noon but the maidservant poured me a glass of *eau-de-vie*, put it in my hand and winked happily. The colorless liquid felt good on my tongue and it was still in my mouth when I heard someone speaking to Miss Stein as I had never heard one person speak to another; never, anywhere, ever. Then Miss Stein's voice came pleading and begging, saying, "Don't, pussy. Don't. Don't, please don't. Please don't, pussy."

I swallowed the drink and put the glass down on the table and started for the door. The maidservant shook her finger at me and whispered, "Don't go. She'll be right down."

"I have to go," I said and tried not to hear any more as I left but it was still going on and the only way I could not hear it was to be gone. It was bad to hear and the answers were worse...

That was the way it finished for me, stupidly enough ... She got to look like a Roman emperor and that was fine if you liked your women to look like Roman emperors ... In the end everyone or not quite everyone made friends again in order not to be stuffy or righteous. But I could never make friends again truly, neither in my heart nor in my head. When you cannot make friends any more in your head is the worst. But it was more complicated than that.¹⁰

Indeed it is more complicated than that. As we shall see if we keep Ernest Hemingway and Gertrude Stein in mind while we consider another vignette about a man confronting the female voice. This one is from the seventh century BC. It is a lyric fragment of the archaic poet Alkaios of Lesbos. Like Ernest Hemingway, Alkaios was an expatriate writer. He had been expelled from his home city of Mytilene for political insurgency and his poem is a lonely and demoralized lament from exile. Like Hemingway, Alkaios epitomizes his feelings of alienation in the image of himself as a man stranded in an anteroom of high culture and subjected to a disturbing din of women's voices from the room next door:

... wretched I exist with wilderness as my lot longing to hear the sound of the Assembly being called, O Agesilaidas, and the Council. What my father and the father of my father grew old enjoying – among these citizens who wrong one another – from this I am outcast

an exile on the furthest fringes of things, like Onomaklees here all alone I have set up my house in the wolfthickets...

... I dwell keeping my feet outside of evils

where the Lesbian women in their contests for beauty come and go with trailing robes

and all around reverberates an otherworldly echo of women's awful yearly shrieking (*ololygas*) \dots^{11}

This is a poem of radical loneliness, which Alkaios emphasizes with an oxymoron. "All alone (*oios*) I have set up my household (*eoikesa*)" he says (at verse 10), but this wording would make little sense to a seventh-century BC ear. The verb (*eoikesa*) is made from the noun *oikos*, which denotes the whole relational complex of spaces, objects, kinsmen, servants, animals, rituals and emotions that constitute life within a family within a *polis*. A man all alone cannot constitute an *oikos*.

Alkaios' oxymoronic condition is reinforced by the kind of creatures that surround him. Wolves and women have replaced "the fathers of my fathers." The wolf is a conventional symbol of marginality in Greek
poetry. The wolf is an outlaw. He lives beyond the boundary of usefully cultivated and inhabited space marked off as the *polis*, in that blank noman's-land called *to apeiron* ("the unbounded"). Women, in the ancient view, share this territory spiritually and metaphorically in virtue of a "natural" female affinity for all that is raw, formless and in need of the civilizing hand of man. So for example in the document cited by Aristotle that goes by the name of The Pythagorean Table of Opposites, we find the attributes curving, dark, secret, evil, ever-moving, not self-contained and lacking its own boundaries aligned with Female and set over against straight, light, honest, good, stable, self-contained and firmly bounded on the Male side (Aristotle, *Metaphysics*, 986a22).

I do not imagine that these polarities or their hierarchization is news to you, now that classical historians and feminists have spent the last ten or fifteen years codifying the various arguments with which ancient Greek thinkers convinced themselves that women belong to a different species than men. But it interests me that the radical otherness of the female is experienced by Alkaios, as also by Ernest Hemingway, in the form of women's voices uttering sounds that men find bad to hear. Why is female sound bad to hear? The sound that Alkaios hears is that of the local Lesbian women who are conducting beauty contests and making the air reverberate with their yelling. These beauty contests of the Lesbian women are known to us from a notice in the Iliadic scholia which indicates they were an annual event performed probably in honour of Hera. Alkaios mentions the beauty contests in order to remark on their prodigious noise level and, by so doing, draws his poem into a ring composition. The poem begins with the urbane and orderly sound of a herald summoning male citizens to their rational civic business in the Assembly and the Council. The poem ends with an otherworldly echo of women shrieking in the wolfthickets. Moreover the women are uttering a particular kind of shriek, the ololyga.

This is a ritual shout peculiar to females.¹² It is a high pitched piercing cry uttered at certain climactic moments in ritual practice (e.g., at the moment when a victim's throat is slashed during sacrifice) or at climactic moments in real life (e.g., at the birth of a child) and is also a common feature of women's festivals. The *ololyga* with its cognate verb *ololyzo* is one of a family of words, including *eleleu* with its cognate verb *elelizo*, and *alala* with its cognate verb *alalazo*, probably of Indo-European origin and obviously of onomatopoeic derivation.¹³ These words do not signify

anything except their own sound. The sound represents a cry of either intense pleasure or intense pain.¹⁴ To utter such cries is a specialized female function. When Alkaios finds himself surrounded by the sound of the *ololyga* he is telling us that he is completely and genuinely out of bounds. No man would make such sound. No proper civic space would contain it unregulated. The female festivals in which such ritual cries were heard were generally not permitted to be held within the city limits but were relegated to suburban areas like the mountains, the beach or the rooftops of houses where women could disport themselves without contaminating the ears or civic space of men. To be exposed to such sound is for Alkaios a condition of political nakedness as alarming as that of his archetype Odysseus, who awakens with no clothes on in a thicket on the island of Phaiakia in the sixth book of Homer's Odyssey, surrounded by the shrieking of women. "What a hulabaloo of females comes around me!" Odysseus exclaims (Odyssey, 6.122) and goes on to wonder what sort of savages or supernatural beings can be making such a racket. The savages of course turn out to be Nausikaa and her girlfriends playing soccer on the riverbank, but what is interesting in this scenario is Odysseus' automatic association of disorderly female sound with wild space, with savagery and the supernatural. Nausikaa and her friends are shortly compared by Homer to the wild girls who roam the mountains in attendance upon Artemis (Odyssey, 9.105-6), a goddess herself notorious for the sounds that she makes-if we may judge from her Homeric epithets. Artemis is called keladeine, derived from the noun kelados which means a loud roaring noise as of wind or rushing water or the tumult of battle. Artemis is also called *iocheaira* which is usually etymologized to mean "she who pours forth arrows" (from ios meaning "arrow") but could just as well come from the exclamatory sound io and mean "she who pours forth the cry IO!"¹⁵

Sound control

Greek women of the archaic and classical periods were not encouraged to pour forth unregulated cries of any kind within the civic space of the *polis* or within earshot of men. Indeed masculinity in such a culture defines itself by its different use of sound. Verbal continence is an essential feature of the masculine virtue of *sophrosyne* ("prudence, soundness of mind, moderation, temperance, self-control") that organizes most patriarchal thinking on ethical or emotional matters. Woman as a species is frequently said to lack the ordering principle of sophrosyne. Freud formulates the double standard succinctly in a remark to a colleague: "A thinking man is his own legislator and confessor, and obtains his own absolution, but the woman ... does not have the measure of ethics in herself. She can only act if she keeps within the limits of morality, following what society has established as fitting."¹⁶ So too, ancient discussions of the virtue of sophrosyne demonstrate clearly that, where it is applied to women, this word has a different definition than for men.¹⁷ Female *sophrosyne* is coextensive with female obedience to male direction and rarely means more than chastity. When it does mean more, the allusion is often to sound. A husband exhorting his wife or concubine to *sophrosyne* is likely to mean "Be quiet!"¹⁸ The Pythagorean heroine Timyche who bit off her tongue rather than say the wrong thing is praised as an exception to the female rule.¹⁹ In general the women of classical literature are a species given to disorderly and uncontrolled outflow of sound - to shrieking, wailing, sobbing, shrill lament, loud laughter, screams of pain or of pleasure and eruptions of raw emotion in general. As Euripides puts it, "For it is woman's inborn pleasure always to have her current emotions coming up to her mouth and out through her tongue" (Andromache, 94–5). When a man lets his current emotions come up to his mouth and out through his tongue he is thereby feminized, as Herakles at the end of the Trachiniai agonizes to find himself "sobbing like a girl, whereas before I used to follow my difficult course without a groan but now in pain I am discovered a woman" (1070-5).

It is a fundamental assumption of these gender stereotypes that a man in his proper condition of *sophrosyne* should be able to dissociate himself from his own emotions and so control their sound. It is a corollary assumption that man's proper civic responsibility towards woman is to control her sound for her insofar as she cannot control it herself. We see a summary moment of such masculine benevolence in Homer's *Odyssey* in Book 22 when the old woman Eurykleia enters the dining hall to find Odysseus caked in blood and surrounded by dead suitors. Eurykleia lifts her head and opens her mouth to utter an *ololyga*. Whereupon Odysseus reaches out a hand and closes her mouth saying, *ou themis*: "It is not permitted for you to scream just now. Rejoice inwardly …" (22.407–12).

Closing women's mouths was the object of a complex array of legislation and convention in preclassical and classical Greece, of which

the best documented examples are Solon's sumptuary laws and the core concept Sophokles' blanket statement, "Silence is the *kosmos* [good order] of women."²⁰ The sumptuary laws enacted by Solon in the sixth century BC had as their effect, Plutarch tells us, "to forbid all the disorderly and barbarous excesses of women in their festivals, processions and funeral rites."²¹ The main responsibility for funeral lament had belonged to women from earliest Greek times. Already in Homer's *Iliad* we see the female Trojan captives in Achilles' camp compelled to wail over Patroklos (18.339). Yet lawgivers of the sixth and fifth centuries like Solon were at pains to restrict these female outpourings to a minimum of sound and emotional display.

The official rhetoric of the lawgivers is instructive. It tends to denounce bad sound as political disease (*nosos*) and speaks of the need to purify civic spaces of such pollution. Sound itself is regarded as the means of purification as well as of pollution. So for example the lawgiver Charondas, who laid down laws for the city of Katana in Sicily, prefaced his legal code with a ceremonial public *katharsis*. This took the form of an incantation meant to cleanse the citizen body of evil ideas or criminal intent and to prepare a civic space for the legal *katharsis* that followed. In his law code Charondas, like Solon, was concerned with regulating female noise and drew attention to the ritual funeral lament. Laws were passed specifying the location, time, duration, personnel, choreography, musical content and verbal content of the women's funeral lament on the grounds that these "harsh and barbaric sounds" were a stimulus to "disorder and licence" (as Plutarch puts it).²² Female sound was judged to arise in craziness and to generate craziness.

Rationality

We detect a certain circularity in the reasoning here. If women's public utterance is perpetually enclosed within cultural institutions like the ritual lament, if women are regularly reassigned to the expression of nonrational sounds like the *ololyga* and raw emotion in general, then the so-called "natural" tendency of the female to shrieking, wailing, weeping, emotional display and oral disorder cannot help but become a self-fulfilling prophecy. But circularity is not the most ingenious thing about this reasoning. We should look a little more closely at the ideology that underlies male abhorrence of female sound. And it becomes important at this point to distinguish sound from language.

For the formal definition of human nature preferred by patriarchal culture is one based on articulation of sound. As Aristotle says, any animal can make noises to register pleasure or pain. But what differentiates man from beast, and civilization from the wilderness, is the use of rationally articulated speech: *logos*.²³ From such a prescription for humanity follow severe rules for what constitutes human logos. When the wife of Alexander Graham Bell, a woman who had been deafened in childhood and knew how to lipread but not how to talk very well, asked him to teach her sign language, Alexander replied, "The use of sign language is pernicious. For the only way by which a language can be thoroughly mastered is by using it for the communication of thought without translation into any other language."²⁴ Alexander Graham Bell's wife, whom he had married the day after he patented the telephone, never did learn sign language. Or any other language.

What is it that is pernicious about sign language? To a husband like Alexander Graham Bell, as to a patriarchal social order like that of classical Greece, there is something disturbing or abnormal about the use of signs to transcribe upon the outside of the body a meaning from inside the body which does not pass through the control point of *logos*, a meaning which is not subject to the mechanism of dissociation that the Greeks called sophrosyne or self-control. Sigmund Freud applied the name "hysteria" to this process of transcription when it occurred in female patients whose tics and neuralgias and convulsions and paralyses and eating disorders and spells of blindness could be read, in his theory, as a direct translation into somatic terms of psychic events within the woman's body.²⁵ Freud conceived his own therapeutic task as the rechannelling of these hysteric signs into rational discourse.²⁶ Herodotos tells us of a priestess of Athene in Pedasa who did not use speech to prophesy but would grow a beard whenever she saw misfortune coming upon her community (1.75). Herodotos does not register any surprise at the "somatic compliance" (as Freud would call it) of this woman's prophetic body nor call her condition pathological. But Herodotos was a practical person, less concerned to discover pathologies in his historical subjects than to congratulate them for putting "otherness" to cultural use. And the anecdote does give us a strong image of how ancient culture went about constructing the "otherness" of the female. Woman is that creature who puts the inside on the outside. By projections and leakages of all kinds -

somatic, vocal, emotional, sexual – females expose or expend what should be kept in. Females blurt out a direct translation of what should be formulated indirectly. There is a story told about the wife of Pythagoras, that she once uncovered her arm while out of doors and someone commented, "Nice arm" to which she responded, "Not public property!" Plutarch's comment on this story is: "The arm of a virtuous woman should not be public property, nor her speech neither, and she should as modestly guard against exposing her voice to outsiders as she would guard against stripping off her clothes. For in her voice as she is blabbering away can be read her emotions, her character and her physical condition."²⁷ In spite of herself, Plutarch's woman has a voice that acts like a sign language, exposing her inside facts. Ancient physiologists from Aristotle through the early Roman Empire tell us that a man can know from the sound of a woman's voice private data like whether or not she is menstruating, whether or not she has had sexual experience.²⁸ Although these are useful things to know, they may be bad to hear or make men uncomfortable. What is pernicious about sign language is that it permits a direct continuity between inside and outside. Such continuity is abhorrent to the male nature. The masculine virtue of *sophrosyne* or self-control aims to obstruct this continuity, to dissociate the outside surface of a man from what is going on inside him. Man breaks continuity by interposing *logos*—whose most important censor is the rational articulation of sound.

Every sound we make is a bit of autobiography. It has a totally private interior, yet its trajectory is public. A piece of inside projected to the outside. The censorship of such projections is a task of patriarchal culture that (as we have seen) divides humanity into two species: those who can censor themselves and those who cannot.

In order to explore some of the implications of this division let us consider how Plutarch depicts the two species in his essay "On Talkativeness."

To exemplify the female species in its use of sound Plutarch tells the story of a politician's wife who is tested by her husband. The politician makes up a crazy story and tells it to his wife as a secret early one morning. "Now keep your mouth closed about this," he warns her. The wife immediately relates the secret to her maidservant. "Now keep your mouth closed about this," she tells the maidservant, who immediately relates it to the whole town and before midmorning the politician himself receives his own story back again. Plutarch concludes this anecdote by saying, "The husband had taken precautions and protective measures in order to test his wife, as one might test a cracked or leaky vessel by filling it not with oil or wine but with water."²⁹ Plutarch pairs this anecdote with a story about masculine speech acts. It is a description of a friend of Solon's named Anacharsis:

Anacharsis, who had dined with Solon and was resting after dinner, was seen pressing his left hand on his sexual parts and his right hand on his mouth: for he believed that the tongue requires a more powerful restraint. And he was right. It would not be easy to count as many men lost through incontinence in amorous pleasures as cities and empires ruined through revelation of a secret.³⁰

In assessing the implications of the gendering of sound for a society like that of the ancient Greeks, we have to take seriously the connection Plutarch makes between verbal and sexual continence, between mouth and genitals. Because that connection turns out to be a very different matter for men than for women. The masculine virtue of self-censorship with which Anacharsis responds to impulses from inside himself is shown to be simply unavailable to the female nature. Plutarch reminds us a little later in the essay that perfect *sophrosyne* is an attribute of the god Apollo whose epithet Loxias means that he is a god of few words and concise expression, not one who runs off at the mouth.³¹ Now, when a woman runs off at the mouth there is far more at stake than waste of words: the image of the leaky water jar with which Plutarch concludes his first anecdote is one of the commonest figures in ancient literature for the representation of female sexuality.

Mouths

The forms and contexts of this representation (the leaky jar of female sexuality) have been studied at length by other scholars (including me)³² so let us pass directly to the heart, or rather the mouth, of the matter. It is an axiom of ancient Greek and Roman medical theory and anatomical discussion that a woman has two mouths.³³ The orifice through which vocal activity takes place and the orifice through which sexual activity takes place are both denoted by the word *stoma* in Greek (*os* in Latin) with the addition of adverbs *ano* or *kato* to differentiate upper mouth from lower mouth. Both the vocal and the genital mouth are connected to the body by a neck (*auchen* in Greek, *cervix* in Latin). Both mouths provide

access to a hollow cavity which is guarded by lips that are best kept closed. The ancient medical writers not only apply homologous terms but also parallel medications to upper and lower mouths in certain cases of uterine malfunction. They note with interest, as do many poets and scholiasts, symptoms of physiological responsion between upper and lower mouth, for example that an excess or blockage of blood in the uterus will evidence itself as strangulation or loss of voice;³⁴ that too much vocal exercise results in loss of menses;³⁵ that defloration causes a woman's neck to enlarge and her voice to deepen.³⁶

"With a high pure voice because she has not yet been acted upon by the bull," is how Aiskhylos describes his Iphigeneia (*Agamemnon*, 244). The changed voice and enlarged throat of the sexually initiated female are an upward projection of irrevocable changes at the lower mouth. Once a woman's sexual life begins, the lips of the uterus are never completely closed again—except on one occasion, as the medical writers explain: in his treatise on gynecology Soranos describes the sensations that a woman experiences during fruitful sexual intercourse. At the moment of conception, the Hellenistic doctor Soranus alleges, the woman has a shivering sensation and the perception that the mouth of her uterus closes upon the seed.³⁷ This closed mouth, and the good silence of conception that it protects and signifies, provides the model of decorum for the upper mouth as well. Sophokles' frequently cited dictum "Silence is the *kosmos* of women" has its medical analog in women's amulets from antiquity which picture a uterus equipped with a lock at the mouth.

When it is not locked the mouth may gape open and let out unspeakable things. Greek myth, literature and cult show traces of cultural anxiety about such female ejaculation. For example there is the story of Medusa who, when her head was cut off by Perseus, gave birth to a son and a flying horse through her neck.³⁸ Or again that restless and loquacious nymph Echo, surely the most mobile female in Greek myth. When Sophokles calls her "the girl with no door on her mouth" we might wonder which mouth he means. Especially since Greek legend marries Echo off in the end to the god Pan whose name implies her conjugal union with every living thing.

We should also give some consideration to that bizarre and variously explained religious practice called *aischrologia*. *Aischrologia* means "saying ugly things." Certain women's festivals included an interval in which women shouted abusive remarks or obscenities or dirty jokes at one another. Historians of religion classify these rituals of bad sound either as some Frazerian species of fertility magic or as a type of coarse but cheering buffoonery in which (as Walter Burkert says) "antagonism between the sexes is played up and finds release."³⁹ But the fact remains that in general men were not welcome at these rituals and Greek legend contains more than a few cautionary tales of men castrated, dismembered or killed when they blundered into them.⁴⁰ These stories suggest a backlog of sexual anger behind the bland face of religious buffoonery. Ancient society was happy to have women drain off such unpleasant tendencies and raw emotion into a leakproof ritual container. The strategy involved here is a cathartic one, based on a sort of psychological division of labour between the sexes, such as [pseudo]Demosthenes mentions in a reference to the Athenian ritual called *Choes*. The ceremony of *Choes* took place on the second day of the Dionysian festival of Anthesteria.⁴¹ It featured a competition between celebrants to drain an oversize jug of wine and concluded with a symbolic (or perhaps not) act of sexual union between the god Dionysos and a representative woman of the community. It is this person to whom Demosthenes refers, saying "She is the woman who discharges the unspeakable things on behalf of the city" (59.73).

Speak the unspeakable

Let us dwell for a moment on this ancient female task of discharging unspeakable things on behalf of the city, and on the structures that the city sets up to contain such speech.

A ritual structure like the *aischrologia* raises some difficult questions of definition. For it collapses into a single cathartic activity two different aspects of sound production. We have noticed this combinatory tactic already throughout most of the ancient and some of the modern discussions of voice: female sound is bad to hear *both* because the quality of a woman's voice is objectionable *and* because a woman uses her voice to say what should not be said. When these two aspects are blurred together, some important questions about the distinction between essential and constructed characteristics of human nature recede into circularity. Nowadays, sex difference in language is a topic of diverse research and unresolved debate. The sounds made by women are said to have different inflectional patterns, different ranges of intonation, different narrative preferences, different semantic fields, different diction, different narrative

textures, different behavioural accoutrements, different contextual pressures than the sounds that men make.⁴² Tantalizing vestiges of ancient evidence for such difference may be read from, e.g., passing references in Aristophanes to a "woman's language" that a man can learn or imitate if he wants to (*Thesmophoriazousai*, 192, 267); or from the conspicuously onomatopoeic construction of female cries like *ololuga* and female names like Gorgo, Baubo, Echo, Syrinx, Eileithyia.⁴³ But in general, no clear account of the ancient facts can be extracted from strategically blurred notions like the homology of female mouth and female genitals, or tactically blurred activities like the ritual of the *aischrologia*. What does emerge is a consistent paradigm of response to otherness of voice. It is a paradigm that forms itself as *katharsis*.

As such, the ancient Greek ritual of aischrologia bears some resemblance to the procedure developed by Sigmund Freud and his colleague Josef Breuer for treatment of hysterical women. In Case Studies on Hysteria, Freud and Breuer use the term "katharsis" and also the term "talking cure" of this revolutionary therapy. In Freud's theory the hysterical patients are women who have bad memories or ugly emotions trapped inside them like a pollution. Freud and Breuer find themselves able to drain off this pollution by inducing the women under hypnosis to speak unspeakable things. Hypnotized women produce some remarkable sounds. One of the patients described by Freud can at first only clack like a hen; another insists on speaking English although she was Viennese; another uses what Freud calls "paraphrastic jargon."44 But all are eventually channelled by the psychoanalyst into connected narrative and rational exegesis of their hysteric symptoms. Whereupon, both Freud and Breuer claim, the symptoms disappear – cleansed by this simple cathartic ritual of draining off the bad sound of unspeakable things.

Here is how Josef Breuer describes his interaction with the patient who goes by the pseudonym Anna O.:

.... I used to visit her in the evening, when I knew I should find her in her hypnosis, and then I relieved her of the whole stock of imaginative products which she had accumulated since my last visit. It was essential that this should be effected completely if good results were to follow. When this was done she became perfectly calm, and next day she would be agreeable, easy to manage, industrious and even cheerful ... She aptly described this procedure as a "talking cure," while she referred to it jokingly as "chimney sweeping" ... ⁴⁵

Whether we call it chimney sweeping or *aischrologia* or ritual funeral lament or a hulabaloo of females or having a laugh like a beefsteak, the same paradigm of response is obvious. As if the entire female gender were a kind of collective bad memory of unspeakable things, patriarchal order like a well-intentioned psychoanalyst, seems to conceive its therapeutic responsibility as the channelling of this bad sound into politically appropriate containers. Both the upper and the lower female mouth apparently stand in need of such controlling action. Freud mentions shyly in a footnote to Case Studies on Hysteria that Josef Breuer had to suspend his analytic relationship with Anna O. because "she suddenly made manifest to Breuer the presence of a strongly unanalyzed positive transference of an unmistakably sexual nature."⁴⁶ Not until 1932 did Freud reveal (in a letter to a colleague)⁴⁷ what really happened between Breuer and Anna O. It was on the evening of his last interview with her that Breuer entered Anna's apartment to find her on the floor contorted by abdominal pain. When he asked her what was wrong she answered that she was about to give birth to his child. It was this "untoward event" as Freud calls it that caused Breuer to hold back the publication of *Case Studies on* Hysteria from 1881 to 1895 and led him ultimately to abandon collaborating with Freud. Even the talking cure must fall silent when both female mouths try to speak at the same time.

Baubo

It is confusing and embarrassing to have two mouths. Genuine *kakophony* is the sound produced by them. Let us consider one more example from antiquity of female *kakophony* at its most confusing and embarrassing. There is a group of terracotta statues recovered from Asia Minor and dated to the 4th century BC which depict the female body in an alarmingly shortcircuited form.⁴⁸ Each of these statues is a woman who consists of almost nothing but her two mouths. The two mouths are welded together into an inarticulate body mass which excludes other anatomical function. Moreover the position of the two mouths is reversed. The upper mouth for talking is placed at the bottom of the statue's belly. The lower or genital mouth gapes open on top of the head. Iconographers identify this monster with the old woman named Baubo⁴⁹ who figures in Greek legend as an allomorph of the ritual of the *aischrologia*. Baubo's name has a double

significance; according to LSJ, the noun baubo is used as a synonym for koilia (which denotes the female uterus) but as a piece of sound it derives from *baubau*, the onomatopoeic Greek word for a dog's bark.⁵⁰ The mythic action of Baubo is also significantly double. Like the old woman Iambe, Baubo is credited in legend with the twofold gesture of pulling up her clothes to reveal her genitalia and also shouting out obscene language or jokes. The shouting of Baubo provides one aetiology for the ritual of the aischrologia; her action of genital exposure may also have come over into cult as a ritual action called the *anasyrma* (the "pulling up" of clothing).⁵¹ If so, we may understand this action as a kind of visual or gestural noise, projected outward upon circumstances to change or deflect them, in the manner of an apotropaic utterance. So Plutarch describes the use of the anasyrma gesture by women in besieged cities: in order to repel the enemy they stand on the city wall and pull up their clothing to expose unspeakable things.⁵² Plutarch praises this action of female self-exposure as an instance of virtue in its context. But woman's allegedly definitive tendency to put the inside on the outside could provoke quite another reaction. The Baubo statues are strong evidence of that reaction. This Baubo presents us with one simple chaotic diagram of an outrageously manipulable female identity. The doubling and interchangeability of mouth engenders a creature in whom sex is cancelled out by sound and sound is cancelled out by sex. This seems a perfect answer to all the questions raised and dangers posed by the confusing and embarrassing continuity of female nature. Baubo's mouths appropriate each other.

Cultural historians disagree on the meaning of these statues. They have no certain information on the gender or intention or state of mind of the people who made them. We can only guess at their purpose as objects or their mood as works of art. Personally I find them as ugly and confusing and almost funny as *Playboy* magazine in its current predilection for placing centrefold photographs of naked women side by side with long intensely empathetic articles about high profile feminists. This is more than an oxymoron. There is a death of meaning in the collocation of such falsehoods – each of them, the centrefold naked woman and the feminist, a social construct purchased and marketed by *Playboy* magazine to facilitate that fantasy of masculine virtue that the ancient Greeks called *sophrosyne* and Freud renamed repression.

In considering the question, how do our presumptions about gender affect the way we hear sounds? I have cast my net rather wide and have mingled evidence from different periods of time and different forms of cultural expression – in a way that critics of such methods like to dismiss as ethnographic naïveté. I think there is a place for naïveté in ethnography, at the very least as an irritant. Sometimes when I am reading a Greek text I force myself to look up all the words in the dictionary, even the ones I think I know. It is surprising what you learn that way. Some of the words turn out to sound quite different than you thought. Sometimes the way they sound can make you ask questions you wouldn't otherwise ask. Lately I have begun to question the Greek word *sophrosyne*. I wonder about this concept of self-control and whether it really is, as the Greeks believed, an answer to most questions of human goodness and dilemmas of civility. I wonder if there might not be another idea of human order than repression, another notion of human virtue than self-control, another kind of human self than one based on dissociation of inside and outside. Or indeed, another human essence than self.

Notes

- 1 *Physiognomics*, 807a.
- 2 Physiognomics, 813a. On kinaidos see Aiskhines 1.131 and 2.99; Sir K.J. Dover, Greek Homosexuality (Oxford, 1975), 17, 75; M.W. Gleason, "The Semiotics of Gender: Physiognomics and Self-Fashioning in the Second Century C.E.," in F. Zeitlin et al., eds., Before Sexuality (Princeton, 1990), 401. I am indebted to Maud Gleason also for allowing me to preview a chapter ("The Role of the Voice in the Maintenance of Gender Boundaries") of her book on self-presentation in the Second Sophistic, Making Men: Sophists and Self-Presentation in Ancient Rome (Princeton, 1994).
- 3 Aristotle, On the Generation of Animals, 787b–788.
- 4 Oribasios, 6; Gleason, *Making Men*, 12.
- 5 A. Raphael, *The Observer*, October 7, 1979,
- 6 S. Rogers in S. Ardener, *Women and Space* (London, 1981), 59.
- T. Howe, "The Origin and Function of the Gorgon Head," American Journal of Archaeology vol. 58 (1954): 209; J-P Vernant, The Origins of Greek Thought (Ithaca, 1982), 117.
- 8 On Iambe, see M. Olender, "Aspects of Baubo: Ancient Texts and Contexts," in Zeitlin, 85–90 and references.
- 9 M.D. Luhan, Intimate Memoirs (New York, 1935), 324.
- 10 E. Hemingway, A Moveable Feast (New York, 1964), 118.

- 11 F. Lobel and D.L. Page, *Poetarum Lesbiorum Fragmenta* (Oxford, 1955), fr. 30.
- S. Eitrem, *Beitrage zur griechischen Religionsgeschichte* III (Kristiana, 1919), 44–53, assembles the pertinent texts.
- 13 E. Boisacq, *Dictionnaire étymologique de la langue grecque* (Paris and Heidelberg, 1907), 698.
- 14 L. Gernet, *Les Grecs sans miracle* (Paris, 1983), 248 and n8.
- 15 So Gernet (1983), 249-250 following H. Ehrlich, *Zur indogermanischen Sprachgeschichte* (Konigsberg, 1910), 48.
- 16 Letter to E. Silberstein cited by P. Grosskurth, "Review of R.W. Clarke, *Freud, The Man And The Cause*," *TLS*, August 8, 1980, 889.
- 17 H. North, *Sophrosyne* (Ithaca, 1966); see especially 1, 22, 37, 59, 206.
- 18 E.g., Sophokles, Ajax, 586.
- 19 Iamblichos, Life of Pythagoras, 31.194.
- 20 Cited by Aristotle, *Politics*, 1.1260a30.
- 21 Life of Solon, 21 = Moralia, 65b.
- 22 *Ibid.*,12.5 and 21.4. I learn from Marilyn Katz that there is serious contemporary debate about Jewish women praying aloud (i.e. reading from the Torah) at the Western Wall in Jerusalem: "The principal objection that I have heard has to do with the men's enforced exposure to *kol ishah* (female voice) from which they are normally expected to be protected, for a vast array of reasons articulated by rabbis in the Talmud and elsewhere, including sexual temptation."
- 23 *Politics*, 1253a.
- 24 This anecdote formed part of a lecture Bell delivered to the Social Science Association, Boston, December 1871.
- 25 Freud and Breuer, *Case Studies on Hysteria*, J. Strachey, trans. (New York, 1966).
- ²⁶ "We found that each individual hysterical symptom immediately and permanently disappeared when we had succeeded in bringing clearly to light the memory of the event by which it was provoked and ... when the patient had described that event in the greatest possible detail and had put the affect into words." Freud goes on to say that the psychotherapeutic method works "by allowing strangulated affect to find a way out through speech" (*Ibid.*, 6, 253).
- *Life of Pythagoras*, 7 = *Moralia*, 142d; Gleason, *Making Men*, 65.
- Aristotle, *History of Animals*, 581a31-b5; Suidas *s.v. Diagnomon*; Gleason, *Making Men*, 53; A. Hanson and D. Armstrong, "The Virgin's Neck and Voice: Aeschylus, *Agamemnon* 245 and Other Texts," *Bulletin of the Institute Of Classical Studies* vol. 97 (1986), 97–100; Hanson, "The Medical Writers' Woman," in Zeitlin, 328–29 and references.

- 29 On Talkativeness, 7 = Moralia, 507b–d.
- **30** *Ibid.*, 7 = *Moralia*, 505a.
- 31 *Ibid.*, 17 = *Moralia*, 511b6–10.
- 32 The logic of the representation has obviously to do with male observation of the mysteriously unfailing moistures of female physiology and also with a prevailing ancient medical conception of the female uterus as an upside down jar. See A. Carson, "Putting Her in Her Place: Woman As Dirt in Ancient Society," Zeitlin, 135–70; Hanson, "The Medical Writers' Woman," 325–27; G. Sissa, *Greek Virginity*, A. Goldhammer, trans. (Cambridge, Mass., 1990), 125–57.
- Hippokrates, *Diseases of Women*, 2.137, 8.310.5 (*Littré*); Galen, *On The Usefulness of the Parts*, 15.3; Hanson, "The Medical Writers' Woman," 321–29; Olender, 104–5; Sissa, 5, 53–66, 70, 166–68.
- 34 Galen, On Generation, 15.2-3; Hanson, "The Medical Writer's Woman," 328.
- 35 Soranos, *Gynaikeia*, 1.4.22; Gleason, Making Men, 122.
- 36 Aiskhylos, *Agamemnon*, 244; Hanson, "The Medical Writers' Woman," 329–32;Hanson and Armstrong.
- 37 Soranos, *Gynaikeia*, 1.44; *Corpus Medicorum Graecorum*, 4.3.1.9–11 (Ilberg); Hanson, "The Medical Writers' Woman," 315, 321–22.
- 38 Hesiod, *Theogony*, 280–81; R. Wasson *et al.*, *The Road to Eleusis* (New York, 1978), 120.
- 39 "The Greek evidence points most conspicuously to the absurdity and buffoonery of the whole affair: there is a conscious descent to the lower classes and the lower parts of the anatomy …": Burkert, *Greek Religion*, J. Raffan, trans. (Cambridge, Mass.: 1985), 105.
- Euripides, *Bakkhai*; M. Detienne and J.-P. Vernant, *La cuisine du sacrifice en pays grec* (Paris, 1979), 184–86; Zeitlin, "Cultic Models of the Female," *Arethusa* vol. 15 (1982), 146–53.
- 41 On the Anthesteria see H.W. Parke, *Festivals of the Athenians* (London, 1977), 107–113; Burkert, *Greek Religion*, 239.
- See e.g. M.K. Adler, Sex Differences in Human Speech (Hamburg, 1978); H. Cixous, "Castration or Decapitation?" Signs vol. 7 (1981): 27–39; M. Gatens, Feminism and Philosophy (Cambridge, 1991), especially 6–84; L. Irigaray, Sexes et genres à travers les langues (Paris, 1990); C. Kramarae, Women and Men Speaking (Rowley, Mass., 1981); R. Lakoff, Language and Woman's Place (New York, 1975); E. Sapir, Selected Writings on Language, Culture and Personality (Berkeley, 1949); D. Spender, Man Made Language (London, 1985).
- 43 See also Zeitlin, "Playing the Other: Theater, Theatricality and the Feminine in

Greek Drama," *Representations* vol. 11 (1985), on the feminization of the male in Greek tragedy.

- 44 Freud and Breuer, *Case Studies on Hysteria*, 5–17, 29.
- 45 *Ibid.*, 30.
- 46 *Ibid.*, 40n1.
- 47 P. Gay, Freud: A Life for our Time (New York, 1988), 67.
- 48 Olender, "Aspects of Baubo" and plates.
- H. Diels made the identification in "Arcana cerealia," 3–14, in *Miscellanea di* archeologia, storia e filologia dedicata al Professore A. Salinas (Palermo, 1907); on Baubo see further A.N. Athanassakis, "Music and ritual in primitive Eleusis," *Platon* 28 (1976): 86–105; Burkert, *Greek Religion*, 368; G. Devereux, *Baubo: La vulve mythique* (Paris, 1983); Graf, *Eleusis und die orphische Dichtung Athens in vorhellenistischer Zeit* (Berlin, 1974), 169, 171; C.A. Lobeck, *Aglaophamus sive de Theologiae Mysticae Graecorum Causis*, 3 vols. (Konigsberg, 1829); Olender, "Aspects of Baubo."
- 50 Olender, "Aspects of Baubo," suggests another explanation, associated with nursing an infant: 97–99 and references.
- 51 Graf, *Eleusis*, 169, 195; Olender, "Aspects of Baubo," 93–95.
- 52 On The Virtue of Women, 5.9 = Moralia, 532f.
- From Anne Carson, *Glass, Irony, and God* (New York: New Directions, 1995), incorporating section titles from the version published in *Resources for Feminist Research* 23, no. 3 (Fall 1994): 24–31. Used by permission of the publisher.

8

All Sound Is Queer

Drew Daniel

A scholar of early modern English literature and culture, Drew Daniel is also one half of the electronic music duo Matmos, which formed in San Francisco in the mid-1990s. In Matmos, Daniel and his partner M.C. Schmidt create electronic pop using the strategies of musique concrète, building tracks from the sampled sounds of liposuction surgery, amplified crayfish nerve tissue, washing machines, and various everyday objects. The duo has collaborated with Björk, Terry Riley, Marina Abramovic, Daria Martin, Zeena Parkins, and others. Matmos' 2006 record The Rose Has Teeth in the Mouth of a Beast consists of ten tracks, each dedicated to a prominent gay or lesbian figure. In this essay, however, Daniel argues that no musical genre, song, or track can be adequately termed "queer," and that what is "queer" is not music but "the sound of the world" its inhuman alterity.

Three queers walk into a bar. The bar is The Eagle, a leather bar on the fringe of what used to be Manhattan's meatpacking district, now the site of yet more luxury condos for the hedge fund elite. It's Friday night on "Black Party" weekend, a circuit party for the muscle-and-amphetamines set. Queer A is transgender, never goes to gay bars, nervous as they obviously don't fit in, but giddy and curious, happy to encounter the sheer exoticism of this over the top macho environment. Queer B, in tweeds, is here under duress, actively disliking the bearded, shirtless, beerswilling demographic. Queer C is me, not hairy enough to be a bear, nor muscular enough to be a gym queen, but down with sleazy cruising. Waiting to check our coats, we all hear the same song: Lil' Louis' "French Kiss," a House track from 1989 that syncs a dramatic tempo drop to a female orgasm that grinds downwards to a brain-erasing *petite mort* of pure pleasure and then, basking in the afterglow, ramps back up to speed again. It's the sort of "classic" that you can't not know if you're a faggot of a certain age. Its presence here is no accident. This must be the place. They're playing our song.

Identitarian gay pride based musical discourse would fasten upon this

moment as an example of the way that sexuality and music intertwine to make community and belonging possible, and it would afford a political pay-off to the powerfully binding force of such emotional attachments. Subcultures can "adopt" mainstream artists or underground anthems and love them with a fanaticism that supposedly transubstantiates fandom into a kind of passionately vicarious self-expression, creating human connections across networks mediated by commodities like recordings. It's an often-told story, from opera queens loving Maria Callas to showtune queens loving Judy Garland to 1980s pop fans loving Madonna to baby dykes loving Bikini Kill to the countless queer fans of the present moment being told to find-or perhaps even finding-ratification in episodes of Glee or YouTube clips of Lady Gaga. Pop music approaches its listeners with The Velvet Underground's promise in mind: "I'll Be Your Mirror." Buying into this fantasy, we are asked to see and hear ourselves within the scenarios and implied identities that "our" music affords: shelter from misunderstanding, inclusion in a tribe, recognition, affirmation. Given the actively homophobic, or merely drab and exploitive, environment in which so many queers live and work and struggle alongside everybody else, it's no surprise that there are plenty of people eager to invest in such deeply pleasurable virtual acts of communion. For better and for worse, the shared experience of pop music can create a "we" within which to party, cruise, hook up, let off steam, organize, network, protect, include. Or at least it is supposed to do that.

But a funny thing happened as we waited in line to check our coats: friction. The experience of being met at the door by Lil' Louis was meant to be welcoming, the first familiar caress of a night of debauchery, a way to get everyone to come together. It didn't click. It didn't bring A, B, and C together as "gay men" or as "queers." We weren't united. Feeling caught out there by cliche as I enjoyed a guilty pleasure, I was struck by the jarring distance between the female orgasm of the song and the hypermacho setting in which it played. Was it here to remind us that we were supposed to be men, or to perfume the shame of an imagined inward femininity that everyone's muscled and tattooed bodies were meant to disavow? Not worrying about such things, A just chuckled at the song's playedoutness. Straight-up offended, B voiced his hatred of House music as the de facto genre that gay men are simply assumed to enjoy. What we shared then as three queers hearing a House anthem in a safe space was ... nothing. The implied community supposedly generated at the crossing of

queerness and music is contentious and perhaps illusory, and only ever happens as a virtual force field of antagonisms between pleasure and boredom, familiarity and surprise, inclusion and exclusion.

At its worst and most alienating, the experience of music generates not belonging, not identity, not community, but an oppressive experience that another "Lil' Louis," French Marxist philosopher Louis Althusser, termed "hailing."¹ His off-cited example is the cop on the street who calls out: "Hey you!" In so doing, our identities are conferred upon us and reinforced, kept legible, open to being offered for inspection to the relevant authorities. Whether we are eagerly customizing our Facebook profile or waiting in the queue for a passport, we are all good subjects in the capitalist subject-machine. Like the policeman calling us out on the street, the presentation of House music in gay bars performs a similar function of social subjection: Hey you! You are this kind of person! This is your music! The obligation to "Enjoy!" is the ceaseless imperative of the culture industry and its subcultural variants. There are all sorts of places to go and people to be, but so long as one is not free not to be "someone," there is really nowhere else to go, and no one worth being.

Identity is normative: you are a this, I am a that. The identity politics of the 1990s in particular were about claiming visibility, becoming identifiable, standing up and being counted, being recognized by implicit watchers, overseers and media outlets. Above all, seeing and being seen is politics as usual. Which is why the bagging and tagging of identities on behalf of a celebration of difference is a dead end. Celebrating gay and lesbian difference offers no real alternative to a dominant neoliberal capitalist democratic culture that is only too happy to reinforce, include and cater to them all as a dutiful rainbow coalition of subject-consumers. Which is what makes hearing sound, rather than being hailed by music, so powerfully odd and so potentially "queer."

By contrast to vision, sound queers identity and in the process offers a way out of the hailing game. It does so by being an involuntary solvent of the self. As everyone knows, you cannot close your ears. Going further than most, Jacques Lacan declares that we cannot even fantasize an alternative: "In the field of the unconscious, the ears are the only orifice that cannot be closed."² The promiscuous openness of the ear, a hole that takes all comers, means that we as living systems are open to and invaded by the world. Sound queers the self/world boundary, all day, every day. It blurs the edges of any self that the subject-machine cares to hail; even in

the midst of "Hey you, here's your House music," there are other noises afoot, other sounds playing, other ways to become something more or less than one more obedient minority subject.

Which is why talk about gays and lesbians in music ought to productively shift towards the queerness of sound itself, as both an agent and a solvent of the political experience of antagonism encountered when hailing fails and the promise of gay community peters out. Sound—*not music but sound*—can let us hear what is not yet locatable on the available maps of identity. Hearing the queerness of sound might help us echolocate the edges of subjection and encounter everything that stands outside the hailing process.

The sound of the world

All sound is queer. The "all" means: any, and each, and their endless summation, the sound of the world. To hear this sound is to become queered. This is the lesson we are taught in "The House of Sounds," a short story written by West Indian pulp author M.P. Shiel in the 1920s. Here is its opening paragraph:

A good many years ago, when a young man, a student in Paris, I knew the great Carot, and witnessed by his side many of those cases of mind-malady, in the analysis of which he was such a master. I remember one little maid of the Marais who, until the age of nine, did not differ from her playmates; but one night, lying abed, she whispered into her mother's ear: "Mama, can you not hear *the sound of the world*?" It appears that her geography had just taught her that our globe reels with an enormous velocity on an orbit about the sun; and this sound of the world of hers was merely a murmur in the ear, heard in the silence of the night. Within six months, she was as mad as a March-hare.³

A queer story, this. For what is this openness to the tune and tone of experience, a twist inspiring horror and confusion in the bystanders who represent the productive adult world, if not a kind of audio-orientation, a sonosexuality? To hear "too much," to hear what is "too quiet," to claim to hear what we all know is not there to be heard, is to be cut off from the human community. And yet that occurs not as a flight from the world, but as a flight *into* the world, a tunneling into the telluric grounding of the ultimate Earth, the subtone of planetary hum. Heard in this way, Shiel's sound of the world seems somehow both entirely everyday and yet

inhuman, dangerous, seductive and alien.

We can hear the unacknowledged "sound of the world" as many things. Perhaps it is the grinding daily rhythm of alienated labor in the streets and the factories and the casual temporary contracts of the quasi-employed, the ongoing hum and hiss of capital that the prevailing "distribution of the sensible"—to use the formulation of Jacques Rancière—encourages us to tune out and ignore.⁴ Now, after the bubble and the crash, do we even know what work sounds like?

If music has served to distract us from work, it has also tried to help us hear the sound of work in a new way. It's rarely quitting time for the musical citation of labor: the ship engine sequence in Fred Astaire's 1937 film Shall We Dance offers a heavily swung and highly influential fantasy of obedience, while the metallurgical hammering of Kollaps-era Einsturzende Neubauten (1981) brings the Sturm und Drang; Annie Gosfield's ensemble work for industrial materials Flying Sparks And Heavy Machinery (1999) zooms in upon the material space of work itself; while the rhythmic labors of the workers in the factory scenes in Björk's music for Lars von Trier's 2000 film Dancer In The Dark are made critically complicit in the musical escape fantasy of job-as-song/song-asjob. Working the other side of the street, the all-singing, all-dancing workforce of the Brighton-to-Broadway musical theatre franchise Stomp! grin while they grind, sweeping up ad nauseam for weary tourists. Work is ongoing, all-consuming, yet-mostly-outside the range of what shows up for us as a sound worth hearing. Work is that which we know exists and which supports us or eludes us endlessly, but which we either silence and disavow utterly, or render quaint by harvesting it as a compositional resource.

But then again, "the sound of the world" might also be the sound of sex. The question of how sexuality can be directly captured as sound is fraught with the basic problem of where one would delimit the boundaries of such an elastic term in the first place. Is there a queer pitch to be heard in the synthesized blurs of Coil, in the tangy alternate tunings of Lou Harrison or Harry Partch? Is there a sexuality to the care with which Joe Meek miked his vocalists, or the way John Cage plucked the needles of a cactus? Or the cries and moans of aktionist Noise performer Sudden Infant? Or does real sex have to be involved? And what would make sex finally "real," anyway? Listening to John Duncan's infamous "Blind Date," an audio document of an act of necrophilia supposedly committed in Mexico in

1980 and released on the Pleasure-Escape cassette in 1984, offers a usefully extreme case in point: one cannot co-sign or verify anything other than the pressure of one's knowledge about its context onto the signal in question. Is this what necrophilia sounds like? Or is it the sound of someone rummaging in a pi le of clothing and having a good laugh at the listener's expense? On the other end of the vérité spectrum, the falsification of live, consensual acts of carnal pleasure is an instantly familiar cliche that sutures together the breakdowns of Led Zeppelin's "Whole Lotta Love" (1969), Serge Gainsbourg's "Je T'aime ... Moi Non Plus" (1969), Donna Summer's "Love To Love You Baby" (1975), Throbbing Gristle's "Catholic Sex" (1981), Venetian Snares & Hecate's Nymphomatriarch (2003)and countless other orgasm-as-audio experiences.

Quite simply, the implicit epistemological doubt about the fakery of vocally sounded orgasm troubles every moment of seemingly obvious sexsound with the shadow of artificiality. Inner and outer vibrations might correspond, but they might not. The recording moment promises to pin its object securely to our ears, but that very fidelity is haunted by the transcendental failure of sound to verifiably align itself with the signs we use to describe it. This possibility of betrayal, always open, never sure, constitutes the queerness of the sonic—its failure to show up, reliably, as "sex." And that too undoes the theory that "the sound of the world" the little girl hears is, really, the sound of sexuality erupting.

Let us take the speculative thrusts and thought experiments of "weird fiction" and science fiction at their word. What if the capacity to hear the sound of the world is neither the effect of the repression of work nor the effect of the repression of sex, but something else: what if there really is something there, that we are trained to ignore? Describing his attacks of precognitive psychic ability, the narrator of George Eliot's supernatural novella *The Lifted Veil* chimes in: "It was like a preternaturally heightened sense of hearing, making audible to one a roar of sound where others find perfect stillness."⁵ Shiel's little girl or Eliot's psychic medium are not particular cases, mad as March hares, but people who have failed to accede to the prevalent distribution of the sensible, and so attain and access the sound of the world itself, potentially open to all. Who are we to disavow what they hear?

What these examples from literature, film and music collectively demonstrate is the territorializing force of human language and human knowledge upon the raw, inhuman fact of sound as a vibrational force. To hear the sound of the world as capital, to hear the sound of the world as sexuality, even to hear the sound of the world as the a-signifying outburst of the inhuman real, in each case presupposes a certain stance towards the sonic, a conceptual a priori that leans into sound in search of a meaning, a thrust, a tint, a fundamental frequency. It's a neat little feedback loop, a vicious circle: perception produces knowledge, and knowledge filters perception. I can't hear the world turning until I know that the world turns; but once I know the world turns and claim to hear that fact, questions emerge: am I hearing my mind, the world, or some misleading combination of the two? To hear and "to know what one hears" are in a constant battle for priority, and there is no possible neutrality here. The world makes a sound as it turns or it does not. There is something to hear or there is not.

But how would we know? And how might an attachment to "knowing," to the secure grounding of verification and proof, itself constitute a way of protecting ourselves from the queer surrender of simply listening to the voices of those who testify to the theft of their labor or listening to the voices of those who testify to the pleasures of their bodies or the queer surrender of simply letting the vibrational forces of the world enter us? These are queer stories not because they recount a momentary realization that isolates a young person from their playmates with the stigma of difference, and thus resemble the basic "coming out" narrative (though they do resemble that). Rather, they are "queer" because all sound is queer, and the fact of the sound of the world—its universality, not its difference -ruptures the commonsense of normative, "straight" life. It is in the recalcitrance of its universal and inhuman force that the insistent queerness of sound might offer a resource for politics and a challenge to aesthetics. Could a new art and a new politics instruct us to listen harder and better? To stand at odds with the expectations that tend to govern this very magazine and its readership, might that listening require us to listen more, yet, perversely, to know less about what we encounter? Conversely, might listening to and for this universally available yet elusive sound of the world occasion a redistribution of the sensible, and, with it, a differently oriented art practice and a keener sense of political hearing?

A collective screaming

Against this opportunity, there stands an army of hypermobile counterforces, seductive cottonballs that stuff the ears and dull the edge of what sound offers. They're called words, and I, too, dislike them. Sound is a given material plenum of vibration, an unbroken and continuous surge of turbulent information and noise, always there; a cascade of neverending waveforms, subject to change, part of a continuum of vibration that precedes and exceeds the spectrum of audibility. Pulling in and out of range, breaking and building bonds in the process, sound claims us. But as we know and name, we tame the queerness of sound with nominalist labels that partition and de-intensify the raw queerness of the sonic on behalf of the empire of signs. Here sound turns against itself, the partitioned sound-symbolsigns replacing and effacing the flow of the sonic.

But queer encounters with sound still happen. In the night, I am roused from dreams by a collective screaming. The night is torn by cries that pour forth from a permeable darkness. Where do these hidden choruses begin? Who makes up the we in which I am now entangled against my will? Pulling at the curtains to look out into the street, I see that the bare tree in front of the hospital suddenly has leaves again. Adjusting, coming back to consciousness, I look again and see that they are not leaves, but gigantic crows, whose croaks and shrieks have stopped me from sleeping again. Of course, it's only the birds. The sound of the world shrinks back, tamed, relocated within a bestiary, taxonomised, found.

My attempt to sleep is a withdrawal into a privacy of self-ownership in violation of the porosity of the body to its world, a little nocturnal secession from participation, which these masterless and inhuman ambassadors from the plenitude of sound have summarily revoked. Without consent and in despite of the economically and politically defined property rights that would delineate what is my own and protect me from such invasion and violation, I have been included in the sound of crows in the night, enlisted into the murder in my midst. The indifference of animal being to my desires puts us into a partnership without community. We have nothing in common, yet here we are, together in the night, sounder and sounded.

It had to happen, both the release of sound and its capture into the sign. As I see and recognise and know and name the mysterious screaming as "crow sound," I become a second Adam, asserting dominion over creation through the sorrowful descent into language. But I wish to rewind to the moment of confusion, the primordial chaos in which the sound is within me and I am ignorant, in the dark, traversed by vibrations I cannot yet place, cannot yet hear as the sound of crows; to a moment of knowledge to come, which opens out a potentiality contained in Steve Goodman's purloined translation of Spinoza and Deleuze: "We do not yet know what a sonic body can do."⁶ What can be made portable from that moment on behalf of a queer politics and a queer aesthetics of listening to and with the world? When faced with the hailing call of "French Kiss" at The Eagle's door, could it be as simple as cracking open a window to let the crows in to disrupt its House music and identity-politics- as-usual with a multi-species "Parliament Of Fowls" of their own? Less bears, more birds?

not talking about top-down form am a of charitably anthropomorphizing solidarity sealed by my electing to speak for or with magnanimously broadening the scene of political thus crows, representation across the species barrier. The crows do not seek the vote, nor have they asked if I care to hear their screams, nor do I acquire some honorific new status as their insomniac eavesdropper. They too live within the city, and their sounds in the night obnoxiously insist upon their presence, without regard, referendum or respite. In the spirit of Jane Bennett's Vibrant Matter: A Political Ecology Of Things, I have in mind a chastening encounter with the minimal political agency of the crows as my neighbors along an ever expanding rollcall of vital materialist presence with in the city. The sonic disruption of crow-sound can reshuffle who appears within that community, but it can also fail to have any other effect whatsoever beyond its own dissemination into space. Thus its virulent queerness.

We can hear this sound of non-communication and purposelessness in an ironic moment of failed animal mimicry: the climax of Josef von Sternberg's 1930 film *The Blue Angel*, when Emil Jannings as Professor Immanuel Rath reaches his rock bottom of degradation and madness, and, now turned clown, is pressed into service as a human sound effect by his mocking employers. Expected to go "cock-a-doodle doo" at a precise point in a skit put on for his former colleagues, Rath/Jannings erupts instead with a hideously inhuman gargle, a grating outburst that leaps past any particular emotion and achieves a kind of ur-sound of pure affective charge. To be sure, one could claim that this sound above all is saturated with plot significance: it is the character-driven expression of his impotent rage at being cuckolded by Lola (Marlene Dietrich). But if we hear it as raw sound intruding into the texture of the film, this noise manifests a pure sonic expression that goes beyond even the timbre/music borderline phenomena that Roland Barthes termed "the grain of the voice."⁷

Barthes, alert to the point of contact between music and language, sought to redefine what would count as the "musical object" in the first place—and in his analysis of operatic voices he coined the distinction between "pheno-song" and "geno-song" to capture minute shades of distinction in musical performances. But to capture the point at which Emil Jannings' throat queerly opens onto the ragged terrain of something that isn't culturally specific or even species-specific, we shall have to abandon music in favor of the sonic as such. Instead of the vowels and phonemes of this or that language, when we hear Jannings's human bird call we hear something beyond emotion, language and humanity: the material sound of air ferociously barked out of a tube of quivering flesh.

Of course, animal practices of soundmaking are not in any sense purposeless: signals warn of the approach of predators, announce one's presence for mating purposes, rebound upon space as part of an echolocation system, mimic the sound of a more successful organism, and so on. Living systems that eat, mate and predate upon others are hardly indifferent. Even a cursory listen to the sounds of vultures feeding on a dead zebra captured on Chris Watson's Outside the Circle of Fire (1998) or the sounds of Weddell seal mothers nurturing their pups in Douglas Quin's Antarctica (1998) will convey the intentionality of animal soundmaking on its own intimate terms. But it is even here that "the sonic" as a manifold detaches from its causal connections to sources in intentional performances from interested parties, human, animal or otherwise. The sound of the world can be a truck passing by, a parade of drunken frat boys, tree branches twisting in the wind, the settling of leaves upon themselves, the crush of contrary air currents within the clouds; or it can be the nameless, colorless, ambient drone of a nonspecific continuum of animate and inanimate matter expressing nothing but its own being. Sound stands aside from the purposes and aims that occasion its production. It is indifferent, universal and queer.

Going further, practices of recording, archiving and storage, in severing that immanent occasion from its audio outcome, render everything potentially "acousmatic," autonomous, adrift. You only need to break the linguistic bond of referentiality that ties source to waveform. Consider how the Dalmatian fishing village immortalized in Luc Ferrari's *Presque Rien* (1970), or the desert insect preserved within Hildegard Westerkamp's

Cricket Voice (1987) would sound if they were robbed of their respective signifiers of "village" and "insect," and were instead set free to be themselves prior to identification, prior to their entirely justified canonisation as enduring classics of sound art annexed to an ecology of preservation.

Queerness abides in the refusal to preserve, in the willingness to enter the space of ruinous, risky anonymity, to let sound pull us with it into the black hole of an experience that is not yet stable. No fixed coordinates to locate us in geopolitical space, no identifiable genus and species left to taxonomize. Where the labels come off and the designation of particularity ends and the sound of the world subsumes and dissolves, the queer universality of sound makes itself available to thought, not as some ineffable audio-mysticism, but as the way we already hear, all day and all night long.

Purposeless indifference to production would then be one of the hallmarks of the queerness of the sonic in itself, an orthogonal digression from intentionality and subjectivity that Alain Badiou calls, in the second of his "Fifteen Theses on Contemporary Art," "the impersonal production of a truth that is addressed to everyone."8 At once micro and macro, the sound of the world turning resonates and resounds whether you are listening or not, and it is addressed to all. A vibrational ontology manifests the oscillations and Lucretian swerves of material being, whether you have ears to hear it or not. You don't need to know what you are hearing to be moved, even changed, by what you hear. Sometimes, this purposelessness emerges for someone who detects its very transience and is changed by the sheer fact of passage. In Nietzsche, Zarathustra's Convalescent attests to this as sound momentarily upstages self: "For me-how could there be something outside me? There is no outside! But we forget this with all sounds; how lovely it is that we forget! ... In every Instant being begins; round every Here rolls the ball. There. The middle is everywhere."9

Sound intrudes upon us with the fact of the world, an intrusion that affords us the possibility of forgetting our "me-ist" attachments to our subjective particularity and affiliation and instead forces us to register the everywhere of an ongoing being, an outside where we thought there was no outside. Yet it is this recognition of an outside that, as it becomes transmissible and shareable, might also constitute our human community as precisely the queer indifference of having nothing in common.

Sound, the confusing eruption of the sonic into our life, can reinforce

our privacy, our alone-ness. But it is also shared and shareable, and thus makes possible a certain kind of collectivity, or better, a perceptual community that we share by remaining perpetually open to the world beyond that community. Sound constitutes a common "pluriverse" for its auditory recipients, who partition and co-create that world through sonic practices of spoken language and music making. Yet the capacity of sound to exceed the human, in its ongoing expansion of frequencies above and below the human thresholds of 20 to 20,000 Hz, also manifests a purposeless surplus, a superabundance, an inhuman exteriority that precedes that world and resists capture in the terms set by human hearing. Heard beyond its own bounds, this pervasive and non-specific sound of the world signals a grounding material indifference that potentially breaks mind-dependent phenomenological scenarios upon a hard kernel of the real. Thus, community is both the positive assemblage of partitionings made within the sound-plenum by the total set of actors included within it (human beings, citizens, slaves, immigrants, corporate advertising, sound art), and a nihilistic exposure to a sonic remainder that is indifferent to those partitions, folds and forms (crows, planets, magnetic resonance, VLF interference generated by weather phenomena, and, yes, that old standby of philosophical smalltalk, the tree in the forest that falls with no one to hear it).

Having reached the widest possible theoretical bandwidth and the lowest common denominator in a single bound, let's return to the gay bar in which Lil' Louis' "French Kiss" plays on. How might a capacity to listen out for the sound of the world obtain here? Is there something not just reassuringly gay but indifferently queer about this overcoded anthem? Must we abandon the pleasurable familiarity of this dancefloor chestnut in order to hear the sound of the world that supposedly lies beyond or behind it? The risk of arguments such as the one I have been pursuing is that it will be misunderstood as a transcendental declaration of a somewhere else and a something else always better than the limited and oppressive world of music and the cultures of human knowledge that contain, capture and domesticate the raw queerness of sound. Like all transcendental arguments, this can have the effect of soiling and rejecting what we have all around us in favor of an "elsewhere," a heavenly domain of purity, which we cannot really access, except in traumatic and exciting flashes of insight.

But music too is part of the sound of the world. Human making and

human knowing fall within the open, endlessly plural totality of the world, and it too can show up as queer for us, queer in its articulation of material being, in its fusion of what is human with what merely is. There is, then, a latent inhumanity within even the human, which is not the fact of our moral failing but the fact of our sheer materiality, our continuity with the world we use and change. As Jane Bennett points out in Vibrant Matter: A Political Ecology of Things with reference to our carbon composition, "we are walking, talking minerals."¹⁰ That is what links the grinding tectonic plates that generate the sound of the world for M.P. Shiel's little girl with the grain of the voice in Emil Jannings' bird-croak with the grain of the voice in the orgasmic moans of Shawn Christopher, the vocalist on "French Kiss." Even her histrionic and theatrical cries of passion are just so much air shoved through a tube of meat within the world, and the magical synchronization of her moans and sighs with the ramping down and ramping up of the tempo of the drum machine embodies a kind of synthetic silicon/flesh interface that dissolves their boundaries. Beyond sexual difference, the song registers an even deeper ontological continuum between stomping drum machine and climaxing human being, suggesting that the electrons pulsing through circuitry in the drum machine and the neurons firing in the ganglia of Shawn Christopher's brain are somehow the same, deep down, in their essential physical reality as electromagnetic charge. To take up a buzzword much bandied about within recent metaphysics in the wake of Bruno Latour and Graham Harman, humans and machines are all located within a "flat ontology," a continuum of being that levels distinctions of what is more or less important, more or less actualized, by advocating for what Levi Bryant terms "the democracy of objects" within a "pluriverse" of worlds.¹¹

Sound is queer because this continuum of being is, in its very indifference to human agendas of valuation, already queer. All sound is queer because the world itself is queer. The totality of vibrational force is not a deep secret hiding at the margins but, exactly, a totality that includes everything we as humans do. Accordingly, the choice between listening to Lil' Louis or "the sound of the world" is, at the very least, a false one. Here history has the last laugh. "Club Lonely," the follow up single to "French Kiss," is credited not to Lil' Louis, but to Lil' Louis & The World.

- Louis Althusser, "Ideology and Ideological State Apparatuses," in *Lenin and Philosophy and Other Essays*, trans. Ben Brewster (London: New Left Books, 1971).
- 2 Jacques Lacan, *The Four Fundamental Concepts of Psychoanalysis*, ed. Jacques-Alain Miller, trans. Alan Sheridan (New York: Norton & Co., 1998), 195.
- 3 M.P. Shiel, "The House of Sounds," in *The House of Sounds and Others*, ed. S.T. Joshi (New York: Hippocampus Press, 2005), 53.
- 4 Jacques Rancière, "The Distribution of the Sensible: Politics and Aesthetics," in *The Politics of Aesthetics*, trans. Gabriel Rockhill (London: Continuum, 2004), 19.
- 5 George Eliot, *The Lifted Veil* (Hoboken: Melville House, 2007), 31.
- 6 Steve Goodman, "Unsound—The (Sub)Politics of Frequency," *Sonic Warfare: Sound, Affect, and the Ecology of Fear* (Cambridge, MA: MIT Press, 2010), 191.
- 7 Roland Barthes, "The Grain of the Voice," *Image Music Text*, trans. Stephen Heath (London: Fontana, 1977), 181.
- 8 Alain Badiou, "Fifteen Theses on Contemporary Art," *Lacanian Ink* 22 (2003): 103–19.
- 9 Friedrich Nietzsche, "The Convalescent," *Thus Spoke Zarathustra*, trans. Adrian Del Caro (Cambridge: Cambridge University Press, 2006), 175.
- 10 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham NC: Duke University Press, 2009), 11.
- See Graham Harman, "Object-Oriented Philosophy," *Prince of Networks: Bruno Latour and Metaphysics* (Melbourne: re.press, 2009), 207; and Levi Bryant, *The Democracy of Objects* (Ann Arbor: University of Michigan Press/Open Humanities Press, 2011).
- * From *The Wire* 333 (November 2011): 42–46. Used by permission of the author.

The Quiet of Blackness: Miles Davis and John Coltrane

Kevin Quashie

In the struggle against oppression and discrimination, African-American culture has often celebrated forms of public resistance and defiance. "Say it loud, I'm black and I'm proud," sang James Brown; and Public Enemy exhorted its black audience to "Bring the Noise!" Without denying the importance of these forms of public resistance, cultural theorist Kevin Quashie worries that the prevalence of this conception of blackness has a cost, preventing us from perceiving black humanity. Quashie focuses on a very different conception of blackness that he terms "quiet." Distinct from "silence," "quiet" points to a capacious and deep inwardness, the affirmation and recognition of which is crucial to the struggle for racial justice and the understanding of black cultural production. Quashie's 2012 book The Sovereignty of Quiet develops this notion through readings of literary texts by James Baldwin, Toni Morrison, Gwendolyn Brooks, Elizabeth Alexander and others. Here, he turns his attention to music, examining the work of Miles Davis and John Coltrane—not their personalities or public personae, but "the black sonic subjectivity/possibility in their work."

The idea of quiet

I was looking for refuge in quiet, a wilderness of being. I was looking for the sovereignty I knew was mine, humanly mine, a sovereignty that was not only about control and consciousness but something more exquisite and threatening too. It, this sovereignty, was as incommensurate as was my interior.

This is the idea that animated writing about quiet as a way to think about black culture, as a notion that might help us undo the tendency to read blackness through the terms of publicness. In *The Sovereignty of Quiet: Beyond Resistance in Black Culture*, I try to make the case for quiet as a concept that could surpass the common ways we think of blackness as dramatic, expressive, or loud.¹ The problem with these qualities is not that they are wrong, per se, but that they establish an equivalence between blackness and resistance. This equivalence is widespread and dominant in

our collective imaginations, nearly totalitarian in how unconsciously it is applied. And as an uncritical frame for engaging black culture, resistance obscures the capacity to notice other features, for example interiority. So when one looks at the iconic image of Tommie Smith and John Carlos at the medal ceremony of the 1968 Mexico City Olympics, both with gloved fists in the air, one misses that their heads are bowed as well as what the bowed head might mean conceptually. For me, it is interiority that is signaled in the photographs from that moment: that I notice the supremacy of Smith and Carlos' humanity, on display but not fully rendered by display. A quiet, a capaciousness and wildness of being; wonder and trembling at what is unknown and unknowable.

So I use this moment, this quiet that is embedded in Smith and Carlos' profoundly public and political moment, to try to think about interiority as a way to reframe how we read black culture. And the idea of quiet here is not about behavior or (in)action, but is instead a metaphor for the inner life. Interiority is hard to describe, though it is generically the quality of being inward. This notion of inwardness is apt for thinking about "life and creativity beyond the public face of stereotype and limited imagination," all the chaotic and creative energies that shape one's human self, that expansive range of feelings and desires and capacities that are beyond one's control but that alight everything.² And to avoid the conflation of the interiority is expressive—that what is of one's interior informs the social world and also is impacted by the social, though sociality does not overdetermine the interior. The interior has an indescribable integrity—maybe even integrities—a sovereignty of its own.

Quiet, then, is the term I use to conceptualize interiority as well as the expressive capacity of the interior. In this way, quiet is not a synonym for silence, since the expressiveness of quiet is not about withholding or delay or performativity. That is, the expressiveness of silence is often dependent on an audience for meaning, in awareness of or in reaction to an audience. And even as there are other understandings of silence that are kin to my thinking about quiet, I want to avoid the noisiness of silence's connotations especially in regard to thinking about blackness and expressivity.

The case for quiet is about (re)reading black culture, about aesthetics and form, but it is also about ontology—I am trying to confront the antiblack legacy of the modern and colonial imagination where black people are figured as nonbeing. This figuring is consonant with the exclusion of interiority as a feature of black humanity—or at least as a feature of how we think and talk about and characterize blackness. Because, it must be said over again: inside every black person is aliveness, the wildness of the interior, this chaotic full-world of being that animates everything; of every person who is black, is human being-ness, regardless of the enduring afterlife of the idea of nonbeing.³

Black men and quiet

It is striking that I start the thinking on quiet with Smith and Carlos, two black men in an iconic register, and that now I want to think about two other iconic black men from the same decade: Miles Davis and John Coltrane. What makes this striking is that the notion of quiet comes from my study of black women's work—from the ways in which many black female artists and writers explore subjectivity beyond the idiom of resistance, their investment in representing the capaciousness of black being and in which I found solace and deep intelligence.⁴ Of course it is not inconsistent to think about black maleness through an idea that comes out of this studying, since the intelligence of black women's thinking is of all of us, black us.

The easy link to quiet might be to read the stage persona of Coltrane and especially Davis, almost as a parallel to Smith and Carlos' iconic moment. But in doing this, I would be reducing quiet to performative embodiment, to the idea of black mysteriousness or inscrutability that is so prevalent in American (entertainment) culture. This idiom of inscrutability is of blackness as a location of white negotiation, fascination, and transcendence. The examples here are plentiful, of black femaleness as that which is exotic, foreign, repulsive, exceptional, crazy, perhaps most centrally rendered in the terrible story of Saartije (Sarah) Baartman and the idiom of the Venus Hottentot, or, more relevant to jazz, of the ways we think of and want to consume Nina Simone or Billie Holiday. This conceit is familiar, too, in conceptualizations of black maleness, especially the idiom of cool and that of the bad Negro, both of which coalesce in how we idealize the black jazz man.⁵

The legacy of thinking about black male jazz-ness through cool and through mystery is troubling, since it is consonant with the racist project. The writer Toni Morrison offers a telling example in her long essay Playing in the Dark: Whiteness and the Literary Imagination, a work that explores how white American writers used blackness as a site for figuring humanity exclusively. In the preface, Morrison narrates her encounter reading Marie Cardinal's autobiographical novel The Words to Say It where Cardinal "document[s] her madness, her therapy, and the complicated process of healing in language as exact and as evocative as possible in order to make both her experience and her understanding of it accessible to a stranger."⁶ As she reads this unusual book, Morrison wonders about the precise moment when Cardinal knew she was in trouble: "What was the narrative moment, the specular even spectacular scene that convinced her that she was in danger of collapse?"⁷ Soon enough, Cardinal describes just this moment, her first anxiety attack that happens during a Louis Armstrong concert. The passage from Cardinal is stunning and perceptive, as she writes about the moment: "The sounds of the trumpet sometimes piled up together, fusing a new musical base, a sort of matrix which gave birth to one precise, unique note, tracing a sound whose path was almost painful, so absolutely necessary had its equilibrium and duration become; it tore at the nerves of those who followed it." As the music's texture expands, so does the intensity of Cardinal's being, the ecstatic confrontation "compressing [her] lungs so the air could no longer enter them": "Gripped by panic at the idea of dying there in the middle of spasms, stomping feet, and the crowd howling, I ran into the street like someone possessed."⁸ Morrison is captured by this moment, wonders just what Armstrong was playing that night. And her wonderment is not only in regard to Cardinal's precise characterization of what music can do but also the fact that Cardinal's sense of being destroyed is couched in a way that showcases something familiar about the use of blackness:

Unbearable equilibrium and duration; nerve-wracking balance and permanence. These are wonderful tropes for the illness that was breaking up Cardinal's life. Would an Edith Piaf concert or a Dvorak composition have had the same effect? Certainly either could have. What solicited my attention was whether the cultural associations of jazz were as important to Cardinal's "possession" as were its intellectual foundations. I was interested, as I had been for a long time, in the way black people ignite critical moments of discovery or change or emphasis in literature not written by them.⁹

This astuteness from Morrison captures the historic way that blackness functions as a sign of being for the other, that is, not a sign of black being but of the site and place of an encounter for the white subject. Morrison's insight is appropriate for thinking about the semiotics of that sign—a black man playing jazz—and the potency it holds seemingly for everyone but the player himself. As scholar Francesca Royster writes in *Sounding Like a No-No*: "The marketing of the black male performer has often favored an aesthetic of cool: distanced, beyond being affected by others, exemplified by Miles Davis, back turned away from the audience, and Savion Glover's unsmiling face as he does hip-hop soft shoe."¹⁰ So it is vital to be clear that this performative aesthetic is not the idiom of quiet I mean. This coolness is more akin to being aware, even hyper-aware, of an audience and of being watched. Surely the performer in that moment of cool-pose has an inner life that might be read through performativity, but I am not interested in this. Coolness, too, becomes a part of a mythos that is troubling in its authorization of a certain kind of black masculinity, which is the case if one thinks of Davis' history with violence towards women.¹¹

If quiet is about mystery, it is human mystery, what is incommensurate about life and the social identities we are conscripted to live by. Indeed part of the excellence of Farah Griffin's enduringly important book on Billie Holiday, If You Can't Be Free, Be a Mystery, is that Griffin recasts the idiom of mysteriousness as a cloak against our misreadings of Holiday, a way to return to this black woman the human right to be unknowable. (Part of this recasting, is Griffin's demand that we read Holiday's work rather than only reading the narrations of her life gone awry.) Similarly, I am not interested in Davis himself, or Coltrane either-I am not attracted their public personas; I am interested in the black sonic to subjectivity/possibility in their work. I am interested in their quiet sound, the way in which their sound practice points to something illegible, something interior, something inconsistent with the construction of blackness as rendered in the horror of white imagination, or with blackness as recuperative expressiveness that takes on this horrible. What I want to consider is quiet as a register of something else, a gesture toward the inner life and its meaningfulness to thinking about the expressiveness in Davis' and Coltrane's work.

After much delay, Miles Davis

So far this essay has only touched on the edge of what its title promises, a consideration of Miles Davis and John Coltrane through an idiom of quiet.

The delay is not accidental, since I wanted to try to set a context for the reading that might expand the enduring discourses around these two artists. In truth, I wanted to avoid display since display is so integral to the meaning of race and the logics of racism. And even if this attempt at avoidance was futile, it was important to enact delay.

It is In a Silent Way that seems most apt for exploring Miles Davis' work through the idea of quiet as an aesthetic. Released in 1969, In a Silent Way is noted as an experimental album, a nod to rock music with its prominent use of electric guitars. The album is a mix of atmospheric and rhythmic ambience over the course of two compositions, one on each side of the physical record. Its first track, "Shhh/Peaceful," is eighteen minutes long and though it is listed as two pieces, the album titles it as three sketches: "Shhh," "Peaceful," and the reprisal of "Shhh," each of nearly equal length. "Shhh/Peaceful" opens with an organ's deep strumming, a clarion note that, rather than being staccato, is sustained, continuous, trembling sound. This organ benediction is followed immediately by a hihat snare that is such a staunch rhythm that it nearly predicts the structural sublimity of the "Theme from Shaft." It is this riff, a hi-hat steadiness and a two-tone bass beat that will repeat throughout the full composition and that is resonant of Davis' modal work on Kind of Blue, though here, on In a Silent Way, the music is far more chaotic and not at all "heroic," as Phil Freeman terms it.¹² Freeman is right, since if one is listening through a modal aesthetic, one expects the track to unfurl and then to swagger into something, something bigger or shocking—especially for the bassline to run wild and take the rest of the track with it. But that never happens. There is a little flourished pattering of the bass in "Peaceful," but all three sketches stay in the space of the experiment. As Freeman writes,

If [Tony] Williams [on drums] had cut loose, even a little, "Shhh/Peaceful" would have been an entirely different kind of music. The electric pianos and organ, rippling the air and dancing with one another, would have seemed like they were actually going somewhere, instead of *hovering, cloudlike*. Dave Holland's basslines would have felt more active. But because (one must assume) Miles had told Williams not to let the groove explode, the track never breaks free, either. It *shimmers in place*, like a distant flickering light seen through a moonlit fog.¹³

I love Freeman's characterization of this hovering quality since it captures the ambient aesthetic on the album, the sense of something present that is vital and moving but without the full rage of singular force
and rupture. Again, not heroic. And it is here that it is possible to think about quiet, about the illegibility to be had in sound piled on sound, and repeated over and over as a hovering sequence. Indeed if the track titles are any insight, we are being reminded to go beneath the expressive register of speaking and are being shushed in preparation for another kind of hearing.

I didn't want to come to the album's title so soon but it is singularly instructive since it moves against the yearning for something dramatic. What Davis is offering on In a Silent Way is the capacity for wandering for experiment—that is underneath the sound. If this reading is apt, then it is the second composition, the three-part but doubly named "In a Silent Way/It's About That Time," that provides the best structural evidence. Here, the three tracks are more dissonant than those on side A where all three sketches were of the same relative length and tempo. Not the case on side B, where "In a Silent Way" and its reprisal are exquisite and extremely slow ballads, each about four minutes long, which is in sharp contrast to the up-tempo twelve minutes of "It's About That Time." The contrast is heightened by the fact that both iterations of "In a Silent Way" begin with pensive electric guitars played with big spaces between the moments of sound-making (notable, too, is Davis' trumpet playing that is particularly mournful, stretched out and winding up the sonic scale); and that the transition into and from the bouncy "It's About That Time" is nonexistent, just a sharp drop into its back-and-forth vibe. "It's About That Time" is almost a jam-session, and its title implies that the piece is a breakout from underneath the weight of the rest of the album. In keeping with this idea of breakout, Freeman notes the explosion of the drums about half way through the sketch:

then, out of nowhere [...] something *happens*. Catharsis arrives at last. It's not some huge thing [...]. But in light of all that's come before, the thirty-plus minutes of slowly deepening trance, one riff repeating over and over until that's all the ear/brain even registers anymore [...]. Williams actually *plays the drums* for forty-five seconds.¹⁴

Freeman concludes this passage with the assessment that "[d]espite all the album's other virtues, it's that moment that makes *In a Silent Way* worth hearing."¹⁵ It is instructive to track his logic here, since he is right about the rupture that happens on the drums though there are other ruptures before this moment, including a striking bass departure three minutes earlier, one that is dancing and rangy and that inspires a piano riff

too—this moment prefigures what Freeman names as the album's catharsis. So, in some ways, there isn't one catharsis perhaps, but many, smaller ones.

And in the face of his claim that the album is worthwhile *because* of this explosive moment, I wonder about the fact of the title, "in a silent way": In a silent way, as in a philosophy or orientation toward that which is of quiet, another habitat of being, a practice of expressiveness rendered in another idiom. I have always been compelled by the audacity that Davis' experimental album, the work that announces a shift in genre-that displays his trying on of transformation—is titled "in a silent way"; there is intelligence in the fact that his experimental gesture is tagged with an idiomatic name that can also be read as an instruction for listening. The catharsis Freeman wants might well be the kind of dynamic expressiveness or explosion that the tracks are not interested in offering. It might be hard to think of Davis (his persona) and his music in this way, especially since at times scholars compare Davis' showmanship to James Brown, that exemplar of black performativity and publicness.¹⁶ But here, on *In a Silent Way*, it is not sonic bigness that is at stake; that is, even in the midst of an experimental venture, the mode is emblematic of the title. And though my own preferred term is quiet, I read Davis' "silent" as a term that slides away from publicness into something else, another habitat that is no less lively (indeed—perhaps more alive because of its sovereignty), one that might not be easy to recognize but that is there nonetheless. It is an album of the silent, quiet wilderness.

To be supreme: John Coltrane

And perhaps this claim about Davis' album would make more sense if we think about John Coltrane, in general and then in regard to his iconic album from the 1960s, *A Love Supreme*. Note, for example that the specter of cool as a cloak that corrupts how we encounter black men—this compliment that is terror—is not necessarily descriptive of Coltrane, whose habitat of reserve is not a performative display of masculine authority and seduction, but something else: It is of wonder, capaciousness, dreaming. Spirituality. Coltrane's biography and his articulations about being an artist remind us of the pursuit that is aliveness, the intensity of wandering and of possibility, the supremacy and beauty that is there in ordinary human existence. If Coltrane's art-making (and his

living) is an ethos, as the Saint John Coltrane Church determines that it is, then its mantra might well be taken from Erykah Badu's song "Orange Moon," which alternately hums "How good it is/How good he is/How God he is."¹⁷

Released in 1965, A Love Supreme is almost singular as a devotional achievement: spiritual sequence of four parts named a "Acknowledgement," "Resolution," "Pursuance/Psalm." There is, too, the prayer poem included in the liner notes and that is performed wordlessly by the instruments-for example, the opening saxophone flourish on "Acknowledgement," a call to attention that is backgrounded by the piano, drums, gong, and timpani and which mimics the "all praise" invocation of Coltrane's note to the listener. This literal performance of the word is Coltrane's study of devotion, the supremacy of and to be had in devotion. It is not just a display of surrender, but surrender itself.¹⁸

In conceptualizing a notion of quiet, I use "surrender" to characterize the capacity and ethic of black interiority. Here surrender is a term of expressive action, which is how it signifies in religion—as a giving in or a yielding to unknowable human depth, an act which requires faith but that is also at once unsure.¹⁹ Surrender is the sonic subjectivity that is engaged on A Love Supreme: Think, first of the cover animated by Bob Thiele's striking photograph of a pensive and determined Coltrane, an image of a black man with his attention set on something not evident to the viewer. This photograph is a profile, which is the emblematic form for the social interpellation of black masculinity, though this profile seems to be in motion; that is, the angle we see of the face is not completely flat (the head is turned slightly forward so we see a little more than half of the face), which creates dimension and movement, as does his gaze which is directed off-the-page and that suggests that he is headed there, to somewhere. What is signaled by the cover, then, is the capaciousness of deep engagement, the surrendering to what is unknowable.²⁰

The cover is another rendering of the album's ethos, that quality of devotion that is notable via the instruments on "Acknowledgement" and through the other three tracks, though one could just say that nearly every aspect of *A Love Supreme* idiomizes surrender. For example, the second track is "Resolution," which seems out of sync with the trajectory of achievement (resolution, in the middle?) unless you read the word to mean commitment, as in resolve, a synonym of devotion. This seven-minute track begins with a bass interlude, a four-note simplicity that feels like

rehearsal, like trying out the scale, like dedication, followed by an explosive flourish from Coltrane's sax, ecstatic and tense to the point of screeching. As strong as melody and modality is on this song, the variety of flourishes undermines the simplicity of what it means to have resolve or to be resolved.

What follows on side B is "Pursuance," a driving, percussive study that begins with an extended drum solo and is akin to a racing heartbeat. The fury of "Pursuance" seems to just stop, eight minutes in, with a reprisal of the bass solo from the opening of "Resolution," though the solo is nearly three full minutes of slow melodic scaling. This extended wandering pulls the listener back into re-hearing the previous eight minutes, an invitation to reconsider what else might have been happening in the hot fury. And the final track, "Psalm," opens with grand shimmering cymbals, a mournful sax, and sustained sounds that create circles and circles of echoes. This track is nearly a vocalization of prayer, both the one that is in the liner notes but also the "Our Father" prayer of the Bible. Here, too, the sax, working like a singing voice, travels higher into tense screeches, more and more ecstasy. That the album ends with prayer is in keeping with my argument that prayer is a kind of quiet expressiveness which surpasses what is conscious. So A Love Supreme's pursuit of surrender and devotion -remember, this is Coltrane's gospel album, his album as gospel—is related to how it works over and through the unspeakableness of the Word. And even as the words of prayer are in the liner notes and are vocalized via the instruments, the potency extends far beyond assumed precision of language.²¹

The gospel of *A Love Supreme* echoes the capacious ethos articulated in "The Thunder, Perfect Mind" from the Nag Hammadi gnostic gospels:

I was sent forth from the power,

and I have come to those who reflect upon me,

and I have been found among those who seek after me.

Look upon me, you who reflect upon me,

and you hearers, hear me.

You who are waiting for me, take me to yourselves.

•••

For I am the first and the last.

...

For I am knowledge and ignorance.

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But I am she who exists in all fears and strength in trembling.
I am the name of the sound and the sound of the name.
I am the sign of the letter and the designation of the division.
...<sup>22</sup>
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The specificity of those lines could well serve as an evocation of the sonic subject of Coltrane's album. Indeed the last four lines quoted above are used as the epigraph to Toni Morrison's 1992 novel *Jazz*, which makes sense given how much Morrison's novel reminds us that love, prayer, and jazz are connected in practice or nature—all three have a reflective or repetitive quality; all three are embedded in rhythm; all three rely on a sense of faith.²³ Most of all, love, jazz and prayer are about being on the threshold, about surrender and falling, the agency of knowing that to be alive is a wild and unsure thing—you pray or play or devote with ferocity, and then there is silence, nothing, patience. And, as you wait, if you are lucky, you realize that the fulfillment is not in what may come, but how you became in the moment of praying, playing, loving, the literal remaking of your subjectivity as you existed on your knees, a plea tumbling out to some other who may not or will not answer.

Love, jazz, prayer—all three are systems where what is vital is not the word, really, but the sound ... and more so, the hunger and desire the sound cannot name but reaches for all the while. This might be the way that jazz, the musical form, and *Jazz*, the novel, overlap so seamlessly—the capaciousness of it, as in expansive but also a sense of capacity, as in can behold. This capaciousness is important to how we read and think of blackness and of the work that is of black artists.

When I think about quiet and Coltrane's *A Love Supreme*, I can't help but think of the idea that in prayer, one speaks to a listener of one's own making. This practice of speaking to one's imagined self is the intimacy of prayer that also allows the self to travel, to become unfurled from being into (another) being. If Coltrane's prayer on *A Love Supreme* is a selftranscendence, then it is similar to another iconic text from the 1960s, James Baldwin's *The Fire Next Time*, especially the letter Baldwin writes to his fourteen-year-old nephew who is also named James.²⁴ This letter is a potent moment where we see Baldwin in prayerful study as much on behalf of himself—and his own vulnerable fourteen-year-old self, who is the subject of the second essay in the book—as he is on behalf of his nephew ... and as much as he is on behalf of every (black) person who is reading. So, too, it is with John Coltrane's sonic subjectivity on *A Love Supreme*, where the invitation to surrender is made by one who is also the object of its welcome.²⁵ This is quiet—sublimely, supremely, sovereignly so.

Smith and Carlos, Davis and Coltrane—and Baldwin too: A black boy dreaming

It was my looking, as a young boy, at the image of Tommie Smith and John Carlos that set the early context for thinking about quiet, since in looking at these two men, I saw awe and felt a yearning for intimacy that I couldn't fully name but that was vibrant nonetheless. They looked like grace to me, and so years later, I wanted to figure out how to argue for an idea through which their protest could be just that—grace. So, too, it was with Miles Davis and John Coltrane, whose faces were part of my childhood imagining: Coltrane's A Love Supreme was in the family record stack and, at some point, it was displayed on the top of a bookshelf; the same was true of a Miles Davis album, though it wasn't In a Silent Way but Kind of Blue. My family didn't listen to music together, though records -of many genres-were often on in the house. I can't say that I ever recognized Coltrane or Davis playing, though it is possible that the playing happened and that is lodged itself inside me. I do know that their faces took up residence in my heart, and I coveted—and cultivated—an intimacy with them as I did Smith and Carlos. It is this coveting that I brought to their work when I was older, as I also brought to the work of another iconic black man from the sixties: James Baldwin, whose image was also somewhere (was it a book cover?) in our home.

As a black boy, a queer boy, I dreamed masculinity through these men: I used them for my own neediness, to imagine grace.²⁶ They had to be quiet, then, since that was the refuge of my being, this wilderness of and in me. They had to be quiet, which indeed is one of the ways for expanding what is possible in the art and acts they make.

Notes

- 1 Kevin Quashie, *The Sovereignty of Quiet: Beyond Resistance in Black Culture* (New Brunswick: Rutgers University Press, 2012).
- 2 Elizabeth Alexander, *The Black Interior: Essays* (St. Paul, MN: Graywolf Press, 2004), x.
- 3 This last paragraph is in conversation with scholarly work in the field of "black pessimism," particularly the attention to the enduring meaningfulness of slavery and social death as consequence of modernity and coloniality. See, for example, work by Saidiya Hartman, Fred Moten, Frank Wilderson, Jared Sexton, Lewis Gordon, Hortense Spillers, and Christina Sharpe.
- 4 Here I am thinking especially of the ways that some black women's work, in its intersectional analysis, takes up an imagining of black humanity beyond the tropes of external conflict with whiteness (and specifically with white masculinity), as Mary Helen Washington famously argued in " 'The Darkened Eye Restored': Notes Toward a Literary History of Black Women," her introduction to the indispensable *Invented Lives: Narratives of Black Women, 1860–1960* (Garden City, NY: Anchor Press, 1987). Black women's thinking is also relevant to the conceptualizing of the interior, a conceit that is gendered female. See the discussion in chapter two of *The Sovereignty of Quiet*, as well as my earlier arguments in *Black Women, Identity, and Cultural Theory: (Un)becoming the Subject* (New Brunswick: Rutgers University Press, 2004).
- 5 One could look toward Ingrid Monson's "The Problem of White Hipness," *Journal* of the American Musicological Society 48, No. 3 (Autumn 1995): 396–422, and Herman Gray's brief but stunning "Black Masculinity and Visual Culture," Callaloo 18, No. 2 (Spring 1995): 401–5, as excellent explications of the conceptualization of black male jazz subjectivity. Relevant here, too, are the arguments in Leroi Jones' (Amiri Baraka) Blues People (New York: W. Morrow, 1963), which Monson takes up; Greg Tate's reflection on Miles Davis and cool, "Preface to a One-Hundred-and-Eighty Volume Patricide Note: Yet Another Few Thousand Words on the Death of Miles Davis and the Problem of Black Male Genius," in Black Popular Culture, ed. Gina Dent (New York: Dia Center for the Arts, 1998); Krin Gabbard's *Black Magic* (New Brunswick: Rutgers University Press, 2004), on the trope in Hollywood cinema; and Robin Kelley's explication of cool and the problem of authenticity in Yo Mama's Disfunktional (Boston: Beacon Press, 1997). I want to mention Farah Jasmine Griffin's brilliant and beautiful study of Billie Holiday, If You Can't Be Free, Be a Mystery (New York: Free Press, 2001), which I will come back to later in the text. Finally, one could look to

work by Sander Gilman ("Black Bodies, White Bodies: Toward an Iconography of Female Sexuality in Late Nineteenth-Century Art, Medicine, and Literature," *Critical Inquiry* 12, no. 1 [Autumn 1985]: 204–42), Jennifer Morgan (" 'Some Could Suckle over Their Shoulder': Male Travelers, Female Bodies, and the Gendering of Racial Ideology, 1500–1770," *The William and Mary Quarterly* 54, no. 1 [January 1997]: 167–92), and Patricia Hill Collins (*Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment* [New York: Routledge, 2000]), among others, to consider the tropes of black femaleness. I also want to thank Michael Vorenberg for a conversation that reminded me of the legacy of the idea of black inscrutability.

- 6 Toni Morrison, *Playing in the Dark: Whiteness and the Literary Imagination* (Cambridge, MA: Harvard University Press, 1992), v.
- 7 Morrison, *Playing in the Dark*, vi.
- 8 Cardinal, quoted in Morrison, *Playing in the Dark*, vi-vii.
- 9 Morrison, *Playing in the Dark*, viii.
- 10 Francesca T. Royster, *Sounding Like a No-No: Queer Sounds and Eccentric Acts in the Post-Soul Era* (Ann Arbor: University of Michigan Press, 2013), 73.
- 11 Greg Tate's essay on Davis is terrific in considering this dynamic. Also see Pearl Cleage's collection *Mad at Miles* (Southfield, MI: Cleage Group, 1990) and Royster, *Sounding Like a No-No*, 83.
- 12 Phil Freeman, *Running the Voodoo Down: The Electric Music of Miles Davis* (San Francisco: Backbeat Books), 26.
- 13 Freeman, *Running the Voodoo Down*, 25 (emphasis added).
- 14 Freeman, *Running the Voodoo Down*, 25 (emphasis in the original).
- 15 Freeman, Running the Voodoo Down, 25.
- 16 Freeman makes this comparison, and Davis himself, in his autobiography with Quincy Troupe (*Miles: The Autobiography* [New York: Simon & Schuster, 1989]), notes that critics regularly compared him to Brown.
- 17 For a discussion of A Love Supreme's spirituality, see John Coltrane and Black America's Quest for Freedom ed. Leonard L. Brown (Oxford: Oxford University Press, 2010), especially essays by Brown, Herman Gray, Anthony Brown, Salim Washington, and Emmett G. Price III. Also see Scott Saul, Freedom Is, Freedom Ain't: Jazz and the Making of the Sixties (Cambridge, MA: Harvard University Press, 2003).
- 18 My own affection for Coltrane, and for *A Love Supreme*, is akin to the ecstatic poetic quality exhibited in Cuthbert Simpkins' *Coltrane: A Biography* (New York: Herdon House, 1975), that beautiful book and its evocative opening meditation on

moments, love, courage and freedom. Anyone who loves Coltrane's work, should read at least the first chapter, "Equinox," and the last, "Embrace."

- 19 This engagement of surrender is a turn away from W.E.B Du Bois' classic notion of double consciousness, a turn I accomplish through reading Marita Bonner's gorgeous 1925 essay on black female subjectivity, "On Being Young, a Woman, and Colored" (*Crisis* [December 1925]); see Chapter Two of *The Sovereignty of Quiet*.
- 20 My attention to the cover will always be shaped by a conversation with writer and scholar Lokeilani Kaimana in 2003.
- 21 Another thing to be noted, too, is that part of the attentiveness in prayer is related to formfulness—the shape and make and structure that compels attention. In connecting form and quiet, I am trying to push against the easy ways in which black art is (mis)read through the purview of resistance, as if the notion of resistance alone can tell us everything about a beautifully made thing. This case for form is applicable here, especially in noticing how much the repetition of sound idioms is vital to *A Love Supreme*.
- 22 "The Thunder, Perfect Mind," trans. George W. MacRae and Douglas M. Parrott in *The Nag Hammadi Library in English*, ed. James M. Robinson (Leiden: E.J. Brill, 1996), 297–301.
- 23 See Toni Morrison, *Jazz: A Novel* (New York: Knopf, 1992). Lines from "The Thunder, Perfect Mind" also open Julie Dash's legendary 1991 film *Daughters of the Dust*.
- 24 James Baldwin, *The Fire Next Time* (New York: Dial, 1963).
- Scott Saul makes a similar argument in his reading of "Psalm": "Can we assimilate its journey of spiritual inwardness and self-purification? The musical evidence suggests that 'Psalm' defies literal emulation: few jazz musicians have performed 'Psalm' since its 1964 recording—a telling sign, given that many free-jazz ensembles from the mid to late sixties did try to simulate the free form of Coltrane's less popular later suites like 'Ascension,' while almost any contemporary jazz pick-up group can wing through early Coltrane standards like 'Blue Train' or 'Equinox.' *A Love Supreme* seems like such an intensely personal religious statement that to cover it would require the kind of chutzpah that does not shrink from the accusation of sacrilege. But perhaps more forbiddingly, 'Psalm' is an oddly terminal performance, one that brings us to a limit of stillness that is difficult to aspire to" (*Freedom Is, Freedom Ain't*, 259). Of course, my own sense is that this exemplary selfness is inspiring rather than only daunting or exclusionary.
- 26 I am riffing here on the title of Simone C. Drake's When We Imagine Grace: Black

* Commissioned for this volume.

E

If we had a keen vision and feeling of all ordinary human life, it would be like hearing the grass grow and the squirrel's heart beat, and we should die of that roar which lies on the other side of silence. As it is, the quickest of us walk about well wadded with stupidity.

— George Eliot¹

You know, there's a need to create furniture music, that is to say, music that would be a part of the surrounding noises and that would take them into account. I see it as melodious, as masking the clatter of knives and forks without drowning it completely, without imposing itself. It would fill up the awkward silences that occasionally descend on guests. It would spare them the usual banalities. Moreover, it would neutralize the street noises that indiscreetly force themselves into the picture.

— Erik Satie²

Careful listening is more important than making sounds happen.

— Alvin Lucier³

In the flow of Japanese music [...] short fragmented connections of sounds are complete in themselves. Those different sound events are related by silences that aim at creating a harmony of events. Those pauses are left to the performer's discretion. In this way there is a dynamic change in the sounds as they are constantly reborn in new relationships. Here the role of the performer is not to produce sound but to listen to it, to strive constantly to discover sound in silence. Listening is as real as making sound; the two are inseparable.

— Toru Takemitsu⁴

It could be said that the moment one recognizes a certain sound in terms of meaning, one stops hearing the sound as sound; that the emphasis shifts from sound per se to a certain fixed meaning. The aim of [...] "absentminded" listening training [is] the opposite [...]: to obstruct or control the functioning of the sound classification recognition software in our brains, in an attempt to stop ourselves from discovering meaning through sound or finding something predetermined in the sound setting.

— Otomo Yoshihide⁵

Modern listening no longer quite resembles [...] *listening to indices* and *listening to signs* [...] What is listened to here and there (chiefly in the field of art, whose function is often utopian) is not the advent of a signified, object of a recognition or of a deciphering, but the very dispersion, the *shimmering* of signifiers [...]: this phenomenon of shimmering is called *signifying [signifiance]*, as distinct from signification: "listening" to a piece of classical music, the listener is called upon to "decipher" this piece, i.e. to recognize (by his culture, his application, his sensibility) its construction, quite as coded (predetermined) as that of a palace at a certain period; but "listening" to a composition (taking the word here in its etymological sense) by John Cage, it is each sound one after the next that I listen to, not in its syntagmatic extension, but in its raw and as though vertical *signifying:* by deconstructing itself, listening is externalized, it compels the subject to renounce his "inwardness."

- Roland Barthes⁶

Almost all the music which mercilessly surrounds us today has the same underlying structure: neverending gabbiness. What's the difference between MTV music and most of the classical avant-garde? They use different material, but they're both intensively talkative. We're surrounded by noises and sensory overstimulation wherever we go. For me, the true avant garde is the critical analysis or issue-taking with our cultural surroundings. What's needed is not faster, higher, stronger, louder—I want to know about the lull in the storm.

— Radu Malfatti⁷

Classical music works around a body of "refined" sounds—sounds that are separated from the sounds of the world, pure and musical. There is a sharp distinction between "music" and "noise," just as there is a distinction between the musician and the audience. I like blurring those distinctions—I like to work with all the complex sounds on the way out to the horizon, to pure noise, like the hum of London. If you sit in Hyde Park just far enough away from the traffic so that you don't perceive any of its details, you just hear the average of the whole thing. And it's such a beautiful sound. For me that's as good as going to a concert hall at night.

- Brian Eno⁸

When I look back at the last couple of years and at what's going on in [improvised] music, listening has become more and more important; silence became a major part of it. Maybe it's a question of my age, so that listening also in life is more important than when I was twenty years old. But I wish that more people would listen more carefully before they start talking [...] When you're listening, let's say, to the [Taku Sugimoto Guitar Quartet], in the first moments, with all your knowing and all our expectations [...] you might be a little confused. There's nothing going on. Four guitar players play a few notes every two minutes. That might sound very abstract and very complicated, very intellectual. But in a way it's exactly the opposite. It's very direct, keeping and exploring the tension between notes. When you have a piece of paper and you start drawing, this nothing, this white can be very frightening, just to put the first drop of ink or of color or of anything. So that means this nothing is very, very powerful. And to deal with that, and to play with that or, in other words, to listen to this nothing, that's thrilling, I think. That's really thrilling.

— Günter Müller⁹

Live completely alone for four days without food in complete silence, without much movement. Sleep as little as necessary, think as little as possible.

After four days, late at night, without conversation beforehand play single sounds.

WITHOUT THINKING what you are playing close your eyes, just listen.

— Karlheinz Stockhausen¹⁰

II. Modes of Listening

Introduction

For centuries, European art music prescribed a particular mode of listening exemplified by the ritual of the concert hall: In a space separated from the outside world and the sonic domain of everyday life, a quiet audience, seated some distance from the stage, listens to performers onstage produce a small range of timbres on a limited array of musical instruments. In the twentieth century, these listening conventions became the norm in popular musics; and today, despite differences in genre and venue, they continue to define the normative mode of listening to music, whether it be classical, jazz, rock, etc. Yet contemporary musical practices and technologies have problematized this traditional mode of auditory apprehension and have necessitated a new discourse around listening.

Radio and sound recording radically changed the act of listening to music, and altered the very nature of music as well. Music could now be detached from its source and its ties to any particular setting and location. This made possible at least two new modes of listening. On the one hand, it enabled what Pierre Schaeffer termed "acousmatic listening": listening to sound without any visual clue to its source. This shift was not only phenomenological but also ontological. Thus, instead of existing as mere reproductions of live events, recordings disclosed ontologically distinct, virtual soundworlds. In Schaeffer's view, this afforded a new kind of experience: that of sound-in-itself, or the "sonorous object." On the other hand, recorded sound allowed music to infiltrate the spaces of everyday possible "ambient" listening, music heard life. making as an accompaniment to mundane activity: driving, shopping, working, etc. This idea was already envisioned in the early 1920s by Erik Satie and Darius Milhaud, who produced what they called "furniture music," "music that would be a part of the surrounding noises and that would take them into account."¹ But it took the technology of recording to fully realize this idea.

Already in the 1940s, theorists such as Theodor Adorno and Aldous Huxley noted the pernicious ideological effects of such passive listening. Indeed, the Muzak Corporation had already begun using background music to regulate mood and increase worker productivity. Despite Muzak's ubiquity and corporate success, the term "Muzak" quickly became a kind of musical insult, signifying bad music and a bad listening experience. Nonetheless, in the 1970s, progressive rock and experimental music composer Brian Eno began to see the liberatory possibilities of "Ambient" listening, the ways in which it afforded listeners a new experience of music and sonic space. The advent of the Walkman stirred similar reactions. Critics complained about its anti-social aspects. Yet, theorists such as Iain Chambers saw in it the possibility of actively producing a soundtrack for one's daily perambulations. The ubiquity of recorded music today means that we regularly listen to music in states of distraction and inattention, which affects both our constitution as subjects and the nature of musical production.

The advent of recording had an effect not only on listening practices but also on what sounds could be heard as music. Recording equipment allowed one to amplify and focus upon previously unheard or inconspicuous sounds. Moreover, as recorded entities, the sounds of trains or frogs, for example, could be placed on par with sounds made by violins or trumpets. From there, it was a short step to the aesthetic perception of environmental sound itself, a move that radically transformed musical sound and composition. "This blurring of the edges between music and environmental sounds," wrote R. Murray Schafer in 1973, "is the most striking feature of twentieth century music."²

John Cage's 4'33" not only disclosed the sonic world of environmental sound and background noise but also drew attention to the act of listening, which became the focus of several post-Cagean experimental composers such as Pauline Oliveros, whose "Deep Listening" practice vastly expands the range of listening and the depth of our attention to it. Composers and installation artists such as Maryanne Amacher also expanded the modes of hearing and listening, generating combination tones that reveal the ears to be active producers of sound rather than merely passive receptors of it, and producing installations in which sound is experienced throughout the entire body rather than just the ears. This idea is developed by deaf musician Evelyn Glennie, who shows through her work that hearing is really a particular form of touch.

This new consideration of listening and its various modes has sparked awareness of the *politics* of listening, prompting questions about what is (and is not) heard, by whom, in what contexts, and to what ends. Carefully attentive to these questions, the audio collective Ultra-red conceives listening as a form of political and social reflection that slows down the activist's impulse toward immediate action and fosters new organizational strategies. Lawrence Abu Hamdan attends to the prominence of audio surveillance today, particularly, to the forms of listening employed in high stakes legal proceedings.

The advent of recording and broadcasting forever altered the experience of listening and drew attention to the act of listening itself. Contemporary music reflects these phenomenological changes and continues to work through the problems and possibilities inherent in these new modes of listening.

Notes

- Erik Satie as quoted by Fernand Léger in Alan M. Gillmor, *Erik Satie* (Boston: Twayne, 1988), 232.
- 2 See Schafer, Chapter 6 above.

Visual and Acoustic Space

Marshall McLuhan

A profoundly influential theorist of late twentieth-century media, Marshall McLuhan examined the ways that communication and information technologies transform human subjectivity and community. His conception of "the global village"—the retribulization of the human race via a world network of electronic media—anticipated the internet by nearly two decades. Throughout his career, McLuhan argued that radio, television, computers, and other electronic technologies are essentially prosthetic devices that vastly extend the human nervous system. Indeed, throughout his work, McLuhan was interested in the human perceptual apparatus, the ways that our senses (and their technological extensions) shape and are shaped by their environment. In this essay, written in the late-1970s, McLuhan contrasts the different worlds proper to sight and hearing. *He argues that, while visual culture has dominated Western thought, perception,* and imagination since ancient Greece, the late-twentieth century is witnessing a rapid shift toward a very different mode of perception, that of the acoustic or auditory. McLuhan's argument anticipates the analyses of orality and literacy offered by Chris Cutler and Jacques Attali elsewhere in this volume.

While in elementary school, Jacques Lusseyran was accidentally blinded. He found himself in another world of collision and pressure points. No longer could he pick his way through the ordinary "neutral" world of reflected light. It was the same environment that we are all born into but now it came to him demanding exploration:

Sounds had the same individuality as light. They were neither inside or outside, but were passing through me. They gave me my bearings in space and put me in touch with things. It was not like signals that they functioned but like replies...

But most surprising of all was the discovery that sounds never came from one point in space and never retreated into themselves. There was the sound, its echo, and another sound into which the first sound melted and to which it had given birth, altogether an endless procession of sounds...

Blindness works like dope, a fact we have to reckon with. I don't believe there is

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a blind man alive who has not felt the danger of intoxication. Like drugs, blindness heightens certain sensations, giving sudden and often disturbing sharpness to the senses of hearing and touch. But, most of all, like a drug, it develops inner as against outer experience, and sometimes to excess...

We, who live in the world of reflected light, in visual space, may also be said to be in a state of hypnosis. Ever since the collapse of the oral tradition in early Greece, before the age of Parmenides, Western civilization has been mesmerized by a picture of the universe as a limited container in which all things are arranged according to the vanishing point, in linear geometric order. The intensity of this conception is such that it actually leads to the abnormal suppression of hearing and touch in some individuals. (We like to call them "bookworms.") Most of the information we rely upon comes through our eyes; our technology is arranged to heighten that effect. Such is the power of Euclidean or visual space that we can't live with a circle unless we square it.¹

But this was not always the expected order of things. For hundreds of thousands of years, mankind lived without a straight line in nature. Objects in this world resonated with each other. For the caveman, the mountain Greek, the Indian hunter (indeed, even for the latter-day Manchu Chinese), the world was multicentered and reverberating. It was gyroscopic. Life was like being inside a sphere, 360 degrees without margins; swimming underwater; or balancing on a bicycle. Tribal life was, and still is, conducted like a three-dimensional chess game; not with pyramidal priorities. The order of ancient or prehistoric time was circular, not progressive. Acoustic imagination dwelt in the realm of ebb and flow, the *logos*. For one day to repeat itself at sunrise was an overwhelming boon. As this world began to fill itself out for the early primitive, the mind's ear gradually dominated the mind's eye. Speech, before the age of Plato, was the glorious depository of memory.

Acoustic space is a dwelling place for anyone who has not been conquered by the one-at-a-time, uniform ethos of the alphabet. It exists in the Third World and vast areas of the Middle East, Russia, and the South Pacific. It is the India to which Gandhi returned after twenty years in South Africa, bringing with him the knowledge that Western man's penchant for fragmentation would be his undoing. There are no boundaries to sound. We hear from all directions at once. But the balance between inner and outer experience can be precise. If our eardrums were tuned any higher we would hear molecules colliding in the air or the roaring rush of our own blood. Sound comes to us from above, below, and the sides. As Lusseyran says, it passes through us and is rarely limited by the density of physical objects. Most natural materials act as a tuning fork. The human baby cannot move out into the environment until sound teaches depth—which the child adapts to the demands of Euclidean or visual space later on.

Each of these modalities is a sensory preference of the culture. For the society that accepts it, that modality, whether acoustic or visual, is the foundation on which it recognizes its own perception of sanity. But we wish to advance an idea that you, the reader, won't in all probability, initially accept. And that is for several thousand years, at least, man's sensorium, or his seat of perceptive balance, has been out of plumb.

The term *sensus communis* in Cicero's time meant that all the senses, such as seeing, hearing, tasting, smelling, and touch, were translated equally into each other. It was the Latin definition of man in a healthy natural state, when physical and psychic energy were constant and distributed in a balanced way to all sense areas.² In such a condition it is rather difficult to hallucinate. In any cultural arrangement, trouble always occurs when only one sense is subjected to a barrage of energy and receives more stimulus than all the others. For modern Western man that would be the visual state.

As psychologists understand sense ratios, overstimulation and understimulation can cause thought and feeling to separate. Sleeping may be regarded as a dimming down of one or two sensory inputs. Hypnosis, on the other hand, is a steady assault on one sense, like a tribal drumbeat. Modern torturers in Chile break down prisoners by putting them in cells where everything—walls, furniture, utensils, window covers—is painted white. In Vietnam, Communist interrogators discovered (as police interrogators everywhere) that unexpected beatings and random electric shocks create sharp peaks of floating anxiety and subsequently a ready uncritical conviction.

Without being aware of it, North Americans have created the same kind of violence for themselves. Western man thinks with only one part of his brain and starves the rest of it. By neglecting ear culture, which is too diffuse for the categorical hierarchies of the left side of the brain, he has locked himself into a position where only linear conceptualization is acceptable.

Euclid and Newton fixed Western man's body in rigid space and

oriented him toward the horizon.³ As neurosurgeon Joseph Bogen puts it, the linear sequential mode of the left hemisphere underlies language and analytical thought. The right hemisphere of the brain, which is principally concerned with pattern recognition of an artistic and holistic quality, grasps the relationship between diverse parts readily and is not bound up with a rigid sequence of deductions. The intellectual legacy of Euclid and Newton therefore is a substitution of perspective for qualitative thinking, which is always composed of multi-sensual elements.

Everything in life after the Greeks was reduced to the uniform and the homogenous, Swift's island of Laputa. Thought had to have a beginning, a middle, and an end. No thesis was acceptable unless all ideas were interconnected to project an e-x-t-e-n-d-e-d point of view, which is the interior structure of the essay, we might add.

If you think of every human sense as creating its own space, then the eye creates a space where there can only be one thing at a time. The eye acts as a machine—like a camera. Light focused on the back of the eye ensures that two objects will not occupy the same place at the same time. The mind teaches the eye to see an object right side up, on a plane and in perspective space. As children, when perspective (or the vanishing point) arrives—when we learn to focus an inch or two in front of the page—we learn to read and write. The phonetic alphabet gives us a point of view since it promotes the illusion of removing oneself from the object.

It would almost seem that the very physiology of the eye promotes the idea that everything is in sequence—that is, in its proper place, at the proper time, and in linear relationship. The kind of mentality that prompted Shakespeare's King Lear to divide his kingdom among his daughters, to abstract himself from the medieval perception that England was contained in himself is more modern than tribal. What we are saying is that the human eye appears to be the father of linear logic. Its very nature encourages reasoning by exclusion: something is either in that space or it isn't.

The constraints of Western logic are tied to our sense of sequential relationships—logic made visual. The middle ground, however accounted for initially, is eventually excluded. It is either-or. If your culture nurtures you to favor the eye, your brain has difficulty giving equal weight to any other sense bias. You are trapped by visual only assumptions. For centuries, the Japanese, unlike Westerners, have treasured the pictorial space between objects in a painting, the *ma*; and have viewed such space

as more dominant than all objects portrayed. Like the yin/yang complementarity of wave/particle in atomic physics.

Anyone who has been involved in gestalt, or studied primitive societies —once he or she gets over the impulse to measure these societies with Western templates—is aware that either—or is not the only possibility. Both—and can also exist. People who have not been exposed to the phonetic alphabet, that is, the "uncivilized," can easily entertain two diametric possibilities at once. Edmund Carpenter pointed out to us that the Inuits, or the Eskimos, cannot visualize in two dimensions. If they are asked to draw the animals they hunt on a flat surface, the result—to our eyes—is often grotesque. But ask them to draw the same figure on, let us say, the rounded surface of a walrus tusk, and the etched drawing will take on three-dimensional life as you roll the tusk in your fingers.

[... H]ere we have a clue to the mentality of the pre-literate, that world of oral tradition that we eventually left behind about the end of the Hellenic period. It is the mentality of the multitude, or as Yeats put it: everything happening at once, in a state of constant flux. For the genuinely tribal man there is no causality, nothing occurring in a straight line. He turns aside from the habit of construing things chronologically—not because he can't, but as Edmund Carpenter says, because he doesn't want to.

Carpenter advises us that the Trobriander Islanders only recognize now, the eternal present. Bronislaw Malinowski and Dorothy Lee, who studied these people, discovered that they disdained the concept of why. European man to them was hung up on the idea of setting priorities, of making past and future distinctions. "To the Trobriander, events do not fall of themselves into a pattern of cause and effect as they do for us. We in our culture automatically see and seek relationships, not essence. We express relationship mainly in terms of cause or purpose ... The Trobriander is only interested in experiencing the current essence of a person or object. He is interested in his yams, his stone knife, his boat, as those objects are today. There is no such thing as a "new" or an "old" boat, a blooming yam or a decayed one. There is no past or future, only the essence of being that exists now. The Trobriander, like the Inuit, directly experiences a sense of timelessness, so he is never bothered by such questions as "who created the creator." The English language, in fact most Western languages, suggests through its tense structure that reality can only be contained in the concept of a past, a present, and a future which rather incongruously

implies that man is capable, like a god, of standing outside the time continuum. The hubris of Western man might very well lie in the priority-setting propensity for quantitative reasoning [...]

To summarize, visual space structure is an artifact of Western civilization created by Greek phonetic literacy. It is a space perceived by the eyes when separated or abstracted from all other senses. As a construct of the mind, it is continuous, which is to say that it is infinite, divisible, extensible, and featureless—what the early Greek geometers referred to as *physis*. It is also connected (abstract figures with fixed boundaries, linked logically and sequentially but having no visible grounds), homogeneous (uniform everywhere), and static (qualitatively unchangeable). It is like the "mind's eye" or visual imagination which dominates the thinking of literate Western people, some of whom demand ocular proof for existence itself.

Acoustic space structure is the natural space of nature-in-the-raw inhabited by non-literate people. It is like the "mind's ear" or acoustic imagination that dominates the thinking of pre-literate and post-literate humans alike (rock video has as much acoustic power as a Watusi mating dance). It is both discontinuous and nonhomogeneous. Its resonant and interpenetrating processes are simultaneously related with centers everywhere and boundaries nowhere. Like music, as communications engineer Barrington Nevitt puts it, acoustic space requires neither proof nor explanation but is made manifest through its cultural content. Acoustic and visual space structures may be seen as incommensurable, like history and eternity, yet, at the same time, as complementary, like art and science or biculturalism.

Occasionally, certain persons in history have been in the right place and time to be truly bicultural. When we say bicultural we mean the fortune to have a foot placed, as it were, in both visual and acoustic space, like Hemingway in his Cuban village hideaway or Tocqueville in America. Marco Polo was such a one. The Phoenicians, the earliest cultural brokers between East and West, having brought a cuneiform method of accounting to the Egyptians and the phonetic alphabet to the Greeks, were likewise blessed.

The phonetic alphabet underlies all of Western linguistic development.⁴ By the time it had gone through the Greeks and Romans and reasserted itself in the print literature of the Renaissance, Western sense ratios had been firmly altered. The Greeks gave a new birth to the alphabet as a mode

of representation having neither visual nor semantic meaning. Egyptian ideographs, for instance, were directly related to particular sensuous sounds and actions, with unique graphic signs. On the other hand, the matrix of the Greek alphabet could be used to translate alien languages back and forth without changing the form and number (twenty-four) of the original alphabetic characters. It became the first means of translation of knowledge from one culture to another. The reader in the process became separated from the original speaker and the particular sensuous event. The oral tradition of the early Greek dramatists, of the pre-Socratics, and Sophocles, gave way very gradually to the written Pan-European tradition and set the emotional and intellectual posture of the West in concrete, as it were. We were "liberated" forever from the resonating magic of the tribal word and the web of kinship.

The history of the Western world since the time of Aristotle has been a story of increasing linguistic specialism produced by the flat, uniform, homogeneous presentation of print. Orality wound down slowly. The scribal (or manuscript) culture of the Middle Ages was inherently oral/aural in character. Manuscripts were meant to be read aloud. Church chantry schools were set up to ensure oral fidelity. The Gutenberg technology siphoned off the aural-tactile quality of the Ancients, systemized language, and established heretofore unknown standards for pronunciation and meaning. Before typography there was no such thing as bad grammar.

After the public began to accept the book on a mass basis in the fourteenth and fifteenth centuries—and on a scale where literacy mattered —all knowledge that could not be so classified was tucked away into the new "unconscious" of the folk tale and the myth, there to be resurrected later as the Romantic Reaction.

But since World War I and the advent of those technical wavesurfers Marconi and Edison, the rumbles of aural-tactility, the power of the spoken word, have been heard. James Joyce in *Finnegans Wake*, celebrated the tearing apart of the ethos of print by radio, film (television), and recording. He could easily see that Goebbels and his radio loudspeakers were a new tribal echo. And you may be sure that emerging mediums such as the satellite, the computer, the data base, teletextvideotext, and the international multi-carrier corporations, such as ITT, GTE, and AT&T, will intensify the attack on the printed word as the "sole" container of the public mentality, without being aware of it of course. By the twenty-first century, most printed matter will have been transferred to something like an ideographic microfiche as only part of a number of data sources available in acoustic and visual modes. This new interplay between word and image can be understood if we realize that our skulls really contain two brains straining to be psychically united [...]

Notes

- 1 F. M. Cornford, "The Invention of Space," *Essays in Honour of Gilbert Murray* (London: Allen and Unwin, 1936), pp. 215–235.
- 2 Cicero's training, through Plato's disciples, was influenced by an earlier religious usage that *logos* (a primitive utterance of the word) structured the *kosmos* and infused man's being with a wise concept of world order or common sense. *Heraclitus: The Cosmic Fragments*, ed. Geoffrey S. Kirk (Cambridge: Cambridge University Press, 1954), pp. 70, 396, 403. Also, Harold Innis in *Empire and Communications* (London: Oxford University Press, 1951), p. 76, says "The structure of man's speech was an embodiment of the structure of the world." Cicero's rhetorical theory, as an interchange of both thought and feeling (*inventio*, *dispositio*, *elocutio*, *memoria* and *pronuntia*) became the academic anchor for the medieval trivium; for a form of summation consult Marcus Tullius Cicero, *De Oratore*, trs. E. W. Sutton and H. Rackham (Cambridge, MA: Harvard University Press, 1967), pp. 97–109.
- 3 Cornford, "The Invention of Space," p. 219.
- 4 Eric Havelock, "Origins of Western Literacy," in *Ontario Institute for Studies in Education*, Monograph Series no. 14 (Toronto: 1971), p. 43.
- From Marshall McLuhan and Bruce R. Powers, *The Global Village* (New York: Oxford, 1989). Used by permission of the publisher.

11

Acoustics

Pierre Schaeffer

The founder of musique concrète, Pierre Schaeffer is equally important as a theorist of musical listening. Trained as a radio engineer and announcer, Schaeffer was fascinated by the fact that radio and recording made possible a new experience of sound—what he called "reduced listening" or "acousmatic *listening*"—*that disclosed a new domain of sounds*—"objets sonores" or sonorous objects, the objects of "acousmatic listening." Like many post-War French intellectuals, Schaeffer was attracted to the philosophy of Edmund Husserl, founder of "phenomenology." "Phenomenology" disregards the traditional philosophical distinctions between "subject" and "object," "appearance" and "reality," and instead attempts to describe the contents of experience without reference to their source or subjective mode (e.g. dreaming, waking, etc.). In the case of sound, for example, instead of distinguishing sounds with reference to their sources (the sound of a guitar, the sound of a violin), phenomenology attempts to "reduce" (separate or distill) signal from source, and to restrict itself to the description of differences among sounds themselves. For Schaeffer, technologies such as radio and the phonograph made palpable this phenomenological experience, which was already envisioned by the Pythagoreans, among the first European musical theorists. These technologies effectively subvert the hierarchical relationship of source to signal, allowing sounds themselves (the sonorous objects) to have their own existence distinct from their sources. In this chapter from his magnum opus, Treatise on Musical Objects, Schaeffer introduces the concepts of "acousmatic listening" and the "sonorous object."

The relevance of an ancient experience

Acousmatic, the Larousse dictionary tells us: "Name given to the disciples of Pythagoras who, for five years, listened to his teachings while he was hidden behind a curtain, without seeing him, while observing a strict silence." Hidden from their eyes, only the voice of their master reached the disciples.

It is to this initiatory experience that we are linking the notion of

acousmatics, given the use we would like to make of it here. The *Larousse* dictionary continues: "Acousmatic, adjective: is said of a noise that one hears without seeing what causes it." This term [...] marks the perceptive reality of sound as such, as distinguished from the modes of its production and transmission. The new phenomenon of telecommunications and the massive diffusion of messages exists only in relation to and as a function of a fact that has been rooted in human experience from the beginning: natural, sonorous communication. This is why we can, without anachronism, return to an ancient tradition which, no less nor otherwise than contemporary radio and recordings, gives back to the ear alone the entire responsibility of a perception that ordinarily rests on other sensible witnesses. In ancient times, it was a curtain that constituted the apparatus; today, it is the radio and the methods of reproduction, along with the whole set of electro-acoustic transformations, that place us, the modern listeners of an invisible voice, in the conditions of a similar experience.

Acoustic and acousmatic

We would utilize this experience erroneously if we subjected it to a Cartesian decomposition by distinguishing the "objective"-what is behind the curtain-from the "subjective"-the reaction of the auditor to these stimuli. In such a perspective, it is the so-called "objective" elements that contain the references of the elucidation to be undertaken: frequencies, durations, amplitudes ... the curiosity put into play is that of acoustics. In relation to this approach, acousmatics corresponds to a reversal of the usual procedure. Its interrogation is symmetrical: it is no longer a question of knowing how a subjective listening interprets or deforms "reality," of studying reactions to stimuli. It is the listening itself that becomes the origin of the phenomenon to be studied. The concealment of the causes does not result from a technical imperfection, nor is it an occasional process of variation: it becomes a precondition, a deliberate placing-incondition of the subject. It is toward it, then, that the question turns around: "What am I hearing? ... What exactly are you hearing"—in the sense that one asks the subject to describe not the external references of the sound it perceives but its perception itself.

Nonetheless, acoustics and acoustics are not opposed to each other like the objective and the subjective. If the first approach, starting with physics, must go as far as the "reactions of the subject" and thereby integrate, at the limit, the psychological elements, the second approach must in effect be unaware of the measures and experiences that are applicable only to the physical object, the "signal" of acousticians. But for all that, its investigations, turned toward the subject, cannot abandon its claim to *an objectivity that is proper to it*: if what it studies were reduced to the changing impressions of each listener, all communication would become impossible; Pythagoras' disciples would have to give up naming, describing, and understanding what they were hearing *in common*; a particular listener would even have to give up understanding himself from one moment to the next. The question, in this case, would be that of knowing how to rediscover, through the confrontations of subjectivities, something about which it would be possible for several experimenters to agree on.

The acousmatic field

In the sense of acoustics, we started with the physical signal and studied its transformations via electro-acoustic processes, in tacit reference to the norms of a supposedly known listening—a listening that grasps frequencies, durations, etc. By contrast, the acousmatic situation, in a general fashion, symbolically precludes any relation with what is visible, touchable, measurable. Moreover, between the experience of Pythagoras and the experiences we are given through radio and recordings, the differences separating direct listening (through a curtain) and indirect listening (through a speaker) become, at the limit, negligible. Under these conditions, what are the characteristics of the current acousmatic situation?

(a) Pure listening

For the traditional musician and for the acoustician, an important aspect of the recognition of sounds consists of the identification of the sonorous sources. When the latter are effectuated without the support of vision, musical conditioning is unsettled. Often a surprise, sometimes uncertain, we will discover that much of what we thought was heard was in reality only seen, and explicated, though the context. This is why certain sounds produced by instruments as different as string instruments and wind instruments can be confused.

(b) Listening to effects

In listening to sonorous objects [*objets sonores*] whose instrumental causes are hidden, we are led to forget the latter and to take an interest in these objects for themselves. The dissociation of seeing and hearing here encourages another way of listening: we listen to the sonorous forms, without any aim other than that of hearing them better, in order to be able to describe them through an analysis of the content of our perceptions.

In fact, Pythagoras' curtain is not enough to discourage our curiosity about causes, to which we are instinctively, almost irresistible drawn. But the repetition of the physical signal, which recording makes possible, assists us here in two ways: by exhausting this curiosity, it gradually brings the sonorous object to the fore as a perception worthy of being observed for itself; on the other hand, as a result of ever more attentive and more refined listenings, it progressively reveals to us the richness of this perception.

(c) Variations in listening

Furthermore, since these repetitions are brought about in physically identical conditions, we become aware of the variations in our listening and better understand what is in general termed its "subjectivity." This does not refer, as one might perhaps tend to think, to an imperfection or a kind of "fuzziness" [*flou*] that would scramble the clarity of the physical signal; but rather to particular clarifications or precise directions that reveal, in each case, a new aspect of the object, toward which our attention is deliberately or unconsciously focused.

(d) Variations in the signal

Finally, we should mention the special possibilities we have for intervening in the sound, the implementation of which accentuates the previously described features of the acousmatic situation. We have focused on the physical signal fixed on a disk or magnetic tape; we can act on it, dissect it. We can also make different recordings of a single sonorous event, approaching the sound at the moment of its taping [*prise de son*] from various angles, just as one can film a scene using different shots [*prise de vues*]. Assuming that we limit ourselves to a single recording, we can still read the latter more or less quickly, more or less loudly, or even cut it into pieces, thereby presenting the listener with several versions of what was originally a unique event. What does this deployment of diverging sonorous effects from a single material cause represent, from the

point of view of the acousmatic experience? What correlation can we expect between the modifications that are imposed on what is recorded on the tape and the variations in what we are hearing?

On the sonorous object: What it isn't

We have spoken at several points of the sonorous object, utilizing a notion that has already been introduced, but not clarified. It is clear, in light of the present chapter, that we were able to propose this notion in advance only because we were implicitly referring to the acousmatic situation that has just been described. If there is a sonorous object, it is only insofar as there is a blind listening [*écoute*] to sonorous effects and contents: the sonorous object is never revealed clearly except in the acousmatic experience.

Given this specification, it is easy for us to avoid erroneous responses to the question raised at the end of the preceding paragraph.

(a) The sonorous object is not the instrument that was played

It is obvious that when we say "That's a violin" or "That's a creaking door," we are alluding to the *sound* emitted by the violin, to the *creaking* of the door. But the distinction we would like to establish between the instrument and the sonorous object is even more radical: if someone plays us a tape which records a sound whose origin we are unable to identify, what are we hearing? Precisely what we are calling a sonorous object, independent of any causal reference, which is designated by the terms *sonorous body, sonorous source* or *instrument*.

(b) The sonorous object is not the magnetic tape

Although it is materialized by the magnetic tape, the object, as we are defining it, is not on the tape either. What is on the tape is only the magnetic trace of a signal: a *sonorous support* or an *acoustic signal*. When listened to by a dog, a child, a Martian, or the citizen of another musical civilization, this signal takes on another meaning or sense. The object is not an object *except* to our listening, it is relative to it. We can act on the tape physically, cutting it, modifying its replay speed. Only the act of listening by a listener [*seule l'écoute d'un auditeur*] can provide us with an account of the perceptible result of these manipulations. Coming from a world in which we are able to intervene, the sonorous object is nonetheless *contained entirely in our perceptive consciousness*.

(c) A few centimeters of magnetic tape can contain a quantity of different sonorous objects

This remark follows from the preceding one. The manipulations just mentioned do not modify *a* sonorous object having an intrinsic existence. They have *created other objects* from it. There is, of course, a *correlation* between the manipulations to which one subjects a tape or its diverse conditions of reading, the conditions of our listening and the perceived object.

A simple correlation? Not at all, it must be expected. Suppose, for example, that we listened to a sound recorded at normal speed, then slowed down, then again at normal speed. The slowed-down portion, acting like a magnifying glass in relation to the temporal structure of the sound, will have allowed us to discern certain details—of grain, for example—which our listening, thus alerted and informed, will rediscover in the second passage at normal speed. We must let ourselves be guided here by the evidence, and the very way we have had to formulate our supposition dictates the response to us: it is indeed the *same* sonorous object, subjected to different means of observation, that we are comparing to itself, original and transposed. But what makes it one and the same object is precisely our will to comparison (and also the fact that the operation to which we have subjected it, in this very intention to compare it to itself, has modified it, without rendering it unrecognizable).

Suppose now that we play this slowed-down sound to an unwarned listener. Two cases can arise. Either the listener will still recognize the instrumental origin and, at the same time, the manipulation. For him there will be an original sonorous source that in fact he does not hear, but to which, however, his listening refers him: what he hears is effectively a transposed version. Or else he will not identify the real origin, will not suspect the transposition, and he will then hear an original sonorous object, which will be so automatically. (It cannot be a question of an illusion or a lack of information, since in the acousmatic attitude our perceptions cannot rest on anything external.) Inversely, for those of us who have just subjected the sonorous object to one or more transpositions, it is likely that there will be a unique object and its different transposed versions. However, it may also happen that, abandoning any intention to comparison, we attach ourselves exclusively to one or the other of these versions, in order to make use of them, for example, in a composition; they will then become for us so many original sonorous objects, completely

independent of their common origin.

We could devote ourselves to similar analyses of other types of manipulations (or variations of the act of recording [prise de son]) which, as a function of our intention, our knowledge, and our prior training, will have as their result either variations of a single sonorous object, or the creation of diverse sonorous objects. With the slowing-down, we have voluntarily chosen a modification that lends itself to equivocity. Other manipulations can transform an object in such a way that it becomes impossible to grasp any perceptible relations between the two versions. In this case, we will not speak of the permanence of a single sonorous object, if the identification no longer rests on anything but the recollection of the diverse operations to which "something that was on the magnetic tape" was subjected. If it is impossible for a listening to recognize a kinship between the diverse sonorous results—even guided by recollections and a will to comparison—we will say that the manipulations of a single signal have given way to diverse sonorous objects, whatever our intention may have been.

(d) But the sonorous object is not a state of the mind [*âme*]

To avoid confusing it with its physical cause or a "stimulus," we seemed to have grounded the sonorous object on our subjectivity. But—our last remarks already indicate this—the sonorous object is not modified for all that, neither with the variations in listening from one individual to another, nor with the incessant variations in our attention and our sensibility. Far from being subjective (in the sense of individuals), incommunicable, and practically ungraspable, sonorous objects, as we shall see, can be clearly described and analyzed. We can gain knowledge of them. We can, we hope, transmit this knowledge.

Our rapid examination of the characteristics of the sonorous object reveals this ambiguity: as an objectivity linked to a subjectivity, it will surprise us only if we obstinately insist on opposing "psychologies" and "external realities" as antinomic. Theories of knowledge did not have to wait for the sonorous object to perceive the contradiction that we are indicating here, and which is not revealed in the acousmatic situation as such [...]

The originality of the acousmatic procedure

Our approach is thus distinguished from the spontaneous instrumental practice in which [...] everything is given at once: the instrument, as the element and means of a musical civilization, and the corresponding virtuosity, and thus a certain structuration of the music extracted from it. Nor do we any longer lay claim to "the most general instrument that exists"; what we are aiming at, in fact, and which follows from the preceding remarks, is the most general musical situation that exists. We can now describe it explicitly. We have at our disposal the generality of sounds-at least in principle-without having to produce them; all we have to do is push the button on a tape recorder. Deliberately forgetting every reference to instrumental causes or preexisting musical significations, we then seek to devote ourselves entirely and exclusively to *listening*, to discover the instinctive paths that lead from the purely "sonorous" to the purely "musical." Such is the suggestion of acousmatics: to deny the instrument and cultural conditioning, to put in front of us the sonorous and its musical "possibility."

One more remark before finishing [...]. In the course of this chapter, we have already begun to *hear* with another ear [...] The interest of this remark is not a matter of pure form: it consists in noting that the operative technique has itself created the conditions of a new listening. Let us give to audio-visual techniques what is owed to them: we expect from them unheard-of sounds, new timbres, deafening plays—in a word, instrumental progress. In effect, they provide all that, but very quickly we no longer know what to do with it all; these new instruments are not easily added to the old ones, and the questions they pose singularly disrupt received notions. The tape recorder has the virtue of Pythagoras' curtain: if it creates new phenomena to observe, it creates above all new conditions of observation [...]

From Pierre Schaeffer, *Traité des objets musicaux* (Paris: Éditions du Seuil, 1966), translated for this volume by Daniel W. Smith. Used by permission of Jacqueline Schaeffer and the publisher.

Profound Listening and Environmental Sound Matter

Francisco López

The work of Spanish sound artist Francisco López grows out of his experience as an entomologist. While doing fieldwork in Latin American rainforests, López was struck by the connection between the rainforest soundscape and Pierre Schaeffer's concept of "acousmatic listening." Though full of sonic life, rainforest sound sources (insects, birds, monkeys, etc.) remain largely hidden. Over the past several decades, López's work as a sound artist has exploited this connection between field recordings and acousmatic listening. Though he considers himself an ecologist, he rejects many of the assumptions and practices of the Acoustic Ecology movement and its founder, R. Murray Schafer. In this essay, López maintains that a sound recording can never be simply representational and argues instead that it is always a creative act. López's compositions are nearly all "untitled" in an effort to draw our attention to the sounds themselves rather than to their sources. For the same reason, he asks audience members to wear blindfolds during his live performances. In this discussion of his 1997 recording La Selva (composed entirely of field recordings from the La Selva rainforest reserve in Costa Rica), López summarizes his compositional philosophy and theory of listening.

Many nature recordings as well as some current sound art embody an aesthetic that is governed by traditional bioacoustic principles, which emphasize procedural, contextual, or intentional levels of reference. Whenever there is such a stress on the representational/relational aspect of nature recordings, the meaning of the sounds is diminished, and their inner world is dissipated.

Counter to this trend, I believe in the possibility of a "blind" listening, a profound listening freed as much as possible from such constraints. This form of listening doesn't negate what is *outside* the sounds but explores and affirms all that is *inside* them. This purist, absolute conception is an attempt at fighting against the dissipation of this inner world.

Nature sound environments vs. bioacoustics

My approach departs from traditional bioacoustics, which follows a reductive interpretation of nature recordings. This discipline focuses on capturing the sounds produced by different animal species, mainly for identification purposes [...] The sounds of many animal species are included in the recordings that constitute my work, *La Selva*, and they have even been identified, but none of them has been singled out in the processes of recording and editing. With traditional bioacoustics, the aim of which is scientific, the calls, songs, or other sounds of a certain species are usually isolated from the "background" sound of its environment in both the recording and the editing processes, and the contrast between the foregrounded species and its background is even further enhanced.

In *La Selva* the sound-producing animal species appear together with other accompanying biotic and non-biotic components that inhere in the sound environment. Any resulting distinction between foreground and background was not arranged purposefully but emerged incidentally, due to the location of the microphones, as might occur with our ears. My attention was "focused" on the sound environment as a whole, which is one of the reasons why there are no indexes on the CD. I wanted to discourage a focal listening centered on the entrances of species or other sonic events.

The habitual focus on animals as the main elements in a sound environment is particularly limiting. Not only are non-biotic sound sources evident in many nature environments (rainfall, rivers, storms, wind), but there is also a type of sound-producing biotic component that exists in almost every environment and that is usually overlooked: plants. In most cases—especially forests—what we tend to refer to as the sound of rain or wind might more aptly be called the sound of plant leaves and branches.

If our reception of nature sounds were more focused on the environment as a whole rather than on the organisms we perceive to be most similar to us, we would be more likely to take the bioacoustics of plants into account. Further, a sound environment is the consequence not only of all its soundproducing components, but also of all its sound-transmitting and soundmodifying elements. The birdsong we hear in the forest is as much a consequence of the trees or the forest floor as it is of the bird. If we listen attentively, the topography, the degree of humidity of the air, or the type of materials in the topsoil become as essential and defining of the sonic environment as the sound-producing animals that inhabit a certain space [...] In my work with nature sound environments, I have moved away from the rationalizing and categorizing of these aural entities. I prefer this environmental perspective not because it is more "complete" or more "realistic" but because it encourages a perceptional shift from the recognition and differentiation of sound sources to the appreciation of the resulting sound matter. As soon as the call is in the air, it no longer belongs to the frog that produced it.

The illusion of realism or the fallacy of the "real"

The recordings that are featured on La Selva have not been modified or subjected to any process of mixing or additions. One might say that this work features "pure" nature sound environments, as is often claimed on commercially released nature recordings. But I believe this obscures a series of questions that have to do with our sense of reality and our notions about its representation in sound recordings. In some of the nature recordings that attempt to convey an easy sense of naturalness, various animal vocalizations are mixed over a background matrix of environmental sound. As in the case of traditional bioacoustics, in which sounds are isolated, we could criticize this artificial mixing approach of massive inclusion could be criticized as being unreal or hyperreal. Yet we should then consider on which grounds are we criticizing this tricky departure from reality.

Since the advent of digital recording technology (with all its concomitant sound-quality improvements), it has become all the more evident, in our attempt at apprehending the sonic world around us, that the microphones we use are not only our basic interfaces, they are non-neutral interfaces. The way different microphones "hear" varies so significantly that they can be considered as a first transformational step in the recording process. The consequences of the choices made regarding which microphones will be used are more dramatic than, for example, a further re-equalization of the recordings in the studio.

Yet even if we don't subtract or add anything to the recording, we cannot avoid imposing on it our version of what we consider to be reality. Attempts have been made to circumvent this problem by means of technological improvements. The ambisonics surround sound system, for example, is foreseen as a means of *reproducing* soundscapes, conveying a more realistic sense of envelopment and an illusion of "being there."

Although I appreciate the palette of new sound nuances and the "spaceness" facilitated by these technological improvements, it isn't "realism" that I'm after in my work. But this evocation of place seems frequently to be an objective in the creation of nature recordings.

Only I don't think "reality" is being reproduced with these techniques; rather, a hyperreality is being constructed. The carefully recorded, selected, and edited sound environments that we are able to comfortably enjoy in our favorite armchairs offer an enhanced listening experience, one that we would likely not have if we were hearing those sounds in the "real" world. Ironically, it is often these nonrealistic effects that give this kind of sound work its appeal, as they satisfy our expectations of how "the real thing" sounds. I don't mean to suggest that the recorded version is better. Rather, I want to suggest that it is not a version but a different entity with its own inherent value.

Sound editing seems to be another unavoidable obstacle in the attempt to portray aural reality. Whereas the "microphone interface" transfigures the spatial and material characteristics of sound, editing affects its temporality. This process has already begun to take place during the act of recording in that there is always a start and an end for the recording. In most cases, further "time windows" are created in the editing process when a new start and a new end are established for the sound fragment. Also, when we have several sound fragments, we create a montage.

If it is naturalness that we are after in our sound work, what kind of editing makes a piece sound more "real"? David Dunn has challenged the decision often made in nature recording to eliminate human-made sounds. He contends that the elision of sound fragments of natural environments that contain human sonic intrusions (aircraft, road traffic, etc.)—by not recording them ore editing them out—is a "false representation of reality" that "lures people into the belief that these places still fulfill their romantic expectations."¹

But I think the problem goes beyond the issue of phonographic falsification. Our bodies and imaginations engage in sonic transcription and reproduction more than the machines we have invented for these purposes. For instance, we can have a much more striking perception of such a human sonic intrusion than does a microphone, or not perceive it at all, both in the moment it is heard and in the traces it has left in our memory. Do we always realize when there's some distant traffic noise if our attention is focused on an insect call? Do we remember the nearby
voices of people when we are recalling a day we enjoyed the sound of the rain in the forest? If not, was our experience—or what we have retained of it—false? Even if our level of consciousness includes both the traffic and the insect, do we have to embrace both of them in representing reality? Because this perceptual ambiguity is at the basis of our apprehension of "reality," I don't think a recording that has been "cleaned up" of human-made sounds is any more false than one that hasn't.

I don't believe that there is such a thing as the "objective" apprehension of sonic reality. Regardless of whether or not we are recording, our minds conceptualize an ideal of sound. And not only do different people listen differently, but the very temporality of our presence in a place is a form of editing. The spatial, material, and temporal transfigurations exist independently of phonography. Our idea of the sonic reality, even our fantasy about it, *is* the sonic reality each one of us possesses [...]

This is not La Selva: Sound matter vs. representation

"This is not a pipe"

- René Magritte

What you hear on *La Selva* is not La Selva. That is, *La Selva* (the musical piece) is not a representation of La Selva (the reserve in Costa Rica). While it certainly contains elements that can be understood as representational, the musical piece is rooted not in a documentary approach but in a notion of "sound matter" [...]

What I'm defending here is the transcendental dimension of the sound matter *itself*. In my conception, sound recording does not document or represent a richer and more significant "real" world. Rather, it focuses on the inner world of sounds. When the representational/relational level is emphasized, sounds acquire a restricted meaning or a goal, and this inner world is dissipated. I'm thus straightforwardly endorsing Pierre Schaeffer's concepts of the "sound object" and of "reduced" or "acousmatic" listening. I prefer the term "matter" to "object," because I think it better reflects the continuity of the sonic material one finds in sound environments, a continuity affirmed by the non-representational approach to sound recording. I also prefer the term "profound" to the term "reduced" because the latter connotes simplification.

The richness of this sound matter in nature is astonishing, but to

appreciate it in depth we have to face the challenge of profound listening. We have to shift the focus of our attention and understanding from representation to being [...]

Environmental acoustatics: The hidden cicada paradox

Acousmatics, or the rupture of the visual cause-effect connection between the sound sources and the sounds themselves, can contribute significantly to the "blindness" of profound listening. Like most tropical rain forests, La Selva is a dynamic example of what we could call "environmental acousmatics." There are many sounds in the forest, but one rarely has the opportunity to see the sources of most of those sounds. This is not only because the multitude of animals are hidden in the foliage. The foliage also obscures itself, concealing myriad plant sound sources, caused not only by wind or rain but by falling leaves and branches—a frequent occurrence in that forest.

Many animals in La Selva live in this acousmatic world, in which the rule is not to see their conspecifics, predators, or preys, but just to hear them. This acousmatic feature is best exemplified by one of the most characteristic sounds of La Selva: the strikingly loud and harsh song of the cicadas. During the day, this is probably the sound that typically would most naturally stand in the foreground of the sonic field. You hear it with an astonishing intensity and proximity. Yet, like a persistent paradox, you never see its source.

A non-bucolic broadband world

Nature sound environments are often characterized as tranquil places, peaceful islands of quietude in a sea of rushing, noisy, human-driven habitats [...] While this notion might be true for certain natural environments and under certain conditions, I think it contributes to a restricted and bucolic view of nature that I don't share. Like many other tropical rain forests, La Selva is quite a noisy place. The diverse sounds of water (rain, watercourses), together with the sound web created by the intense calls of insects or frogs and plant sounds, make up a wonderfully powerful broadband sound environment of thrilling complexity. The textures are extremely rich, with multiple layers that merge with each other and reveal themselves by addition or subtraction, challenging one's

perception and also the very notion of what an individual sound might be.

This contributes to expanding our aural understanding of nature, not by denying stillness but by embracing a more inclusive conception, freed of our judgment and reductive categorization. I'm certainly in favor of defending the "pristine" sound quality of natural environments, but for this reason: I think we should avoid the sound intrusion that leads to sonic homogenization, thus conserving the diversity of sounds in the world. In that spirit, I also support the preservation and enhancement of the diversity of human-made sound environments and devices. The value we assign to sound environments is a complex issue that we shouldn't simplify. Under some circumstances, nature can also be considered to be an intrusion in human-made sound environments. In this sense, my approach is as futurist as it is environmentalist [...]

I consider *La Selva* to be a piece of music, but not in the classical sense of the word. Nor do I subscribe to the traditional concept of what is considered to be musical in nature, or how nature and music have been coupled—for example, the search for melodic patterns, comparisons between animal sounds and musical instruments, or "complementing" nature sounds with "musical" ones. To me, a waterfall is as musical as a birdsong.

I believe in expanding and transforming our concept of music through nature (and through "non-nature"), not in the absolute assignment of sounds to music (either in any restricted traditionally academic sense or in the Cagean universal version). Rather, it is my belief that music is an aesthetic (in its widest sense) perception/understanding/conception of sound. It's our *decision*—subjective, intentional, non-universal, not necessarily permanent—that converts nature sounds into music. We don't need to transform or complement the sounds. Nor do we need to pursue a universal and permanent assignment. It will arise when our listening moves away and is freed from being pragmatically and representationally oriented. And attaining this musical state requires a profound listening, an immersion in the *inside* of sound matter.

Note

1 David Dunn, "Nature, Sound Art, and the Sacred," in *The Book of Music and Nature*, ed. David Rothenberg and Marta Ulvaeus (Middletown, CT: Wesleyan University Press, 2001), pp. 95–107. From Francisco López, "Blind Listening," in *The Book of Music and Nature*, ed. David Rothenberg and Marta Ulvaeus (Middletown, CT: Wesleyan University Press, 2001). Modified with reference to the text's original publication as liner notes to López's recording *La Selva* V2_Archief V228. Reprinted by permission of the author and David Rothenberg.

Ambient Music*

Brian Eno

Throughout his career, Brian Eno (see also Chapters 22 and 37) has consistently challenged the distinctions between art music and popular music, musician and non-musician. A founding member of the British progressive rock group Roxy Music in the early 1970s, Eno later became a successful solo artist and producer, working on records by Talking Heads, David Bowie, U2, Laurie Anderson, Coldplay, and others. He is also a noted sound and video artist who has exhibited audio-visual installations for several decades. In the mid 1970s, intrigued by the possibilities of environmental music but critical of its actual commercial use by the Muzak Corporation and others, Eno worked to produce a more rich and subtle form that he called "ambient music," first explored on a series of solo records (Discreet Music, Music for Airports, Music for Films, On Land, etc.) In his manifesto for Ambient music in Music for Airports, Eno writes: "Ambient Music [...] must be able to accommodate many levels of listening attention without enforcing one in particular; it must be as ignorable as it is interesting." Adopted by electronica producers such as Aphex Twin, ambient became an established genre in the 1990s, developing into various subgenres and connecting with forms of drone music.

In 1978 I released the first record which described itself as ambient music, a name I invented to describe an emerging musical style.

It happened like this. In the early seventies, more and more people were changing the way they were listening to music. Records and radio had been around long enough for some of the novelty to wear off, and people were wanting to make quite particular and sophisticated choices about what they played in their homes and workplaces, what kind of sonic mood they surrounded themselves with.

The manifestation of this shift was a movement away from the assumptions that still dominated record-making at the time—that people had short attention spans and wanted a lot of action and variety, clear rhythms and song structures and, most of all, voices. To the contrary, I was noticing that my friends and I were making and exchanging long cassettes

of music chosen for its stillness, homogeneity, lack of surprises, and most of all, lack of variety. We wanted to use music in a different way—as part of the ambience of our lives—and we wanted it to be continuous, a surrounding.

At the same time there were other signs on the horizon. Because of the development of recording technology, a whole host of compositional possibilities that were quite new to music came into existence. Most of these had to do with two closely related new areas—the development of the texture of sound itself as a focus for compositional attention, and the ability to create with electronics virtual acoustic spaces (acoustic spaces that don't exist in nature).

When you walk into a recording studio, you see thousands of knobs and controls. Nearly all of these are different ways of doing the same job: they allow you to do things to sounds, to make them fatter or thinner or shinier or rougher or harder or smoother or punchier or more liquid or any one of a thousand other things. So a recording composer may spend a great deal of her compositional energy effectively inventing new sounds or combinations of sounds. Of course, this was already well known by the mid sixties: psychedelia expanded not only minds but recording technologies as well. But there was still an assumption that playing with sound itself was a "merely" technical job—something engineers and producers did—as opposed to the serious creative work of writing songs and playing instruments. With ambient music, I wanted to suggest that this activity was actually one of the distinguishing characteristics of new music, and could in fact become the main focus of compositional attention.

Studios have also offered composers virtual spaces. Traditional recording put a mike in front of an instrument in a nice-sounding space and recorded the result. What you heard was the instrument and its reverberation in that space. By the forties, people were getting a little more ambitious, and starting to invent technologies that could supplement these natural spaces—echo chambers, tape delay systems, etc. A lot of this work was done for radio—to be able to "locate" characters in different virtual spaces in radio dramas—but it was popular music which really opened the subject up. Elvis and Buddy and Eddy and all the others sang with weird tape repeats on their voices—unlike anything you'd ever hear in nature. Phil Spector and Joe Meek invented their own "sound"—by using combinations of overdubbing, home-made echo units, resonant spaces like staircases and liftshafts, changing tape-speeds and so on, they were able to

make "normal" instruments sound completely new. And all this was before synthesizers and dub reggae...

By the early seventies, when I started making records, it was clear that this was where a lot of the action was going to be. It interested me because it suggested moving the process of making music much closer to the process of painting (which I thought I knew something about). New soundshaping and space-making devices appeared on the market weekly (and still do), synthesizers made their clumsy but crucial debut, and people like me just sat at home night after night fiddling around with all this stuff, amazed at what was now possible, immersed in the new sonic worlds we could create.

And immersion was really the point: we were making music to swim in, to float in, to get lost inside.

This became clear to me when I was confined to bed, immobilized by an accident in early 1975. My friend Judy Nylon had visited, and brought with her a record of seventeenth-century harp music. I asked her to put it on as she left, which she did, but it wasn't until she'd gone that I realized that the hi-fi was much too quiet and one of the speakers had given up anyway. It was raining hard outside, and I could hardly hear the music above the rain—just the loudest notes, like little crystals, sonic icebergs rising out of the storm. I couldn't get up and change it, so I just lay there waiting for my next visitor to come and sort it out, and gradually I was seduced by this listening experience. I realized that this was what I wanted music to be—a place, a feeling, an all-around tint to my sonic environment.

After that, in April or May of that year, I made *Discreet Music*, which I suppose was really my first ambient record (though the stuff I'd done with the great guitarist Robert Fripp before that gets pretty close). This was a 31-minute piece (the longest I could get on a record at the time) which was modal, evenly textured, calm and sonically warm. At the time, it was not a record that received a very warm welcome, and I probably would have hesitated to release it without the encouragement of my friend Peter Schmidt, the painter. (In fact, it's often been painters and writers—people who use music while they work and want to make for themselves a conducive environment—who've first enjoyed and encouraged this work.)

In late 1977 I was waiting for a plane in Cologne airport. It was early on a sunny, clear morning, the place was nearly empty, and the space of the building (designed, I believe, by the father of one of the founders of Kraftwerk) was very attractive. I started to wonder what kind of music would sound good in a building like that. I thought, "It has to be interruptible (because there'll be announcements), it has to work outside the frequencies at which people speak, and at different speeds from speech patterns (so as not to confuse communication), and it has to be able to accommodate all the noises that airports produce. And, most importantly for me, it has to have something to do with where you are and what you're there for—flying, floating and, secretly, flirting with death." I thought, "I want to make a kind of music that prepares you for dying—that doesn't get all bright and cheerful and pretend you're not a little apprehensive, but which makes you say to yourself, 'Actually, it's not that big a deal if I die.'"

Thus was born the first ambient record—*Music for Airports*—which I released on my own label (called Ambient Records, of course). The inner sleeve of that release carried my manifesto:

AMBIENT MUSIC

The concept of music designed specifically as a background feature in the environment was pioneered by Muzak Inc. in the fifties, and has since come to be known generically by the term Muzak. The connotations that this term carries are those particularly associated with the kind of material that Muzak Inc. produces—familiar tunes arranged and orchestrated in a lightweight and derivative manner. Understandably, this has led most discerning listeners (and most composers) to dismiss entirely the concept of environmental music as an idea worthy of attention.

Over the past three years, I have become interested in the use of music as ambience, and have come to believe that it is possible to produce material that can be used thus without being in any way compromised. To create a distinction between my own experiments in this area and the products of the various purveyors of canned music, I have begun using the term Ambient Music.

An ambience is defined as an atmosphere, or a surrounding influence: a tint. My intention is to produce original pieces ostensibly (but not exclusively) for particular times and situations with a view to building up a small but versatile catalogue of environmental music suited to a wide variety of moods and atmospheres.

Whereas the extant canned music companies proceed from the basis of regularizing environments by blanketing their acoustic and atmospheric idiosyncrasies, Ambient Music is intended to enhance these. Whereas conventional background music is produced by stripping away all sense of doubt and uncertainty (and thus all genuine interest) from the music, Ambient Music retains these qualities. And whereas their intention is to "brighten" the environment by adding stimulus to it (thus supposedly alleviating the tedium of routine tasks and levelling out the natural ups and downs of the body rhythms), Ambient Music is intended to induce calm and a space to think.

Ambient Music must be able to accommodate many levels of listening attention without enforcing one in particular; it must be as ignorable as it is interesting.

September 1978

Like a lot of the stuff I was doing at the time, this was regarded by many English music critics as a kind of arty joke, and they had a lot of fun with it. I'm therefore pleased that the idea has stuck around so long and keeps sprouting off in all sorts of directions: it comes back round to me like Chinese Whispers—unrecognizable but intriguing. Those early seeds (there were only four releases on the original Ambient Records label—*On Land* and *Music for Airports* by me, The *Plateaux of Mirror* by Harold Budd and *Day of Radiance* by Laraaji) have contributed to a rich forest of music.

(1996)

From Brian Eno, A Year With Swollen Appendices (London: Faber & Faber, 1996).
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Auralizing the Sonosphere: A Vocabulary for Inner Sound and Sounding^{*}

Pauline Oliveros

Composer Pauline Oliveros played a key role in the development of a wide range of contemporary musical practices, among them tape music, electronic music, experimental music, minimalism, and telematic music. In the early 1960s, she cofounded the San Francisco Tape Music Center, one of the first electronic music studios in the United States. More recently, Oliveros began to build her music around drones produced on her just-tuned and often electronically processed accordion. Throughout her career, Oliveros has actively advocated for the recognition of women composers, both in her writings and through the Pauline Oliveros Foundation, inaugurated in 1985. In the late 1980s, Oliveros began to describe her life practice as "deep listening"—"a way of listening in every possible way to everything to hear no matter what you are doing"—and to develop this practice through workshops and retreats that involve sonic meditation, breath exercises, interactive performances, sound walks, and other techniques. In this essay, Oliveros describes this expansive conception of listening and proposes a vocabulary adequate to it.

The sonosphere is the sonorous or sonic envelope of the earth. The biospheric layer of the sonosphere is irrevocably interwoven with the technospherical layer of the sonosphere.¹ Humans sense the sonosphere according to the bandwidth and resonant frequencies and mechanics of the ear, skin, bones, meridians, fluids, and other organs and tissues of the body as coupled to the earth and its layers from the core to the magnetic fields as transmitted and perceived by the audio cortex and nervous system. (All of this with great variation, of course.) All cells of the earth and body vibrate.

The visual is favored over the aural in our culture. Thus we have fewer words in our vocabulary to express aurality. "Auralization" is a term coined by architect Mendel Kleiner for simulating the acoustics of rooms and buildings.² This term is also apt for referring to inner sound and sounding, or sounds and sounding perceived subjectively through inner listening. Generally the word "imagination" is used with reference to all senses. Image, of course, is a visual term. So there is a cognitive dissonance when using "imagination" to refer to hearing or creating inner sound—for example, a phrase of a new piece of music. This article introduces some vocabulary for discussing sound including the concept of the sonosphere.³

I conceive of the sonosphere as beginning at the core of the earth and radiating in ever increasing fractal connections, vibrating sonically through and encircling the earth. The sonosphere includes all sounds that can be perceived by humans, animals, birds, plants, trees, and machines. Human ears are limited to approximately 20hz to 20khz. However, this range can be exceeded by some individuals and extended with the aid of technology.

Just as we can look out into the universe far beyond our seeing eyes with the aid of telescopes and into the micro world with microscopes, we can listen far beyond and below the human range of hearing with microphones. We are, of course, protected from constantly hearing and perceiving the sounds of our body, such as the sound of cells dividing, of blood flowing or neurons firing, etc. However, we can tune into these sounds voluntarily with the aid of technology.

Why would one want to listen to sounds beyond our human range? Or sounds below our threshold of hearing? Curiosity could be the answer and also for the possibility of expanding perception of the sonorous body that we inhabit. Perhaps new data could be collected for artistic purposes and for scientific and medical purposes as well. For example, I ask musicians to auralize the sound of cells dividing as a sonic metaphor in my score *—Primordial Lift.*⁴ It could be helpful though to actually be able to hear the real sound as an example.

We live in a sonorous environment. Most of the time we shut out sound that is extraneous to our current purposes. It takes energy to ignore sounds. Our ears respond to sound involuntarily. It is the brain that processes sound to extrapolate meaning and take action.

I have faith in listening. Listening brings me to faith—faith that I can believe my ears as much as I can believe my eyes. Sound impacts my body and resonates within. Sounds keep returning to me as I listen. Our vocabulary limits discussing inner or mental sound and sounding or listening in dreams and daydreams. We need words that highlight the auditory cortex.

My appropriation of Kleiner's word "auralization" then can be used to

refer to mentally modeling sound by remembering or by creating sound. We need to know that this is possible in dreams as well as daily life. We can project sound in space or the sounding of a composition. We can auralize an improvisation. We can auralize a score without sounding a note outwardly. The body can and does resonate with such auralizations.

We need more words to access the richness of auditory phenomena and to express the meaning of sound and sounding. Here is a rudimentary list to add to our vocabulary so that, instead of speaking of sound and sounding in visual terms, we speak in auditory terms.

audiate	phonascetics	reverberating
audile	phonate	reverberative
auditive	phonation	ring
aural	phonautograph	silence
auralization	phone	silentious
aurality	phonetic	silently
call	phonic	silentness
call up	phonics	silents
dissonance	phonogram	sonic
echo	phonogramic	soniferous
inaudible	phonographic	sonogram
inaudibility	phonon	sonor
knell	racket	sornorous
noise	randomness	sonosphere
noiseless	recall	stochasticity
noiselessly	resonant	subsonic
noiselessness	resonating	supersonic
peal	resound	telephone
phon	resounding	transonic
phonal	reverberate	unhearable

There are more words to be discovered or invented and added to our vocabulary.

You might begin to notice how your attention changes when you use auditory terms instead of visual terms to speak about sound. Your dreams may become richer and soniferous. Your environment might come alive with sounds formerly unnoticed. The ear tells the eye where to look and the eye sometimes silences the ear.

Notes

- There is no dictionary definition for the *Sonosphere*. In my usage of the word, sonosphere is the sonorous or sonic envelope of the earth created by all vibrations set in motion by natural or technological forces that travel through earth from its core to beyond earth, air, fire and water as waves and phonons to receivers. Receivers are humans, all creatures perceiving and using earth bio and technological systems. Vibrations within the range of hearing may be processed consciously or unconsciously; vibrations beyond the range of the human ear are nevertheless received by the body and processed unconsciously or by other inhabitants of the earth and beyond. The biosphere (environment) defines a whole system model of life on earth (see V.I.Vernadsky, *The Biosphere* [1926], trans. D.B. Langmuir [New York: Copernicus, 1998]). Technosphere is the term used to define the effects of the technological tools that are guided by human thought. (See J. Argüelles, *Time and the Technosphere: The Law of Time in Human Affairs* [Rochester, VT: Bear and Company, 20.02].)
- 2 M. Kleiner, B. Dalenbäck, and P. Svensson, "Auralization: An Overview," *Journal of the Audio Engineering Society* 41, no. 11 (1993): 861–75.
- 3 See P. Oliveros, "Improvisation and the Sonosphere," *Contemporary Music Review* 25, no. 5 (2006): 481–2.
- 4 Music and the Brain: a symposium with integrated live performance held at the Stanley Kaplan Penthouse, Rose Building, Lincoln Center, New York on 30 October 2009. The recorded sound of a single cell resembled soft white noise with a dynamic envelope. We were asked to think of the trillions of cells in the body all sounding in this manner. Now that the medical establishment is including the impact and effect of music on the brain there will be a need for more vocabulary to discuss their findings.
- From Pauline Oliveros, Sounding the Margins: Collected Writings 1992–2009, ed. Lawton Hall (Kingston, NY: Deep Listening Publications, 2010). Used by permission of Ione.

Perceptual Geography: Third Ear Music and Structure Borne Sound

Maryanne Amacher

A pioneering experimental composer and sound artist, Maryanne Amacher studied with George Rochberg and Karlheinz Stockhausen, whose conception "spatial music" she significantly developed and expanded. In the late 1960s, Amacher created a form of telematic (or "long distance") music that became central to her City-Links series, which used open telephone lines to route environmental sound from one location to a distant site for long stretches of time. As a fellow at the Massachusetts Institute of Technology in the 1970s, Amacher became interested in "ear tones" (sounds produced by the ears in response to auditory stimuli) and began incorporating them into her compositions and installations. Later that decade, she launched a series of intense site-specific installations that explored "structure-borne sound" (sound carried through walls and floors as well as through the air). The text below conjoins two essays. The first describes the work with "ear tones" that Amacher would later call "third ear music," that is, music that generates what scientists would later call "distortion product otoacoustic emissions." In the second essay, published here for the first time, Amacher describes her work producing installations using structure-borne sound.

Psychoacoustic phenomena in musical composition: Some features of "perceptual geography" (1977)

Summary of perceptual geography

A major part of all musical experience is the fact that we create "additional tones" in our ears and brain in response to many of the acoustic intervals in the music. Classical composers have certainly composed intuitively with these tone sensations, enriching harmonic structures, and orchestrations. And the same might be said for the practice of music in general, particularly good performances. Even though the existence of responsive tones is well established in modem psychoacoustics, they continue to be regarded as a subjective aspect of musical composition. Academic music

theory and criticism have not yet confronted how "additional tones" can be developed *consciously* in the composition of music, i.e. their role in the *technique* of musical composition.¹

Our experience of these responsive tones sensations are more or less subliminal. My work involves bringing them to surface, removing the subliminal status, the perceptual glue binding them to the acoustic intervals. The work seeks ways of composing with "additional tones," so that tones originating within human anatomy exist in their own right, i.e. become *perceptually more* than an accident of acoustic tones in the room, attain conscious interplay with them. To do this I have developed what I call a "perceptual geography," which allows me to prepare for the existence of these tone sensations, by *distinguishing* them in time and space, perceptually.

The response tones we create as a result of the acoustic space we are in, matter to me as a composer. Tones in the room affect our mind and our body. The latter respond by creating new tones. What I am calling "perceptual geography" is the interplay, the meeting of these tones, *our* processing of the given. I distinguish where the tones originate, in the room, in the ear, in the brain, in order to examine this map and to amplify it musically. I want to listen more carefully, to what are innate and perhaps even distinctly human capabilities. This involves developing a music which more clearly lets us "hear" some of these responses, lets us "know" that given acoustic intervals are indeed affecting responses in our ears and brain. It is a music which emphatically *brings attention* to what is "happening" to us.

With traditional musical instruments, the experience of *our* processing is more or less subliminal, because energy is distributed over such a complex spectrum. This aspect of the musical experience can be enhanced with the addition of simple tones, produced electronically, because they are capable of concentrating energy at certain specific frequencies. Simple tones allow us to present clearly the *structure* of the interval—the ratio characterizing the interval. This amounts to a "reinforcing" of something very basic, that we have previously "known" and experienced "less clearly" in music; the same interval given by two musical instruments would contain much more harmonic information.

I am sure that past composers understood much of this and would have liked to pursue it further. Today, this music can exist because of the use of simple tones, produced electronically, in musical composition, and can be developed because of the computer—and with the knowledge from modern research in musical acoustics—it is time to take these further steps.

In the music I am describing, superpositions created in ears and brain are reinforced. Tone responses can emerge from subliminal existence and become truly "audible" *recognizable* experiences. I use simple tones, selected purposefully for these reinforcement functions; musical instruments create the timbre of the tone structure, and relate specifically, in melody, rhythm, pitch, close interval relationship, to tones and/or patterns being created in ears and brain. An interplay is cultivated between musicians and tone sensations. It is intricate. The musicians embellish, improvise with human-given tone responses.

It *is* a matter of composing—distinguishing ears and brain as different tone spaces, and creating musical dimensions for them. The composer "ghost writes" the scenario, prepares existence for tone responses in time, and space, perceptually. The selection of acoustic intervals may be determined now by choices made regarding particular tone sensations to be created in ear and brain spaces. Tone responses in ears and brain are no longer merely an accident of the acoustic tones compositionally, but can now play a critical part in the selection of those tones.

Relation to some of my recent musical work

For some time I have been exploring certain psycho-acoustical phenomena in my compositions, deliberately. These works examine different ways in which access to a perceptual geography can enhance the development and experience of a musical structure. The music I plan to develop involves a composition of perceptual space, much more detailed than any I have previously composed. In this music I will be combining the results of my work with the perception of dimension in (1) the acoustic space (sounding "within the room") with that of (2) tone sensations *originating within* human anatomy, which are not acoustically present in the room; produced *internally*, they are stimulated by given combinations of tones in the room; they exist in the ear and in the brain.² Belonging to the traditional woodwork of musical composition and performance, there is no question of their reality—our mind-body creates them whenever we experience music. Considered a mysterious ingredient of music, they are sometimes called "additional tones."³

These dimensions co-exist in all music, but (2) is more or less

subliminal in traditional musical experience. We regard such "additional tones"—such as missing fundamentals and combination tones—as fallouts, residues of the "real" tones. In composing, the "real" (i.e. the acoustic tone) is chosen and the others result, as accidents we come to depend on. My work is in bringing (2) to surface, removing the *subliminal status*, the perceptual glue binding it to (1). The work seeks ways of composing with response tones, so that (2) exists in its own right, i.e. becomes *perceptually more* than accident of acoustic tones in the room—attains conscious interplay with them.

My recent works, *Remainder, Labyrinth Gives Way to Skin, Listening at Boundary* are steps towards developing the proposed music. They explore situations at boundaries of perception: scenarios existing between acoustic space and mind interpreting pattern, subjective threshold, body resonance. I have developed this music intuitively so far by intense listening research —recognizing, identifying, attempting to understand implications of the various musical phenomena I experienced. I later found many of these to be characterized by events—superpositions resulting from given acoustic stimuli—taking place within neural and auditory anatomy, described best in the research of Roederer and Oster, notably, specific interval (Roederer) and sound level (Oster) studies [....]

"Orchestration" of the music; scenario

[...] Our responses to the basic intervals perhaps are distinctly human ones. They exist in all musical experiences. They are basic, "mechanistic"—"they go on without us"—whether we "know" it or not. In the music I am describing, simple tones now *bring attention* to "what goes on without us." We "listen" to "it." Musicians weave tones around our response tones as they are being created. Energy is created in the interplay. "It" *feels* itself. Grows an arm. Starts to learn. Rapport is cultivated. "It" gets smarter. A counterpoint exists: music explores what has been suppressed, and with its curious changes, strange levels of mood, mind, provokes new responses, our response to "it."

Right now our subtleties barely exist for us—"they go on without us" like the "additional tones," adjuncts of our actions in the environment. We do not listen to them. They belong to the "machine," we dare not acknowledge. That wonderfully complex, gentle, subtle Gorgon, responding every moment, with its intricate abilities—mysterious beyond our comprehension—we dare not look. The riddle remains. One of human potential. "What is responding every moment for 'us,' but we are not allowed to respond to 'it'?" Image in stone? Man in control?

From the point of view of biological evolution, von Bekesy compared the basilar membrane to a piece of skin with an ENORMOUSLY MAGNIFIED "TOUCH" SENSITIVITY. I take the implication of this analogy very seriously. To evolve, we will create more consciously with such extremely sensitive endowments, increasing the subtlety in our responsive energies. We do not acknowledge our subtleties, much less appreciate them. So much in our environment requires "keeping them on" but says pretend "it's" not responding, don't let outside or inside touch you. (Music played at such intense levels, although primitive, represents a need to at least feel some of this capability in action.) To evolve with our sensitivities, we must learn to *feel* with them, in intricate subtle situations. The interplay between musicians and response tones with their corresponding shaping features is intended to stimulate rapport between dormant energies. I think we can approach some of these experiences, gently through music.

About the big waves of structure borne sound (1983)

Working with the space and its existent architecture is the only way I'm able to create the experiences I wish to make with my music.⁴ To understand this it is necessary to experience these works! The music I compose must be STAGED. It must be staged for each situation it will sound in—to travel into the structure of the room it sounds in—to be fully experienced. Although I try to prepare even my conventional concerts this way, it is difficult. "MUSIC FOR SOUND JOINED ROOMS" is the best expression, and most important direction of my work right now.

The music I compose takes on its "life" only when it becomes PART OF THE ARCHITECTURE IT SOUNDS IN. What sounds restrained, faint-hearted, or trapped, like too much energy trying to free itself, becomes an entity, a creature "alive" once staged to sound within the structure of a space. This is not just poetry. The principles are in the physics of sound. What acousticians call "structure borne sound" in contrast to "airborne." The faster sound travels, the bigger the wavelength. Sound travels much faster in structure than it does in air. THE SOUND WAVE FOR MIDDLE C IS ONLY 4 FT. IN AIR, IN STRUCTURE IT IS OVER 20 FT! Because of this the SHAPES WITHIN THE MUSIC ARE REINFORCED, ENHANCED by size, and we really FEEL THEM WITH OUR BODIES, not just with our ears, as we do when sound is only airborne, hearing them much more abstractly. Their size now matches better the dimensions of our bodies. Walking, we feel the sound move around and through us, as it circulates our space. Only pygmies, children, and midgets can stand side-by-side a 4 FT. middle C! (I am reminded of Le Corbusier's Modular system matching architectural dimensions to those of our bodies.)

Music that is emphatic, intense and very strong is TRULY POWERFUL, not sounding harsh, strained, or hurting the ears. THESE ARE GIANT WAVES, not sounding like they want to be giant waves, as when they are five times smaller airborne only! ENERGY is really expansive and BRILLIANT, lifting up from the ground, sweeping through the space, not cramped and forced. These waves are big enough to carry the intensity of this music.

Perhaps even more important, musical shapes which are composed as delicate and thread-like in nature, just barely there, are not CLEAR SHAPES. Their curves, sensitive drifts and turns can float or coast SOLIDLY, as a FRAGILE, yet VIVID PRESENCE, with real focus and penetrating mystery. Whereas in conventional airborne loudspeaker placements, such phrases will sound unfocused, as though "fainting," without real presence in their shape. They will be just quiet sounds, not quite there. Structure-borne waves are big enough to project the most subtle, sensitive features in music.

Oddly enough, after being staged through structure, the shapes within music sound really focused—as presences in the air—in some cases, they can almost be "seen." Again, this is because of their physical enhancement. In much of my work, I try very hard to position phrases and shapes in the music to be like sculptural presences in air, so they will sound at specific locations or heights in the room, and not as though they are originating from the loudspeakers. To do this, I must first reinforce and magnify the shapes by sending them through walls, and other architectural features in a space, such as the horseshoe shape in the old theaters. I use conventional airborne loudspeaker placements in these installations only for equalization, and balancing the distribution of sound. In some of these instances I've enjoyed "exhibiting" them as illusionary objects, i.e. they seem to be producing no sound as you stand next to them (they are very large on the floor), because the music you hear in the space is first structure borne, traveling from walls, doorways, etc. but localized very carefully to sound above your head.

I work with the physical characteristics of the space for every performance or installation I make, deciding what music I will use and how I will develop it, for each situation. Working experientially with my music in these many different situations over the years, and trying to achieve such sensitive, special effects, I gradually understood more clearly the physics with which they operate. From these experiences I discovered that architecture not only enhances the physical, acoustic characteristics of music—timbre, resonance, shapes and phrases within the music—and thus magnifies both ENERGY and SUBTLETY in the music, but perhaps even more extraordinary, it can truly EXPAND THE EXPRESSIVE DRAMATIC DIMENSIONS OF MUSIC.

It is these understanding which have led to my "MUSIC FOR SOUND JOINED ROOMS" works, where I use the architectural features of a building ESPECIALLY to magnify the expressive features of music. It is the most developed expression of these ideas, and why my work has led to this direction. The expressive effects which result from staging the music, architecturally, as I do in "MUSIC FOR SOUND JOINED ROOMS" cannot be created any other way.

Because of the dramatic nature of this work and its expanded musical dimensions, with each work I produce, the story, images and set designs take on more importance. I create these works as installations, both with and without performances. In the performances I play and shape the musical interactions staged and composed between thematic places in a space. They are more intense, concentrated, and dramatic than the sound worlds created in the installations. These have fewer dynamic interactions between spaces, and have a more imaginary and atmospheric role in the stories.

Notes

1 "Additional tones" are considered "phenomena" to be understood by the psychoacoustician, instead of "response tones" which are induced by the composer when he selects certain acoustic intervals. I suspect this is one reason why the kind of *practical* understanding needed for creating specific kinds of responsive tones in musical composition has not been *technically* developed.

The existence of these tones affects the experience of traditional composers' work,

as well as experimental music. In electronic music, I suspect such tones are often accidentally confused with timbre (by the listener and by the composer), and partially contribute to what might be perceived as a strange and confused sound quality in the music. In this case, human response tones are not recognized perceptually, in the composing from the acoustic tones. Many experimental composers, currently interested in creating what are commonly known as "beat phenomena," with traditional musical instruments, *are consciously* composing their music to produce response tones in the listener. The limitation here is, because a sufficient theoretical foundation does not exist for distinguishing specific possibilities among the various perceptual phenomena," This often results in a music where acoustic tones function as slaves to produce response tones (the curious "beat phenomena" experienced here) when a more interesting interplay between the acoustic and particular types of response tones might be distinctly composed.

- 2 See Juan G. Roederer, *Introduction to the Physics and Psychophysics of Music* (Heidelberg Science Library, 1973), and Gerald Oster, "Auditory Beats in the Brain," *Scientific American* (October 1, 1973).
- The composition of spatial dimension acoustically (sound "within the room")— 3 composing a phrase so that some of the tones are experienced nearby, some at a distance, some locatable, some ambiguous, has continued to be an important parameter in my music. Since we are more or less without musical models for studying acoustic depth and sound localization, models have been selected from environmental spaces. One such space was a site at the Boston Harbor [City-Links #4 (Tone and Place I), November 1973–May 1976]. Here, distant sound could be heard clearly and simultaneously with nearby sound—sound occurring near the microphone, installed on a partially open window facing the ocean. For four years the sounding space was transmitted directly "live" through an open 15kc Bell program channel to my studio at MIT—a way of learning, experiencing acoustic depth in detail, and in as many changing conditions—subjective and acoustic—as possible. I wanted to induce a sense for *sound dimension*, corresponding musically to the curiously subliminal sense for melody and phrase, perhaps acquired first, from playing a musical instrument, then surely from hearing music around us much of the time. So I "played" the space; and I listened to it in the many odd hours customary to musical listening. I especially wanted to carry this "second nature" a direct experience of sounding spatial dimensions—to musical instruments, harmonic structure and combinations of instrumental timbre with other sound spectra; and even more basically, to create an experiential soil for developing ways

in which the perceptual geography of a musical structure may change over time.

- 4 Listening to my music played from conventional loudspeakers in a living room, theater, or studio is like hearing a movie or theater script read aloud, WITHOUT ACTORS OR IMAGES. If the same music is played for someone who previously experienced it staged, there is often real shock—the music they REMEMBER (what they really were RESPONDING to) is not there! Energy, subtlety—the "aliveness" of the music is not projected—only narrative and rhythmic structure. It is like a poor interpretation of a Beethoven Sonata by a bad pianist.
- From Maryanne Amacher, "Psychoacoustic Phenomena in Musical Composition: Some Features of a Perceptual Geography" (1977), presented in 1979 at The Mary Ingraham Bunting Institute of Radcliffe College, and "About the Big Waves of Structure Borne Sound," previously unpublished. Both texts used by permission of Bill Dietz and the Maryanne Amacher Archive.

16

Hearing Essay

Evelyn Glennie

Alongside the emergence of "sound studies," scholars and artists have launched the field of "deaf studies," which has contributed much to theories of sound, hearing, and listening. In 2005, the performance artist Aaron Williamson proposed replacing the phrase "hearing loss" with "deaf gain" in order to reframe deafness as a form of sensory and cognitive diversity to be celebrated rather than mourned. This attitude is shared by the eminent Scottish percussionist Evelyn Glennie. In the following essay, Glennie, who is deaf, describes hearing not as primarily auditory but as "a specialized form of touch" and details her remarkable sensitivity to sound. As a solo and ensemble artist, Glennie has performed all over the world and has collaborated with Fred Frith, Björk, and other experimental musicians. She is the subject of the 2004 documentary Touch the Sound.

Music represents life. A particular piece of music may describe a real, fictional or abstract scene from almost any area of human experience or imagination. It is the musician's job to paint a picture which communicates to the audience the scene the composer is trying to describe. I hope that the audience will be stimulated by what I have to say (through the language of music) and will therefore leave the concert hall feeling entertained. If the audience is instead only wondering how a deaf musician can play percussion then I have failed as a musician. For this reason my deafness is not mentioned in any of the information supplied by my office to the press or concert promoters. Unfortunately, my deafness makes good headlines. I have learnt from childhood that if I refuse to discuss my deafness with the media they will just make it up. The several hundred articles and reviews written about me every year add up to a total of many thousands; only a handful accurately describe my hearing impairment. More than 90% are so inaccurate that you would be forgiven for thinking that it is impossible for me to be a musician. This essay is designed to set the record straight and allow people to enjoy the experience of being entertained by an everevolving musician rather than some freak or miracle of nature.

Deafness is poorly understood in general. For instance, there is a

common misconception that deaf people live in a world of silence. To understand the nature of deafness, first one has to understand the nature of hearing.

Hearing is basically a specialized form of touch. Sound is simply vibrating air which the ear picks up and converts to electrical signals, which are then interpreted by the brain. The sense of hearing is not the only sense that can do this, touch can do this too. If you are standing by the road and a large truck goes by, do you hear or feel the vibration? The answer is both. With very low frequency vibration the ear starts becoming inefficient and the rest of the body's sense of touch starts to take over. For some reason we tend to make a distinction between hearing a sound and feeling a vibration, in reality they are the same thing. It is interesting to note that in the Italian language this distinction does not exist. The verb *sentire* means to hear and the same verb in the reflexive form *sentirsi* means to feel. Deafness does not mean that you can't hear, only that there is something wrong with the ears. Even someone who is totally deaf can still hear/feel sounds.

If we can all feel low frequency vibrations why can't we feel higher vibrations? It is my belief that we can, it's just that as the frequency gets higher and our ears become more efficient they drown out the more subtle sense of "feeling" the vibrations. I spent a lot of time in my youth (with the help of my school percussion teacher Ron Forbes) refining my ability to detect vibrations. I would stand with my hands against the classroom wall while Ron played notes on the timpani (timpani produce a lot of vibrations). Eventually I managed to distinguish the rough pitch of notes by associating where on my body I felt the sound with the sense of perfect pitch I had before losing my hearing. The low sounds I feel mainly in my legs and feet and high sounds might be particular places on my face, neck and chest.

It is worth pointing out at this stage that I am not totally deaf, I am profoundly deaf. Profound deafness covers a wide range of symptoms, although it is commonly taken to mean that the quality of the sound heard is not sufficient to be able to understand the spoken word from sound alone. With no other sound interfering, I can usually hear someone speaking although I cannot understand them without the additional input of lip-reading. In my case the amount of volume is reduced compared with normal hearing but more importantly the quality of the sound is very poor. For instance when a phone rings I hear a kind of crackle. However, it is a

distinctive type of crackle that I associate with a phone so I know when the phone rings. This is basically the same as how normally hearing people detect a phone, the phone has a distinctive type of ring which we associate with a phone. I can in fact communicate over the phone. I do most of the talking whilst the other person can say a few words by striking the transmitter with a pen, I hear this as clicks. I have a code that depends on the number of strikes or the rhythm that I can use to communicate a handful of words.

So far we have the hearing of sounds and the feeling of vibrations. There is one other element to the equation: sight. We can also see items move and vibrate. If I see a drum head or cymbal vibrate or even see the leaves of a tree moving in the wind then subconsciously my brain creates a corresponding sound. A common and ill-informed question from interviewers is "how can you be a musician when you can't hear what you are doing?" The answer is of course that I couldn't be a musician if I were not able to hear. Another often asked question is "how do you hear what you are playing?" The logical answer to this is "how does anyone hear?" An electrical signal is generated in the ear and various bits of other information from our other senses all get sent to the brain which then processes the data to create a sound picture. The various processes involved in hearing a sound are very complex, but we all do it subconsciously so we group all these processes together and call it simply listening. The same is true for me. Some of the processes or original information may be different, but to hear sound all I do is to listen. I have no more idea of how I hear than you do.

You will notice that more and more the answers are heading towards areas of philosophy. Who can say that when two normally hearing people hear a sound they hear the same sound? I would suggest that everyone's hearing is different. All we can say is that the sound picture built up by their brain is the same, so that outwardly there is no difference. For me, as for all of us, I am better at certain things with my hearing than others. I need to lip-read to understand speech but my awareness of the acoustics in a concert venue is excellent. For instance, I will sometimes describe an acoustic in terms of how thick the air feels.

To summarize, my hearing is something that bothers other people far more than it bothers me. There are a couple of inconveniences but in general it doesn't affect my life much. For me, my deafness is no more important than the fact I am female with brown eyes. Sure, I sometimes have to find solutions to problems regarding my hearing and its relation to music, but so do all musicians. Most of us know very little about hearing, even though we do it all the time. Likewise, I don't know very much about deafness. What's more, I'm not particularly interested. I remember one occasion when, uncharacteristically, I became upset with a reporter for constantly asking questions only about my deafness. I said "if you want to know about deafness, you should interview an audiologist. My speciality is music."

In this essay I have tried to explain something which I find very difficult to explain. Even so, no one really understands how I do what I do. Please enjoy the music and forget the rest.

Evelyn Glennie, "Hearing Essay" (January 1, 2015), <u>https://www.evelyn.co.uk/hearing-essay</u>. Used by permission of the author.

17

The Aural Walk

Iain Chambers

Along with Stuart Hall and Dick Hebdige, Iain Chambers is a leading figure in the influential "Birmingham School" of cultural studies. Like Hebdige, Chambers has a particular interest in the circulation of music and its role in the construction of identity, as evidenced in books such as Urban Rhythms: Pop Music and Popular Culture (1985) and Migrancy, Culture, Identity (1994). The following essay considers the transformation of listening practices provoked by portable musical technologies such as the Walkman and the now even more ubiquitous MP3 player. It responds to a common criticism of these technologies: that they encourage an aggressively private listening experience. Chambers argues that, however private, portable media players provide listening subjects with a tool for mediating their public experience, transforming it from a passive one into an active one. In Chambers' view, portable music technologies allow us to shape our audio-visual experience and thus to produce a soundtrack for our everyday lives.

"One hundred solitudes form the whole of the city of Venice—this is its spell. An image for the man of the future." Nietzsche's observation refers not to the "lonely crowd," that spectre of collective angst, nor to Poe's Man of the Crowd, who found a vicarious vitality among the throng, but to the artifice of luxurious solitude: solitude as the most exquisite refinement of all urbane design. Could it be that we come to the city in order to achieve solitude? Such has been the unspoken premise of the modern city of utopian individualism. By solitude I do not mean isolation. Isolation is a state of nature: solitude is the work of culture. Isolation is an imposition, solitude a choice.

—Brian Hatton¹

The Sony Walkman. Launched on the world in the spring of 1980, this urban, hi-fi, gadget was based on an idea that came to Akio Morita, President of Sony, while, rather appropriately, walking in New York. Over the decade and now into the nineties the Walkman has offered access to a portable soundtrack that, unlike the transistor radio, car stereo and the explicitly opposed intention of the bassboosted "ghetto blaster" or "boogie box," is, above all, an intensely private experience. However, such a refusal of public exchange and apparent regression to individual solitude also involves an unsuspected series of extensions. With the Walkman there is simultaneously a concentration of the auditory environment and an extension of our individual bodies.

For the meaning of the Walkman does not necessarily lie in itself—it sits there, neat, usually black, often wrapped in leather, and quite oblivious —but in the extension of perceptive potential. People who walk around with a Walkman might simply seem to signify a void, the emptiness of metropolitan life, but that little black object can also be understood as a pregnant zero, as the link in an urban strategy, a semiotic shifter, the crucial digit in a particular organisation of sense. For the idea of the void, of nothing, always introduces us to the paradox that nothing can only be known by knowing nothing, that is, something.² So we might suggest that the apparent vacuity of the Walkman opens up the prospect of a passage in which we discover, as Gilles Deleuze reminds us in *Logique du sens* (1969), those other cities that exist inside the city. There we move along invisible grids where emotional energies and the imaginary flow, and where the continual slippage of sense maintains the promise of meaning.

In the manifest refusal of sociability the Walkman nevertheless reaffirms participation in a shared environment. It directly partakes in the changes in the horizon of perception that characterise the late twentieth century, and which offers a world fragmenting under the mounting media accumulation of intersecting signs, sounds and images. With the Walkman strapped to our bodies we confront what Murray Schafer in his book *The Tuning of the World* calls a "soundscape," a soundscape that increasingly represents a mutable collage: sounds are selected, sampled, folded in and cut up by both the producers (DJs, rap crews, dub masters, recording engineers) and the consumers (we put together our personal play lists, skip some tracks, repeat others, turn up the volume to block out the external soundtrack or flip between the two).³ Each listener/player selects and rearranges the surrounding soundscape, and, in constructing a dialogue with it, leaves a trace in the network.

The Walkman, like the transistor radio, the portable computer, the mobile phone and, above all, the credit card, is a privileged object of contemporary nomadism. Yet, as Chantal de Gournay has pointed out, while the computer and global credit status transmit you through a-topic space in a "virtual," rather than a corporeal, reality, where time is "fatal" and space incidental, the Walkman, on the contrary, draws the world into you, reaffirms your body, and laconically signals a "diasporic identity" put together in transit.⁴ Like Walter Benjamin's description of the Parisian arcades that let light into their interiors, the Walkman brings the external world into the interior design of identities.

In this mobile, wrap-around world, the Walkman, like dark glasses and iconoclastic fashion, serves to set one apart while simultaneously reaffirming individual contact to certain common, if shifting, measures (music, fashion, aesthetics, metropolitan life ... and their particular cycles of mortality). So the Walkman is both a mask and a masque: a quiet putting into act of localised theatrics. It reveals itself as a significant symbolic gadget for the nomads of modernity, in which music on the move is continually being decontextualised and recontextualised in the inclusive acoustic and symbolic flux of everyday life.⁵ Still, if the Walkman so far represents the ultimate form of the art of transit, it also represents the ultimate musical means in mediating the ambient. For it permits the possibility, however fragile and however transitory, of imposing your soundscape on the surrounding aural environment and thereby domesticating the external world: for a moment it can all be brought under the STOP/START, FAST FORWARD, PAUSE and REWIND buttons.

The fascination of the image of the Walkman, apart from the inner secret it brazenly displays in public (what is s/he listening to?), is the ambiguous position that it occupies between autism and autonomy: that ambiguous mixture of danger and saving power, to paraphrase Heidegger's quotation from Hölderlin, that characterises modern technology. Therefore, to understand the Walkman involves multiplying on it diverse points of view, and appreciating that it does not subtract from sense but adds to and complicates it. Pursuing this we might say that our relationship to the Walkman "will be free if it opens our human existence to the essence of technology."⁶ By "essence" (Wesen) Heidegger intends something that endures through time, that dwells in the present, that offers a "sense" of technology that is not merely reducible to the "technological." Despite the nostalgia for authenticity that permeates Heidegger's discourse we can nevertheless bend his words in a suggestive direction. To the question what is technology and, in this particular case, the Walkman, we can answer that it is simultaneously a technical instrument and a cultural activity. To continue with the German philosopher's concerns, the

Walkman is an instrument and activity that contributes to the casting into sense, to the re-presenting. or en-framing (*Ge-stell*), of the contemporary world. In retracing the etymology of "technology" back to the Greek *techné* and its ancient connection to the arts, to *poiesis* and knowledge, Heidegger suggests a wider frame for thinking its sense, its particular truth.

However, as both instrument and activity, the Walkman is not simply an instrument that reveals the enduring truth of technology and being; it is also an immediate historical reality and practice. As part of the equipment of modern nomadism it contributes to the prosthetic extension of mobile bodies caught up in a decentred diffusion of languages, experiences, identities, idiolects and histories that are distributed in a tendentially global syntax. The Walkman encourages us to think inside this new organisation of time and space. Here, for example, the older, geometrical model of the city as the organiser of space has increasingly been replaced by chronometry and the organisation of time. The technology of space has been supplemented and increasingly eroded by the technology of time: the "real time," the "nanoseconds" of computer chips and monitor blips, of transitory information on a screen, of sounds snatched in the headphones. It leads to the emergence of a further dimension. "Speed suddenly returns to become a *primitive force* beyond the measure of both time and space."⁷

To travel, and to perform our *travail*, in this environment we plug in, choosing a circuit. Here, as opposed to the discarded "grand narratives" (Lyotard) of the City, the Walkman offers the possibility of a micronarrative, a customised story and soundtrack, not merely a space but a place, a site of dwelling. The ingression of such a privatised habitat in public spaces is a disturbing act. Its uncanny quality lies in its deliberate confusion of earlier boundaries, in its provocative appearance "out of place." Now, the confusion of "place," of voices, histories and experiences speaking "out of place" forms part of the altogether more extensive sense of contemporary semantic and political crisis. A previous spatial hierarchy has had increasingly to confront an excess of languages emerging out of the histories and languages of feminism, sexual rights, ethnicity, race and the environment that overflow and undercut its authority. The Walkman is therefore a political act? It is certainly an act that unconsciously entwines with many other micro-activities in conferring a different sense on the polis. In producing a different sense of space and time, it participates in rewriting the conditions of representation: where "representation" clearly

indicates both the semiotic dimensions of the everyday *and* potential participation in a political community.

In Bruce Chatwin's marvelous book *The Songlines* we are presented with the idea that the world was initially sung into being.

I have a vision of the Songlines stretching across the continents and ages; that wherever men have trodden they have left a trail of song (of which we may, now and then, catch an echo); and that these traits must reach back, in time and space, to an isolated pocket in the African savannah, where the First Man opening his mouth in defiance of the terrors that surrounded him, shouted the opening stanza of the World Song, "I AM!".⁸

The Nietzschean vision of the world, that is, a world of our making, dependent on our activity and language for its existence, is here laid out as the human adventure in which the movements of peoples, and the rigours and rhythms of bodies, limbs and voice, set the patterns, the design, the nomination, of the land, the country, our home. The religious aura of this nomadism has clearly waned in the more secular networks of Western society. Perhaps it still continues to echo inside the miniaturised headphones of modern nomads as the barely remembered traces of a once sacred journey intent on celebrating its presence in a mark, voice, sign, symbol, signature, to be left along the track.

Notes

- 1 Brian Hatton, "From Neurosis to Narrative," in Linda Brown and Deyan Sudjic, eds, *Metropolis. New British Architecture and the City* (London, ICA, 1988).
- 2 See Brian Rotman's interesting study of the question, *Signifying Nothing: The Semiotics of Zero*, (London, Macmillan, 1987).
- 3 R. Murray Schafer, *The Tuning of the World* (New York, Alfred Knopf, 1977).
- 4 Chantal de Gournay, "Citadins et nomads. L"espace public à l'épreuve des technologies de communication mobile," paper given at the Centre de Sociologie de l'Innovation of the École Nationale Supérieure des Mines, Paris, 9 January 1992.
- 5 Shuhei Hosokawa, "The Walkman Effect," *Popular Music* 4, 1984, pp. 171–3. This is a brilliant, pioneering essay on the question of the Walkman. It is extracted from a full-length study in Japanese: Shuhei Hosokawa, *Walkman no Shûjigaku* (Tokyo, Asahi Shuppan, 1981).

- 6 Martin Heidegger, "The Question Concerning Technology," in Martin Heidegger, *The Question Concerning Technology and Other Essays* (New York, Harper & Row, 1977, p. 3).
- 7 Paul Virilio, *Lo spazio critico*, Bari, Dedalo, 1988, p. 15; *L'Espace critique* (Paris, Christian Bourgois, 1984).
- 8 Bruce Chatwin, *The Songlines* (London, Picador, 1988, p. 314).
- From Iain Chambers, *Migrancy, Culture, Identity* (London: Routledge, 1994).
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Ubiquitous Listening

Anahid Kassabian

Since the late nineteenth century, music has become increasingly portable. Radio, the phonograph, and the tape recorder dislocated sounds from the place and time of their production; car stereos enabled us to hear orchestras and big bands while racing down the freeway; Walkmen and iPods allow us to take our favorite music with us anywhere at all; and MP3s can circulate around the world in a matter of seconds. This portability has made recorded music and sound increasingly ubiquitous and inescapable, flowing through speakers in supermarkets, restaurants, and gas station pumps, and spilling from TVs, phones, computers, ear buds, and other objects. Musicologist and media scholar Anahid Kassabian shows how this portability and ubiquity of music has altered our modes of listening and attention. She argues that, operating at the level of affect rather than focused listening, and fragmenting any narrative identification, ubiquitous listening constitutes us as subjects in new ways.

Whether we notice or not, our days are filled with listening [...] *Ubiquitous Listening* is about the listening that fills our days, rather than any of the listenings we routinely presume in musicology, sociology, media studies, and elsewhere. The problem I am addressing is not a disciplinary one—it crosses fields and disciplines blithely. How do we listen to the music we hear everywhere, and how does that listening engage us and activate the world we move in?

My basic thesis is this, put bluntly: *Ubiquitous musics*, these musics that fill our days, are listened to without the kind of primary *attention* assumed by most scholarship to date. That *listening*, and more generally input of the *senses*, however, still produces *affective* responses, bodily events that ultimately lead in part to what we call emotion. And it is through this listening and these responses that a nonindividual, not simply human, *distributed subjectivity* takes place across a network of music media.

Since these six terms—*ubiquitous musics, affect, the senses, attention, listening,* and *distributed subjectivity*—are at the core of everything that follows, they bear some defining.

18

Ubiquitous musics

What we listen to most is what I have termed "ubiquitous musics." I took the term *ubiquitous* from Mark Weiser's idea of ubiquitous computing, in which computing power would be embedded in everyday objects, including walls, clothing, and the like.¹ Similarly, ubiquitous musics come out of the wall, our televisions, our video games, our computers, and even out of our clothing [...] Workplaces, shops, homes, cars, buses, trains, phones, restaurants, clubs ... music is everywhere, some through our own choices, some without our sanction or control. Of course, ubiquitous music preceded Weiser's article by some sixty years—it is the first ubiquitous mediated experience after print. The point is not that ubiquitous computing is a metaphor for ubiquitous music, but rather that an idea (of embedding things in everyday life) that we think of as coming from computing long preceded it—though the significance of radio, Muzak, and phonographs was perhaps not obvious at first.

In his delightful book *Elevator Music*, Joseph Lanza has argued that ubiquitous musics (though he doesn't use the term, of course) are a quintessentially twentieth-century technology. Like thermostats, he says, they allow us to control our environments.² It is certainly true that the technologies of ubiquitous music—radio and Muzak and the phonograph, then hi-fis, transistor radios, tape decks, Walkmen, CD players, Internet radio, satellite radio, MP3 players, and so on—are produced and taken up steadily throughout the twentieth century. Moreover, at the turn of the nineteenth to the twentieth century, there was virtually no music without musicians present in the same room, whereas by the end of the century, music was everywhere, from the office to the shower, and many of us couldn't imagine life without it [...]

Affect

But what are all these ubiquitous musics doing, as we listen to them in so many different places and ways? Are they hailing us, in a process of Althusserian subject formation? Are they purveyors of ideologies? Do they constitute us as subjects? [...] If pieces of music aren't hailing us as bourgeois subjects, what are they doing? Especially at these lower levels of attention? It seems clear that they are operating in a different modality altogether, and I am proposing that that modality is affect. *Affect* is the

circuit of bodily responses to stimuli that take place before conscious apprehension. Once apprehended, the responses pass into thoughts and feelings, though they always leave behind a residue. This residue accretes in our bodies, becoming the stuff of future affective responses.

To take a simple example, then, my eyes used to well up with tears at a particular phone company ad on television. When I could register my thoughts and feelings—that the ad was stupid and calculating, commodifying the feelings of people with distant family and lovers just to sell phone service—I was wholly repulsed by the ad. But it worked on me before that analysis slipped into place, which was very quickly. Nonetheless, my affective response was even faster, and the tears came before the dislike of the ad [...]

Affect and the senses

In June 2006 I went to a memorial concert for an old family friend, renowned oud player George Mgrdichian. It was held in a relatively small club in Greenwich Village in New York, and it was *packed*. Musicians such as the Waverly Consort, the Gerard Edery Ensemble, and David Amram played, and it was extraordinary. What it was emphatically *not* was a rock concert or a club night, so it was neither especially loud nor especially bass-y in the sound mix.

Nonetheless, at several points the music flowed through the furniture into my thighs, back, and arms. This very immediate and contact experience in an unexpected context made me aware immediately of the many settings in which that experience is commonplace—for example, concerts, clubs, cars.³

The BBC did a segment in spring 2006 on what they represented as a new genre called dubstep. In it, Kode9, a dubstep producer, says, "The thing that's consistent in the music is the sub-bass. You know, it's not too much mid-range bass frequencies that you get in drum and bass just now; it's got a solid sub-bass foundation, and as I said in an ideal world anything goes on top of that."⁴ His invocation of sub-bass made me think of many settings in which music (quite often what I would call ubiquitous music) is experienced through more than ears—not only those club nights where those in the know wear earplugs to protect their hearing while reveling in the music traveling through their feet and bodies, but also in cars, and in the homes of audiophiles, whose subwoofers on their high end

Home Theater 5.1 surround-sound systems allow them to have similar body-vibrating aural experiences at will.

Dubstep DJ Joe Nice goes further: "It's a sound you can't really describe until you hear it, and it's not like you hear it in an iPod, you hear it in a CD player and you say 'OK, this sound is cool.' There's a physicality to the music, you know it's a physical listening experience. When you hear it on a big system, you hear it loud, you feel the bass move through your chest, you hear your ears get a little warm."⁵

Feeling "the bass move through your chest" and hearing "your ears get a little warm" recasts any remaining notions of hearing as a distance sense, shifting it instead into coextension with touch. Certainly this idea evokes the image of Beethoven with his ear to the piano. In *It's All Gone Pete Tong*, made in 2004 by writer/director Michael Dowse, star deejay Frankie Wilde loses his hearing from the damage done in clubs pounding out dance music. He spirals downward into a continuous paranoid drug haze until he realizes one day that he can "hear" by placing his feet on the speakers and feeling the beat. Like profoundly deaf percussionist Evelyn Glennie, he conducts his career by feeling vibrations, primarily through his feet. As Glennie has said:

Hearing is basically a specialized form of touch. Sound is simply vibrating air which the ear picks up and converts to electrical signals, which are then interpreted by the brain. The sense of hearing is not the only sense that can do this, touch can do this too. If you are standing by the road and a large truck goes by, do you hear or feel the vibration? The answer is both. With very low frequency vibration the ear starts becoming inefficient and the rest of the body's sense of touch starts to take over. For some reason we tend to make a distinction between hearing a sound and feeling a vibration, in reality they are the same thing. Deafness does not mean that you can't hear, only that there is something wrong with the ears. Even someone who is totally deaf can still hear/feel sounds.⁶

Thinking about the senses in this way, as a not rigidly differentiated field, is an idea that is very much coming into its own.

Touch and haptics

There has been a great deal of writing on touch recently, and particularly, in the wake of Deleuze and Guattari's A *Thousand Plateaus* (1987), on haptic media. *Haptic* is often taken to mean touch, and one finds the term
frequently, for example, in discussions of computer interfaces. A search for haptic music turns up reams of articles on computer instrument interfaces, and again a large number on performers and performance. In contemporary media studies, however, *haptic* is not taken quite so literally. This sense of haptic comes, as I just mentioned, from Deleuze and Guattari, and it features prominently in works by theorists such as Laura Marks and Brian Massumi.⁷ They take from *A Thousand Plateaus* the concept of Smooth and Striated space: "It seems to us that the Smooth is both the object of a close vision par excellence and the element of a haptic space (which may be as much visual or auditory as tactile). The Striated, on the contrary, relates to a more distant vision, and a more optical space —although the eye in turn is not the only organ to have this capacity."⁸ The intimacy of the senses with their theoretical world is here exceedingly clear: Striated space is allied with, though not limited to, an optical mode of apprehension, while Smooth space is haptic, that is, intimate, in contact, close, if not strictly speaking tactile.

It is this distinction that underwrites Laura Marks' wonderful book *Touch*. She wants to offer a corrective to the often bleak, masculinist, Eurocentric terrain of film theory, which has not succeeded in moving beyond an Enlightenment obsession with vision and perspective. Marks suggests that works in video and new media, in particular works by artists not from Euro-American cultures, often are haptic:

Haptic *perception* is usually defined as the combination of tactile, kinesthetic, and proprioceptive functions, the way we experience touch both on the surface of and inside our bodies. In haptic visuality, the eyes themselves function like organs of touch. Haptic visuality, a term contrasted to optical visuality, draws from other forms of sense experience, primarily touch and kinesthetics. Because haptic visuality draws on other senses, the viewer's body is more obviously involved in the process of seeing than is the case with optical visuality. The difference between haptic and optical visuality is a matter of degree, however. In most processes of seeing both are involved, in a dialectical movement from far to near, from solely optical to multisensory. And obviously we need both kinds of visuality: it is hard to look closely at a lover's skin with optical vision; it is hard to drive a car with haptic vision.⁹

Haptics then, are closely tied to erotics, to the dissolution of boundaries, to an erosion of self-other distinctions. For both Marks and Massumi, this is a shift from positioning and identification toward a more dynamic account of the relationship between us and the things with which we interact. As Massumi puts it, "The problem is no longer to explain how there can be change given positioning. The problem is to explain the wonder that there can be stasis given the primacy of process."¹⁰ This focus on process over position poses a challenge to theoretical models based on narrative and identification, though both are themselves processes.

Antiposition

Let us follow Deleuze and Guattari's "line of flight," in their language, away from narrative, alongside Marks and Massumi. The shift away from narrative identification and position draws a renewed focus onto somatic, haptic engagements with music (and other arts). As Marks puts it: "Haptic images do not invite identification with a figure so much as they encourage a bodily relationship between the viewer and the image. Thus it is less appropriate to speak of the object of a haptic look than to speak of a dynamic subjectivity between looker and image."¹¹

Such a dynamic subjectivity demands a whole-cloth rethinking of the study of music. Following Deleuze and Guattari, and Marks after them, we can speak of auditory and haptic hearing; remember, they said that "the element of a haptic space ... may be as much visual or auditory as tactile."¹² If we take seriously the notion of a dynamic subjectivity, we will have to find a way to stop analyzing music as an object external to us, but rather to describe the dynamic nonhuman subjectivity that was in process in that small club in Greenwich Village.

A dynamic subjectivity that comprises what we have for so long thought of as subject and object—scholar and music—might offer a way into thinking about ubiquitous musics. In fact, I want to go a step further than Marks: rather than a dynamic subjectivity between musicologist and music, or between subject (scholar) and object of study (e.g., a feature film), I am arguing that the two already share a large field of subjectivity, neither undifferentiated nor individualized, neither simply individual nor reductively social. Instead, I will argue that distributed subjectivity is a way of closing the gaps that plague us—gaps between ourselves and our objects, between ourselves and our students, between ourselves and a whole range of others. But, perhaps surprisingly, even works like *Touch* and Massumi's *Parables for the Virtual* presume that the engagements between and among listener(s) and work(s) will be fully attentive, and yet many, perhaps even most, of those engagements are not fully attentive at all.

Attention

Attention is another term that requires careful thought and explanation and connects with a startling range of issues. There is a significant scholarly literature on attention in cognitive psychology and neuroscience, and more recently in economics. Beginning with Herbert Simon's key talk, "Designing Organizations for an Information-Rich World," attention is seen as a resource or commodity that is increasingly scarce.¹³ As Simon so presciently argues, in an information-rich world, the thing that information uses will become scarce. And that thing is attention. This is no small matter in the current context, when information, including creative product, is overwhelmingly produced at rates no one can consume. (This is especially a problem for media makers working in forms based on advertising revenue, who need to capture attention as their main commodity, and for advertisers, who believe that positive attention will translate into sales of their product. For an interesting take on the place of music in the problem of what is being called "the attention economy," see the literature on sonic branding).¹⁴

While serious focus in the study of culture on the question of attention is still fairly new, I would argue that attention of a particular kind is what the defenders of a structural classical listening intend and assume, and sometimes even state outright. As one brief example, consider Daniel Barenboim's Reith Lectures, including specifically this passage from the second one on 14 April 2006: "In other words what they are saying to the public is you don't have to concentrate, you don't have to listen, you don't have to know anything about it, just come and you will find some association, and we will show you so many things that have nothing to do with the music and this way you will go into the music. And I ask you, ladies and gentlemen, is that the answer to the so-called crisis in classical music?"¹⁵ But declarations such as these negate in one fell swoop most of the listening that most of us engage in every day—in the car, doing chores, on hold on phones, watching television, going to sleep, in the dentist's office. While both Jonathan Crary (Suspensions of Perception: Attention, Spectacle, and Modern Culture, 1999) and Jonathan Beller (The Cinematic Mode of Production: Attention Economy and the Society of the Spectacle,

2006) have written admirable works on the question of attention, they are just scratching the surface of a truly huge question that we will have to confront in the arts and humanities, especially as attention becomes more and more fragmented with increasing numbers of new media forms. One important contribution to this problem is Katherine Hayles' essay, "Hyper and Deep Attention: The Generational Divide in Cognitive Modes," in which she argues that the deep, focused, long attention traditionally associated with the humanities is being replaced with a fragmented and multiple form of attention.¹⁶ Her focus is on the pedagogical implications of such a shift, but this is an important foray into the kinds of work on attention that are needed.

The questions of attention, and of reception or engagement more generally, will continue to press harder and harder on our theories as cultural forms become more and more interactive, and they are increasingly appearing in social theory concerned with immaterial labor, in economic studies trying to grapple with new forms of address to the senses, and in studies of affect. For the purposes of this study attention remains a central question: ubiquitous musics act, even when not engaged in a focused manner; the degree of attention one pays to them seems to rely on an enormous range of musicological, psychological, and sociological factors; and the relationship between listening and attention is anything but clear.

One way to think about this might be a kind of thought experiment: What would happen to (insert any piece of music here) if we considered the possibility that the piece was listened to in a restaurant while eating dinner with friends or in my house while I'm cleaning? For example, in his chapter in *Listening Subjects* on the song "Intruder," David Schwarz describes Peter Gabriel's version this way: "Peter Gabriel's voice as he sings the verse is very close to the microphone; he sings purely quietly, as if right into the ear of the listener. For me, it sounds as if Gabriel were putting his arm around the male listener's shoulders and sharing with him the narrator's fantasy of intruding into the space of a woman."¹⁷

What interests me here is the "arm around the shoulder" simile (and not the fact that the listener is presumed to be male, although that, too, is worthy of further thought). That fantasy structure, of Gabriel whispering into the listener's ear, seems to me to work in some settings every bit as Schwarz describes it, but it depends on a certain set of acoustic qualities, and this is the source of my question. In order to hear Gabriel's chummy stalker whisper as the kind of intimacy Schwarz posits, it has to be in the audio foreground so that it can rise to the attentional foreground. When someone whispers in your ear, it fills your field of audition, after all. And all the literature on microphones and intimacy, on Bing Crosby and Frank Sinatra and Jean Sablon, depend on the listener's field of audition being filled by the sound.¹⁸ But the majority of music we hear, we hear as auditory background, even if the industry insists on calling it foreground music.

So what happens to Schwarz's analysis of "Intruder" if it's listened to on tiny, tinny mono speakers with no bass at a low volume in a store while shopping for a new date outfit? There is, of course, no simple answer to this question, but I am clear that the fantasy Schwarz found does not work the same way in those circumstances as it does in the ones (he didn't quite notice that) he was imagining.

Of course, this problem—of attention and consciousness—is central to the study of film music, even if all that the best scholars have been able to say is that we're not supposed to notice classical Hollywood scores [...] In the case of traditional approaches to Hollywood scoring, film music should be beneath both attention and consciousness. But that doesn't make the two the same thing.

In 1988, I went to Sweden to study with Philip Tagg, and while there I read parts of Ola Stockfelt's PhD thesis, *Musik som lyssnandets konst* ("Music as the Art of Listening") [...] In it, he says:

For it to be possible to analyze this music adequately as it appears in everyday listening situations, a fragmented listening must guide us in determining both *which* parameters in the sounding music merit closer consideration in a more concentrated and reflexive study and *how* these parameters must be considered. Hence we must develop our competence reflexively to control the use of, and the shifts between, different modes of listening to different types of sounding events. In the same way that we must listen to the urban soundscape as "music" in order to make it more human, thereby developing the competence to draw up active goals for the "composition" of a more human sound environment, we must develop the competence to listen to that music precisely as a part of the soundscape in order to understand today's everyday music and/or want to develop pedagogical programs with real relevance for those who will live and participate in this musical life, we must develop our own reflexive consciousness and competence as active "idle

listeners."¹⁹

Such a posture toward music is counterintuitive, perhaps impossible. How can one study something to which one does not pay attention? How can one understand how people engage music inattentively through scholarly attention? And while reception can presumably be inattentive but conscious, can it be attentive but unconscious (in the sense of Freud's first topography)?²⁰ Or if so, which I think is correct, can it be fully not conscious? This last seems impossible, just as much as full, complete, rapturous attention does, but it bears further consideration. At the very least, however, it seems clear at this point that we need a notion of attention that includes a wide spectrum of activities that range between two impossible extremes—fully attentive and fully inattentive—and between modalities of the kind Hayles describes and more.

Listening

Of course, what is being done with varying degrees of attention is listening [...] By *listening*, I mean *a range of engagements* between and across human bodies and music technologies, whether those technologies be voices, instruments, sound systems, or iPods and other listening devices. This wipes out, immediately, the routine distinction between listening and hearing that one often finds, in which the presumption is that hearing is physiological and listening is conscious and attentive. I insist, instead, that all listening is importantly physiological, and that many kinds of listening take place over a wide range of degrees or kinds of consciousness and attention. So, the term *listening* here pushes against most of its routine uses in scholarship.

Ideas about listening undergird most music scholarship, and most of them rely in one way or another on theories of narrative. In *Introduction to the Sociology of Music* (1988), for example, Theodor Adorno's typology of listeners valorizes the expert listener above all others: "The *expert* himself, as the first type, would have to be defined by entirely adequate hearing. He would be the fully conscious listener who tends to miss nothing and, at the same time, at each moment, accounts to himself for what he has heard."²¹ Such a listener is fully conscious, fully attentive, and able to hear longitudinal, structural relationships in large-scale musical works. Adorno goes on to say, "Spontaneously following the course of

music, even complicated music, he hears the sequence, hears past, present, and future moments together so that they crystallize into a meaningful context."²² The listening he describes is recognizable to all of us who have come through music education—it is in various ways the model of what we know about common practice or tonal music.

Adorno's model of listening is, for instance, a reasonable description of one way to listen to works in sonata allegro form. What's important for my purposes is its obvious structural analogy to more representational narrative forms. What it means to "hear the sequence" is the capacity to follow a theme throughout its journey, as narratologists would put it, away from and back to home. The listener who "hears past, present, and future together" is following the plot, relating current musical events to past and future ones, "so that they crystallize into a meaningful context." The identity of the expert listener, for Adorno, is predicated on his ability to recognize and follow the musical narrative.

In [Susan] McClary's case, too, the presumption of narrative as an organizing principle is not solely of her own making. The developments of feminist theory in literary and film studies on which she draws relied heavily on psychoanalysis and on structuralist narratology. Of course, in McClary's case, she's entirely aware of her concern with narrative; [...] but McClary's reliance on narrative and narration for the structure of her argument is as clear as was Adorno's.

The case I'm trying to make here is this: from the abstract, formal relationships heard by Adorno and his fellow expert listeners to the articulation of desire to harmonic procedure in McClary's theorization, our models of how to think about music rely on linear narrativity. And as much as thinking narratively about music has taught us—and I certainly think it has taught us a *great* deal—perhaps a different paradigm will offer us some new insights.²³

In place of narrativity, I am proposing that we consider how we listen to ubiquitous musics, and how that listening engages us in sensual and sensory affective processes to situate us in fields of distributed subjectivities. But what does that mean in practice? Listening is a peculiar activity, after all. Like seeing, listening engages both representational (e.g., spoken language) sounds and sounds understood to be nonrepresentational (e.g., much of Western music, both classical and popular). But unlike visual culture, scholarly discourse is quite underdeveloped in many areas of listening and sound studies, and general public discourse is not any better. Because of this, theorizations of listening and formations of subjectivities have been relatively few; nevertheless, distributed subjectivity, as I am theorizing it, is very much an aural process.

I want, here, to argue that the production of affective responses to ubiquitous musics, through a range of partially attentive listenings, is how *distributed subjectivities* come into being [...]

Distributed subjectivities

Distributed subjectivity is my own version of a phenomenon many people have set out to describe in varying ways. Cyborgs, the network, and rhizomes, are among the best-known versions.²⁴ I am choosing a different term because I want to specify several things:

- Individual subjectivity continues to appear to us to function, even as many of the notions on which it was based have deteriorated or disappeared (the bourgeois family, Enlightenment individuality, and so on), so a plausible theory has to take account of its force in absentia, as it were, or what I earlier called the individual-subjectivity-function.
- Distributed subjectivity is constructed in and through our responses to acts of culture —speech, music, television, and the like—in ways very similar to how we once theorized individual subjects were formed, but through different processes.
- Music has a very privileged place in this formation; it is ubiquitous musics that bond and bind the field of distribution together. They are, in a sense, the channels of distribution. They put in place the experience of the network *avant la lettre*, as it were, creating the experience of distribution from the materials of broadcasting, that is, from the cables of Muzak and the airwaves of radio. In this sense, it is possible to suggest, along with Jacques Attali, that in the circulation and engagement with music in its mass cultural forms, the shape of another social order in the making, the form that would supplant mass media culture, could be and indeed was heard.²⁵
- While the Enlightenment bourgeois subject has disappeared, the feeling, the apprehension of individual subjectivity, should not be belittled in our models (see Venn 1997). We are nodes in a massive, widespread field of distribution, it is true, but nonetheless nodes with, potentially, an agglomeration of experiences and accretions of affect that are uncommon, or perhaps even unique.

Distributed subjectivity is, then, a nonindividual subjectivity, a field, but a field over which power is distributed unevenly and unpredictably, over

which differences are not only possible but required, and across which information flows, leading to affective responses. The channels of distribution are held open by ubiquitous musics. Humans, institutions, machines, and molecules are all nodes in the network, nodes of different densities.

Distributing subjectivity

I have taken the language of "distribution" from another computer phenomenon, distributed computing, because it is an apt visualization of what I am trying to describe. But first, it is crucial to point out that distributed computing necessarily comes after the development of distributed subjectivity, and therefore makes a strange metaphor. Distributed computing is only possible because it was imaginable, and it was imaginable precisely because both the forms of thought and the physical forms were already in place to enable it, as I hope to clarify.

Desktop computing treats the computer as a discrete entity; like the Enlightenment subject, it relies solely on the processing power contained within itself. Distributed computing, however, links smaller units together so that they can share processing power in a pool of sorts. For example, *The Chronicle of Higher Education* (the U.S. academic weekly newspaper of record) reported on 29 November 2002 that "a team of university researchers has verified that a large-scale computer model employing distributed-computing technology can accurately simulate protein folding, a crucial biological process. The model was run on about 40,000 machines worldwide, taking an amount of work usually reserved for supercomputers and breaking it into chunks small enough for personal computers to handle over the Internet." In this way, the unused processing power of many small computers is aggregated to make enough power to address very large-scale questions [...]

By accumulating processing power—be it human or machinic—into a collective process, researchers are approaching problems that were until very recently well beyond the scope of human research. In fact, many research tasks are advertised as piece work on Amazon's Mechanical Turk page, where workers (who are a complicated group demographically See Panagiotis Ipeirotis, "Demographics of Mechanical Turk," New York University Leonard N. Stern School of Business, Working Paper Series, March 2010.) perform what are called "Human Intelligence Tasks," or

HITs, for a few cents per item. For example, on 29 April 2012, there were 159,060 HITs available, including tasks such as finding email addresses of restaurant managers, providing Google Search ranking of particular URLs, or choosing the best category for a particular link. This enables people with some programming skills to access a collectivized pool of human intelligence to solve problems [...]

But once connectivity of these various kinds comes into being, it brings to the surface a new form of subjectivity that was already in process and that enabled the pieces to develop. Each computer and each person, then, is a dense node in a network, neither discrete nor flattened. Such a perspective on processing power offers a powerful description of contemporary subjectivity; each person—as well as many nonhuman components—is a dense node in an enormous field that is addressed by various participants in various ways and with varying degrees of power, composing, I am arguing here, a mobile terrain of ebb and flow, of power and information. Distributed subjectivity suggests a vast field, rather than a group of subjects or an individual subject, on which various connections agglomerate temporarily and then dissolve again. This field is significantly constructed through and with music [...]

Notes

- 1 Mark Weiser, "The Computer for the Twenty-First Century," *Scientific American* 265, no. 3 (September 1991): 94–104.
- 2 Joseph Lanza, *Elevator Music: A Surreal History of Muzak, Easy Listening, and Other Moodsong*, rev. ed. (Ann Arbor: University of Michigan Press, 2004), 70.
- 3 Very large organs, like the grand organ in the Liverpool Anglican Cathedral, will occasionally have sixty-four-foot pipes that give a low frequency of 8.2 Hz. Such a frequency is well below the standard hearing threshold, which is approximately 20 Hz. These will be felt rather than heard, which suggests that this experience is neither inherently electronic nor inherently recent.
- 4 British Broadcasting Company, "The Sound of Dubstep" (video feature) 6 April 2006. www.bbc.co.uk/dna/collective/A10695684
- 5 Ibid.
- 6 Evelyn Glennie, "Hearing Essay," https://www.evelyn.co.uk/hearing-essay/, reprinted in this volume.
- 7 Laura Marks, *Touch: Sensuous Theory and Multisensory Media* (Minneapolis: University of Minnesota Press, 2002). Brian Massumi, *Parables for the Virtual:*

Movement, Affect, Sensation (Durham, NC: Duke University Press, 2002).

- 8 Deleuze and Guattari, A Thousand Plateaus: Capitalism and Schizophrenia, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 493, cited in Marks, Touch, xii.
- 9 Marks, *Touch*, 2–3.
- 10 Massumi, Parables for the Virtual, 7–8.
- 11 Marks, Touch, 3.
- 12 I take *auditory* here to mean distant and observational in the same sense that *optical* does for Deleuze and Guattari and others, but this is not a simple decision. On the one hand, vision and hearing are often lumped together in thinking about the senses, often because they are understood to be "distance senses." But hearing does not have the same relationship to observation, science, and Enlightenment rationality that vision has, making the choice quite difficult.
- 13 Herbert Simon, "Designing Organizations for an Information-Rich World," in *Computers, Communication, and the Public Interest*, ed. Martin Greenberger (Baltimore: Johns Hopkins University Press, 1971).
- 14 See Steve Goodman, Sonic Warfare: Sound, Affect, and the Ecology of Fear (Cambridge, MA: MIT Press, 2010); Devon Powers, "Strange Powers: The Branded Sensorium and the Intrigue of Musical Sound," in Blowing Up the Brand: Critical Perspectives on Promotional Culture, ed. Melissa Aronczyk and Devon Powers (New York: Peter Lang, 2010); Leslie Meier, "Promotional Ubiquitous Musics: Recording Artists, Brands, and 'Rendering Authenticity," Popular Music and Society 34 (4) (2011): 399–415; Joy Roles, "Forming Soundmarks: A Critical Evaluation of the Sonic Brand within the Contemporary Mediascape," PhD thesis, University of East London, 2010.
- 15 Daniel Barenboim, BBC Reith Lecture Number 2, "The Neglected Sense," 14 April 2006, http://www.bbc.co.uk/programmes/p00gm37g
- 16 N. Katherine Hayles, "Hyper and Deep Attention: The Generational Divide in Cognitive Modes," *Profession* 13 (2007): 187–99.
- 17 David Schwartz, *Listening Subjects: Music, Psychoanalysis, Culture* (Durham, NC: Duke University Press, 1997), 91.
- 18 See Simon Frith, "The Voice as Musical Instrument," in *Music, Words, and Voice: A Reader* (Manchester, UK: Manchester University Press, 2008); and Allison McCracken, "Real Men Don't Sing Ballads: The Radio Crooner in Hollywood, 1929–1933," in *Soundtrack Available: Essays on Film and Popular Music*, ed. Pamela Wojcik and Arthur Knight (Durham, NC: Duke University Press, 2001).
- 19 Ola Stockfelt, "Adequate Modes of Listening," in Keeping Score: Music,

Disciplinarity, Culture, ed. David Schwarz, Anahid Kassabian, and Lawrence Siegel (Charlottesville: University of Virgina Press, 1997), 143.

- 20 Although Freud's second topography, id/ego/superego, is the better known, his first one, unconscious/preconscious/conscious, seems to me to be much more useful for the study of ubiquitous listening. We might think of most ubiquitous listening as "preconscious," but sadly this is not a term that has been used much outside of psychology and psychoanalysis. While I will argue [...] for a nonindividual model of distributed subjectivity, I also argue that there is a persistent individual-subjectivity-function, much like Foucault's "author-function," and were I to theorize it, the preconscious would figure prominently in my approach.
- 21 Theodor Adorno, *Introduction to the Sociology of Music* (New York: Continuum, 1988), 4.
- 22 Ibid.
- 23 The fact that we think about music in terms dependent on linear narrative doesn't necessarily mean that music is organized that way. Most music—from many kinds of popular music to minimalism to a great deal of non-Western music—is organized according to different logics, often, though not always, in circular or recursive forms. This may be one reason why critical musicology has had less effect outside of the Western tonal canon.
- On cyborgs, see Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991); on networks, see Manuel Castells, *The Information Age*, 3 vols. (London: Wiley Blackwell, 1996–1998); on rhizomes, see Deleuze and Guattari, *A Thousand Plateaus*.
- 25 Jacques Attali, *Noise: The Political Economy of Music*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1985) an excerpt from which appears in this volume.
- From Anahid Kassabian, Ubiquitous Listening: Affect, Attention, and Distributed Subjectivity (Berkeley: University of California Press, 2013). Used by permission of the publisher.

19

Forensic Listening

Lawrence Abu Hamdan

In 2011, Israeli architect Eyal Weizman and American human rights theorist Thomas Keenan coined the term "forensic aesthetics" to describe the expressive potential of inanimate things such as buildings and human remains, and the legal use of visual and auditory technologies to testify on behalf of such things. The interpretation of this evidence is not simply scientific but involves techniques of persuasion and performance that fall within the purview of rhetoric and art. "Forensic aesthetics" also encompasses the work of artists who focus on the testimony of objects. One such artist, Lawrence Abu Hamdan, concentrates on the forensics of sound. His Conflicted Phonemes (2012) project mapped the use of language and dialect analysis by Dutch officials to accept or deny the requests of Somali asylum seekers, while Earshot (2016) used audio-ballistic analysis to investigate whether Israeli soldiers had used rubber bullets or live ammunition in the deaths of two unarmed Palestinian teenagers. In this essay, Abu Hamdan describes the emergence and political complexity of "forensic listening."

Last week, a colleague and I spent three working days listening to one word from a police interview tape.

— Peter French, forensic audiologist and phonetician

1984

A radical form of listening took shape in Britain in 1984. This sonic avantgarde was not attached to any nameable cultural shift or trend, but in fact owed its origin to the passing of the Police and Criminal Evidence Act (PACE). The legislation marked a crucial shift in the conventions of testimony and what the law recognized as "truth," stretching the juridical ear beyond speech acts into speech itself—not simply hearing words spoken aloud, but actively listening to the process of speaking itself.

Code E of PACE required police interview rooms to be equipped with audio recording machines, so that all interrogations could be recorded.

This legislation was seen as a solution to claims that the police were falsifying confessions and altering statements made during interviews, as prior to this point all statements were simply written down "verbatim" by the police officers and then signed off on by the suspect.

Were it not for a handful of linguists practicing a rare strand of forensic phonetic analysis, PACE would have remained a simple and transparent article of legal reform. Instead, the act exponentially increased the use of speaker profiling, voice identification, and voice prints, in order to, among other things, determine regional and ethnic identity as well as to facilitate so-called voice lineups. Emerging out of this legislation, this scientific field marked the voice as a new medium through which to conduct legal investigations.

Prior to PACE, if it was suspected that someone's voice was on an incriminating recording—for example a bugged telephone conversation in which there was discussion of an illicit act, or a CCTV surveillance tape of a masked bank robber shouting, "Hand over the money"—that person was asked to come to the police station and give a voluntary voice sample. After PACE, doing so was no longer voluntary, and all such recordings were added to a growing sonic archive that was permanently accessible to forensic phoneticians and audiologists.

By rapidly increasing the application of forensic listening in legal investigations, PACE widened the attention of the law to include not only the voice but also many of the other sounds that constitute our sonic environment. Soon, the forensic listener was required not only to identify the voice on a recording but also the sounds in the background so as to ascertain where, by what brand of machine, and at what time of day a recording was made. PACE was the catalyst which enabled a complete spectrum of sonic frequencies to take the witness stand and testify.

Legislation similar to PACE was adopted by many other countries in the mid-1980s, resulting in the permanent installation of audio recording machines in police interview rooms around the world. As was the case in Britain, these policies resulted in independent forensic audio labs being established in these other countries, and today there are postgraduate university programs devoted to the field. JP French Associates, the UK's most prominent independent forensic audio laboratory, has worked on over 5,000 cases since 1984. Its founder, Peter French, told me in reference to PACE that "whereas up to that point … I had a trickle of work coming in, all of a sudden it was as though there had been a thunderstorm and it

started raining cassette tapes." Like courses devoted to forensic listening, labs such as French's mostly specialize in speech and speaker analysis, but both have been increasingly working on the authentication of recordings— often to asses whether they bear the marks of being edited or tampered with. Additionally, these labs now also investigate the acoustic propagation of sound at crime scenes; through a sonic reenactment of crimes, they attempt to establish what could have been heard on site. Who could have heard it? And how clearly could they have heard it?

1990

While Dr. French was wading through his flood of cassettes in the wake of the PACE storm, a team of forensic listeners in Nevada was busy selling out the profession. The 1990 trial of the heavy metal band Judas Priest was to be forensic audiology's fifteen minutes of fame and the beginning of its unshakable reputation as a pseudoscience. The civil trial examined whether the band was responsible for an incident in 1985 in which twentyyear-old James Vance and eighteen-year-old Raymond Belknap shot themselves in Sparks, Nevada, with a gun that belonged to Vance's stepfather. In their suit, the families of the two young men alleged that subliminal messages hidden throughout the band's 1978 *Stained Classs* album contributed to the suicide of Belknap and the severe injuries sustained by Vance, who died before the trial commenced.

Prior to his death, Vance had convened with lawyers, singing for them parts of his favorite Judas Priest songs. This led to the song "Better by You Better than Me" becoming the focus of analysis for the court's designated forensic listening expert, William Nickloff, who used the most up-to-date digital sonic waveform analysis technology to wow the judge with a performance of microscopically precise sonic attention. Nickloff's testimony resulted in Judas Priest's lead singer Rob Halford taking to the dock to give an acappella rendition of the song in its entirety. Afterwards, Halford faced a grueling cross-examination in which he was asked a series of questions about when, where, and why he chose to inhale and exhale during his singing. The court also devoted particular attention to Halford's "meeeee'ya," his way of singing "me." In response to the intense scrutiny of his vocal chords and enunciative patterns, Halford simply said, "It's just the way I've always sung it really."

Trained as a marine biologist, William Nickloff's supposed expertise

was the result of his work as a producer of self-help tapes for his company, Secret Sounds, Inc. Being himself a firm believer in the persuasive power of audio, Nickloff unwittingly paid the ultimate compliment to an artist's work; not even when the band recorded the album was the sound so scrutinized, and never before was Halford's singing process subjected to such specialist attention. However, the outcome of all this "high-tech" listening was the rather ambiguous identification of seven instances when the album played backwards yielded the subliminal message: "Do It!"

"Do what?" we may ask. The case was thrown out of court when Halford decided that forensic audiology was not altogether that difficult, and after a quick listen to his album backwards, he took it upon himself to present the more meaningful fragments he had found to the court with a boom box pointed directly at the judge. When the band's song "Exciter," for example, was played backwards, the lyrics "Stand by for exciter salvation is his task" could be heard as "I asked for a peppermint, I asked for her to get one."

The trial of Judas Priest demonstrates that, no matter how ridiculous the context, forensic listening begins every investigation with the obstinate idea that all sound/noise is a kind of speech if you only listen long and hard enough. And what becomes amplified in such investigations is the hermeneutic power and political potency of listening; the affirmation that listening is never simply a passive and receptive process, but an act that plays a fundamental role in the construction and facilitation of the speech of the other (person or thing, subject or object). Within the legal context, this philosophy of listening takes on alarming powers that can impact people's lives. It is alarming because, as the Judas Priest trial demonstrates, the fragile and deeply subjective process of listening starts to develop an air of objectivity and legal credence.

1998

American forensic audiologists were still blushing with embarrassment over the subliminal listening craze of the early 1990s (which also witnessed the trials, for example, of the band AC/DC and the Mountain Valley Television corporation) when a Romanian practitioner, Catalin Grigoras, began to reinstitute the radicality of his field, proving once again that "noise speaks" by relentlessly listening to the hum of Romania's national electrical grid. Grigoras theorized that the humming of electrical mains could be used as evidence to authenticate recordings, to determine their time and date and whether they have been edited or otherwise altered. Based on Grigoras' results, forensic audio labs across the world realized that the hum of the mains operates like sonar, as a sonic mapping device. The sound source emitted by the state (through the national grid) can be retrieved via a recording and analyzed to provide information and evidence on unlawful activity. Peter French describes the current juridical application of Grigoras' experiments:

If you give us a digital recording made anywhere in an urban environment in the UK, we can in principle tell you exactly when it was made. The way we do that is by recording mains electricity hum 24/7. In this country we have an alternating mains current and ours alternates at a nominal value of 50Hz per second. However, that's only a nominal value; in fact, at any moment in time it might be 49.6, or it might be 50.3. So there are micro-fluctuations in the rate of alternation that alter unpredictably minute by minute. So by recording the mains hum all around the clock all through the year, if someone gives us a digital recording—which always invariably has mains hum on it, either because the device was plugged in or because it inducts it off nearby cables or the lights in a room—we look at the fingerprint of the mains hum and correlate that with the database of our recordings, match the fingerprint, and tell you exactly when the recorded event occurred.

This forensic mode of sonic attention is astounding in its ability to reconceptualize the conventions of what constitutes the space of law; this process of listening expands the jurisdiction of the law into and completely across the national grid, pervading any space where the electricity is, almost silently, humming. Moreover, this example deepens our understanding of how national space is organized and territorially governed, as here the United Kingdom is reduced to a single linear pattern of oscillating frequency between 49 and 51hz that can be used to place its recorded subjects temporally within the invisible jurisdiction of the national grid. The legal application of Grigoras' experiment shows us that mains electricity no longer simply hums but now testifies; that forensic listening has the power to discern what of the vast and heterogeneous frequencies of the sonic world can be legally meaningful. As forensic listening advances, we will see even more radical practices of listening emerge, each one working to amplify more and more of our sonic environment into the range of legal audibility and legal affectivity.

By 2003, the US and the UK were entrenched on two fronts in the war on terror. These wars forced mass migrations that became the catalyst for immigration authorities around the world to turn to forensic speech analysis to determine which individuals had been displaced as a result of the catastrophic invasions and which were simply migrants posing as refugees. On a scale similar to the 1984 PACE act, this produced a huge proliferation of forensic listening, this time employed to help determine the validity of asylum claims made by thousands of people without identity documents, particularly in Australia, Belgium, Germany, the Netherlands, New Zealand, Sweden, Switzerland, and the United Kingdom.

In these circumstances, the interview process between the immigration authorities and the asylum seeker is recorded, and the claimant's voice is then analyzed by phoneticians, often in independent laboratories in Sweden; these, in turn, contract regional phoneticians to assess whether the voice and accent correlate with the claim of national origin. The confidence in, and the rapidly increasing predominance of, this kind of investigation within immigration law is troubling, given that its accuracy has been called into question by many forensic linguists, phoneticians, and other practitioners around the world. These skeptics are demanding substantial reforms to the techniques employed, a group of them even writing a set of "Guidelines for the Use of Language Analysis in Relation to Questions of National Origin in Refugee Cases." One of the main concerns of this group of linguists is to advocate for the idea that citizenship is a bureaucratic distinction that cannot be registered in the voice of a citizen. Another common problem raised in these guidelines is that when paired with an interpreter with a similar but not identical dialect (as is often the case), the claimant might alter their own dialect for the sake of greater comprehension, a change that might unwittingly be detrimental to their claim for refugee status. A further concern is that these speech analyses ignore essential factors related to the conditions of refugees and the means through which these conditions can become inscribed onto their voices: the porosity of phonetic borders; the constant migration of many refugees; the often bilingual or multilingual abilities of those claiming asylum; and the diffusion of linguistic and phonetic features during time spent in refugee camps. All of this is complicated even further by the fact

that some refugees may have actively concealed their origins in the past because of fears of persecution.

Phonetician Diana Eades, one of the authors of the guidelines, notes elsewhere one particularly troubling instance in which immigration authorities in New Zealand were trying to determine whether a Hazara claimant was from Afghanistan, as he asserted, or was in fact an "economic refugee" from Pakistan, where the Hazara do not face persecution as they do in Afghanistan. The claim of asylum was rejected in this case on the grounds of a single pattern of enunciation—"a hard pronunciation of the consonant T" in the word *patata*, a word spoken once during his fifteen-minute interview. Here we see the juridical ear setting aside the words spoken by the claimant, preferring to find in his speech another type of testimony, and further, how the phonetic evidence provided by our speech can potentially testify against the original testimony. These forensic analyses institute a juridical division within the voice between the phonetic (objective) and the semantic (subjective). A doubling of the testimony occurs; even though both are spoken at once by the same person, the task of the forensic listener is to designate from which testimony, phonetic or semantic, the "truth" can be heard.

2011

These forensic speech analyses force us to redefine our fundamental democratic right to freedom of speech, a concept that must now be extended to encompass not only the words we speak, but also the sonic quality of our speech itself. The voice has long been understood as the very means by which one can secure and advocate one's political and legal interests, but, though minute, these recent shifts in law and technology affirm that the stakes and conditions of speech have been dramatically altered. Therefore, the more radical the practices of listening at the core of legal investigations become, the more they herald a moment to redefine and reshape the political conventions of speech and sound in society.

Having chronologically mapped the shift in attention of legal listening from speech to sound (or the speech of sound), this essay ends with a suggestion of an equivalent shift in the way we think about the law, minutely altering political and legal terminological conventions so that they remain transparent about the ways in which our voices are placed under custody and investigated. These alterations should start at the moment of one's arrest, with the familiar caution against self-incrimination enunciated by police. In the UK, this might read:

You do not have to say anything. But it may harm your defense if you do not mention when questioned something which you later rely on in court. Anything you do say, [including the way you say it], may be given in evidence against you.

* From Lawrence Abu Hamdan, "The Freedom of Speech Itself: A Contemporary Chronology of Forensic Listening," *Cabinet* 43 (Fall 2011). Used by permission of the author.

20

Organizing the Silence

Ultra-red

The collective Ultra-red works at the intersection of art and political organizing. Founded in 1994 by two AIDS activists in Los Angeles, the group has since expanded into an international network of artists dedicated to a variety of political struggles: tenant's rights, immigration, anti-racism, education, etc. Their artisticpolitical interventions have taken multiple forms—performances, installations, radio broadcasts, and public actions—all of which involve what they call "militant sound investigation" aimed at "exploring acoustic space as enunciative of social relations." In the late 1990s, Ultra-red gained widespread attention through recordings of electronic music that incorporated interviews and field recordings from their political work. By the mid-2000s, however, inspired by John Cage's 4'33" and radical educator Paulo Freire's Pedagogy of the Oppressed, the group began to think of composing not as the production of sounds but as organizing new ways of listening. Their actions and interventions turned toward various "protocols for organized listening" (sound walks, listening sessions, fieldwork) centered around broad questions such as: What is the sound of anti-racism? What is the sound of the war on the poor? What is the sound of freedom? What is the sound of citizenship? The following text explores the group's history and artisticpolitical practice. Ultra-red members Robert Sember and Dont Rhine prepared the initial drafts of the essay and then incorporated responses to comments and suggestions by other members.

A few years ago, rather than inviting people simply to listen to the sounds we had made, we began asking, "What did you hear?" This question produced a series of analytic reflections, beginning with a query of the terms of the question itself. A conversation results between the concrete experience of the moment, an encounter with a particular sound in a specific context, and various taxonomies of listening available in cultural and political theory. How does one listen? To what does one listen? And towards what does one listen? However, even before addressing the process of listening—what it means "to hear"—the listener must decipher the pronoun, in other words: "What did *you* hear?" Is it singular or plural? In the collective listening events we have organized over the past few years, working together situates the listening experience itself as a collective object of reflections that binds together those who participate. That is, the question "What did you hear?" establishes a venue and process whereby a group of people begin to hear themselves and their possible arrangement. As we think through this scene of listening, we have become more and more compelled by a politics that emerges through the process of answering the question, "What did you hear?" as opposed to a politics that points beyond the group to a distant horizon.

The horizon

In sound, the horizon is typically figured as some form of silence, as in the limit—either phenomenological or epistemological—of perception. For the sound artist, the construction of silence can be defamiliarized with a simple intervention that asks the listener to attend to sounds that are beyond the threshold of intention as opposed to the threshold of hearing. In these instances, the command, "Listen!" is equivalent to a finger indicating a distant vanishing point. In Ultra-red's political and aesthetic inquiries we have discovered that the question "What did you hear?" proposes a different role for the artist than finger pointing and, by association, a different relationship between the artist and those invited to describe what has been heard. We might describe that difference as one in which the horizon becomes less a fixed point toward which one gestures than a measure of movement that constructs and reconstructs thresholds of change. There is the horizon that we can see or hear at a distance. Then there is the horizon perceived after occupying a place that was itself the horizon for a previous moment.

After listening with many groups of people, Ultra-red has come to think of the two different notions of the horizon—the horizons of silence—as giving shape to different notions of politics. These conceptions enunciate different political practices. The first *represents* politics, perhaps in the form of a critique or through the construction of a visual or aural image of a new political configuration. The second notion *organizes* politics. While artists (or activists) may produce work that indicates a horizon, they may find that the horizon reciprocates the gesture, touches back and brings them into a social situation that they might change and be changed by.

We say horizon. We say silence. We could just as easily say that "the

political" lacks resolution, escapes consensus, and evades agreements of tense, subject, gender, and number. As evidence of how profane discussions of the political have become within art, what artist would disagree with the statement that all art is political? But try to understand what is meant by "the political" and the statement (as well as its confident delivery) dissolves. The word appears empty of meaning or a repository for undifferentiated possibility.

Yet, something becomes possible in that indecisiveness. In light of this situation, we in Ultra-red might have a few things to say about what, or rather, how politics has come to mean in our practice. In what follows, we want to share a few reflections on how one such project shifted the very terms of the way we work. *SILENT*|*LISTEN* (2005–2006) began as an investigation into silence, fueled by an urgency to organize silence. Over time, the project became a practice of distinguishing between organizing the silence and collective listening—an investigation into organized listening. This distinction focuses us on the terms by which we are organized by our politics. For us, one such term remains the commitment to reconnecting notions of revolutionary change (i.e. anti-capitalism) with organizing.

The investigation

Ultra-red has no single organized political affiliation. However, the individual members of Ultra-red are engaged with specific social movements such as anti-racism in Britain, the struggles of migration in Germany, community-based education in London and Los Angeles, and the struggles for housing and just community development in East Los Angeles. Our associations as activists, organizers, community-based researchers, and educators directly bear on the work of Ultra-red. At the same time, our collaboration does not make up the full extent of our participation in those social movements. For some of us, Ultra-red accounts for only a small part of the day-to-day labor of our politics.

Identifying particular social movements foregrounds some of the challenges at work within our own collective as we move from specific struggles, constituencies, and locations to the conditions determined by art discourses, audiences, and spaces. Transferring often deeply felt political experiences from one context to another foregrounds the terms by which those experiences move across boundaries of language, political histories, and geographies. Even in the tender solidarity between the members of our collective, those concrete contingencies differently inflect what we as individuals mean by "the political." Furthermore, the participatory methods used within Ultra-red often register, explicitly and implicitly, specific political contexts. The consequences are enormous when we develop aesthetic procedures from methods tailored in the framework of struggles for liberation, justice, and life itself.

Among the politics whose echoes can be heard in Ultra-red is that of the AIDS crisis. From the very beginning of Ultra-red in 1994, the context of the group's experiments in field recordings was the Los Angeles AIDS activist scene—specifically the direct action of harm reduction and HIV prevention for injection drug users. The first Ultra-red compilation of electroacoustic recordings, *Second Nature* (1999), while focused on the policing of gay public sex, remained explicitly situated within the cultural analysis of the AIDS activist movement. That cultural analysis, codified in the first decade of the AIDS crisis, contained a militant gay liberationist critique of petit bourgeois panic around queer sexuality. Homophobia and its practices in government policies, public health, the media, and the institutions of religion and education were argued to be the true cause of an epidemic that, by 1987, had claimed the lives of 41,027 people in the United States alone.

Alongside others in the field, we registered the shift in focus that occurred in 2000 when the 13th International AIDS Conference in Durban, South Africa delineated the global impact of the crisis. Bringing into focus the stark reality of a pandemic that had far surpassed all projections in terms of infections and deaths, the Durban Conference produced a new sense of urgency among activists in the United States. Insight into the impact of South Africa's AIDS crisis both within that country and for US activists, showed the limitations of a distinctly American approach to AIDS activism solidified around the images and language of ACT UP— and an ambivalence emerged, rooted in the realization that North American activists had come late to the issue. On the other hand, rather than resting on the claims of progress toward ending the AIDS crisis, we confronted the brutal truth that the AIDS crisis had only just begun.

At the same time, the epidemic in the United States, as well as to a large extent in Canada, had by now become almost thoroughly managed by state and civil society administrative regimes. We were well aware of the global inequities that had produced an epidemic in the Global South exponentially larger than any in the North. Yet we, exhausted, grief stricken, and focused on sustaining hard-won processes of prevention and care, had conformed to rather than successfully challenged the race, gender, and class conditions that were at the foundation of the epidemic. The resonances between the shifting demographics of the epidemic in the Global North and Global South only heightened this ambivalence. In both settings, more women were being infected than ever before and the epidemic was increasingly one of poor people of color. In both settings, racism, as well as class and economic privilege, protects those in power protects them from the more dramatic effects of the crisis as well as inoculates them from any social accountability.

In many respects, these questions interrogated the very structure of the political. Given our dual-status as activist-artists, our questions followed us into the field of art. If the terms of the political change as a result of shifts in the affective ground of people living with and fighting against AIDS (and vice versa), then the role of the artist-activist must also change. Overwhelmed by our own ambivalence regarding AIDS activism at the time and unable to answer a growing list of questions about the conditions for intervention, we set out to investigate rather than react to the situation. By claiming the investigation as an Ultra-red project, we located much of its public manifestations within art institutions. On the one hand, we chose to do so as a way of bringing resources to the inquiry that would not be tied to the specific over-identifications that exist in the HIV/AIDS nonprofit sector. By which we mean those political economies where how someone performs their experiences of living with HIV, even when employed as case managers and peer educators, often has real consequences for access to care, life-saving treatment, and support for the larger needs that come from being poor in the United States. We hoped that the investigation would draw some attention to the conditions under which people feel authorized to speak-even subjected to repeat and perpetuate the very structures of oppression underlying the crisis.

On the other hand, we entered art institutions as a deliberate way of staging a return. We had clear memories of the dual focus of AIDS cultural analysis—critiquing the practices of representation that reproduced the conditions of the epidemic while at the same time challenging artists and cultural producers to commit themselves to direct participation in the fight against the roots of the crisis: homophobia, poverty, racism, sexism, and profiteering. Occupying the marbled galleries of the Baltimore Museum of

Art or the civic contract of the Art Gallery of Ontario, we wanted to hear what remained of the echoes of that challenge. We wanted to divine what of a previous commitment to fighting AIDS still haunted, even tormented the museum.

The silence

If Ultra-red elected to take an AIDS activist investigation out of the predictable spaces of the HIV/AIDS administrative regime with its fluorescent-lit clinics and corporate-style boardrooms, then SILENT LISTEN brought the aesthetic operations of those very spaces into the museum and gallery. To some extent, the tactic of dislocation began earlier in 2001, when Ultra-red had the idea of introducing artist and composer John Cage's 1952 composition for silence 4'33" into contexts far removed from avant-garde music. Thus, at the beginning of an AIDS literacy workshop in Echo Park, Los Angeles, we announced that we would perform Cage's composition-"The most important piece of American 20th Century music"-proceeding to sit in restrained stillness while the workshop participants, working-class Latino men living with HIV and AIDS, looked on in bemusement. At the passing of four and a half minutes, the workshop organizer announced, "Time." Then we asked, "What did you hear?" When Ultra-red was invited in 2005 by the Baltimore Museum of Art to take part in an exhibition called Sound *Politics*, we decided to use the invitation as an opportunity to expand our investigation and bring together community work with the experience of performing Cage's 4'33", devising specific protocols for listening that developed as the project traveled to a number of venues.

The protocols were part performance script and part meeting agenda. They provided specific statements of explanation and process in some places and in others listed the sequence of speakers and phases of the process. The protocols were used to guide an investigative process organized as a sequence of steps facilitated by members of Ultra-red. In the first part of the protocols for *SILENT*|*LISTEN*, Ultra-red presented a version of Cage's 4'33". This was followed by a series of questions asked directly of the audience. In the second part of the event, Ultra-red performed an electroacoustic composition made from the recorded voices of a previous installment of *SILENT*|*LISTEN*. This piece, typically around six minutes in length, acted as a prelude to a series of three or four

statements from invited participants, offered as contributions to the record of the AIDS crisis in the United States or Canada. In the third and final part of the event, the proceedings were opened to anyone from the audience who wished to make a statement for the record.

Regardless of whether the performance occurred in a grand gallery within a museum or a modestly apportioned university room, the audience always arrived to find a long table dressed with white table linens. The members of Ultra-red stood at the end of the table facing an audience seated in chairs arranged in rows that wrapped around the room. Sometimes we requested that the audience fill in the empty chairs in the first row of seats. The movement of bodies helped to break the stiff formality of the room-but not completely. Once the room settled, a member of the group would announce: "Four minutes and thirty-three seconds, composed by John Cage in 1952." The conclusion of 4'33" would sometimes produce muffled laughter and a wave of movement as people adjusted in their seats. A member of Ultra-red would then stand and, with a wireless microphone in hand, begin to move through the audience. Directing the microphone to random audience members, he asked a series of questions. As he moved around the room, the questions mapped a terrain that steadily became more and more focused on the actual terms of the investigation: "Good evening, what did you hear? When was the last time you were in this space? What is the relationship between this space and the city of ? When was the last time you talked about AIDS in this space?"

As time passed, the memory of the initial silence of 4'33'' became a receding landmark that both registered the shifts that had transpired and the potential shifts to come. Silence, therefore, became increasingly not a single horizon but a moving ground with varying speeds, topographies, and ambiences for different participants. This fact became all the more pronounced as audience members experienced the silence of waiting differently according to their own process of becoming participants. In the immediate moment after 4'33'', when invited to share what was heard, participants described how silence drew attention to the presence of others around them as well as amplified the signature resonances of the spaces in which we were gathered including the sounds of the city beyond the gallery.

Cage's by now over-determined 4'33" almost always gets described as four and a half minutes of silence. The irony of the piece, however, is that

at one of its earliest public performances at the chapel in Woodstock, New York, a torrential rainstorm, the open-air architecture of the chapel, and a rambunctious audience made for anything but a silent performance. If 4'33" is less about silence than listening, less about absence than fullness, then it is also inextricable from the experience of listening in the presence of others. This, from our perspective, remains a crucial feature of 4'33" that often eludes its commentators, leading one to doubt those claims that suggest it is first and foremost an idea and not a composition to be performed. What 4'33" composes is not so much sounds but listening as an experience of collectivity in its raw potential. 4'33" gives form to, and rehearses listening, leading us to a consideration about the nature of that collectivity gathered together for listening. As we learned from the numerous performances of 4'33", the question "What did you hear?" provoked a range of responses that underscored the variety and, in many instances, the competing frames of reference, political investments, and strategies of listening available within a group.

Some people found the nearly five minutes of silent-listening an opportunity for meditative repose. Others experienced it as effortful and uncomfortable. Even among Ultra-red, 4'33" produced different responses with a couple of us reporting, for example, anxiety over how the audience would react to such a long period of silence at the beginning of the event. These reflections produced an appreciation for the embodiment of collective listening, which includes both an awareness of the postures and protocols of listening as well as self-consciousness about how others register one's listening.

The discomfort and awkwardness of this collective silent-listening carried through to the invitation to then speak publicly in response to the question, "What did you hear?" In response to the question a small number of audience members, such as the uniformly art audience attending the performance at the Banff Center in Canada, offered well-rehearsed descriptions of Cage's work; they had heard all the unintended sounds in the room as if they were musical in the space and time of listening intentionally as if to music. Often those responses seemed delivered for our evaluation, as if the listening were a test. Other responses may have been more common but no less conventional. These ranged from "I heard nothing," "I don't know," and "I heard myself thinking," to references to the uneasiness of sitting in silence with others in a public space that usually clearly organizes the relationship between viewer/listener and object/performer. Others contributed to an inventory of sounds: shuffling feet, rustling clothes, heavy breathing, coughing, and stomach growls. Some turned the question on us: "I don't know. What did you hear?"

The questions that followed the initial "What did you hear?" began a process of situating the audience in relation to a set of concerns: "What is the relationship between this space and the city around us?" or "When was the last time you were in this space to talk about AIDS?" Regardless of whether we were in Pittsburgh or Baltimore, Toronto or Montreal, many in the audience responded by confessing that they had never been in that museum or gallery space before that day. In other words, many did not immediately understand the silence as experimental art let alone a canonical work of experimental art. It was just waiting with others, a position open to resonances far beyond the formalities and conditions of the art space. Many in the AIDS field are, for example, members of religious congregations familiar with the common experience of sitting in silence. Similarly, the receipt and delivery of medical and other services involves long periods of waiting. On another level, the silence acted as a reminder of the long years of struggle against AIDS and other oppressions that involved so many who have since died. These histories brought a near infinite set of references into the room ranging from patient anticipation to grief and frustration. In other words, the silence was filled with a search for meaning often based on the association between one experience and another

The statements

SILENT|*LISTEN* events occurred at one large table or a cluster of tables. The arrangement and dressing of these tables involved a careful calibration of aesthetic and functional considerations. We wanted the setting to be striking, even beautiful. Yet we were also interested in the tables' institutional valence as sites of authority, managerial efficiency, and analysis. As a result, they were simple, one might even say stark. The intersection between aesthetics and efficiency was also a consideration in the carefully composed protocols used to facilitate the event. The precisely scripted instructions to participants used repetition to produce what seemed to be a well-rehearsed performance as well as an efficiently run meeting. It was a combination rooted in the tropes of minimalism and conceptualism in which repetition, a reduced formal aesthetic, compressed

statements, and the fictions of the white cube's neutrality mirror the aesthetic operations of institutionalized racism, the structures that exploit and dehumanize the poor, and those apparatuses that manage capitalism's irresolvable social contradictions.

In each venue we used the folding tables and stackable chairs usually reserved for exhibition openings, educational programs, or workshops. The tablecloths came from commercial caterers and the microphones and other sound equipment, which always looked well used, were rented from local vendors. Despite their utilitarian veneer, we combined them with a formal rigor befitting the art space settings. For those who had worked in the AIDS field for a number of years, the settings recalled meeting spaces in any number of public health buildings, government offices, and community-based organizations. In these settings, the table is not understood as an ideological device. A table is simply a venue for the regularly scheduled and clearly organized meetings central to the sector's collective practice. A second association was to the cycle of conferences, symposia, and expert panels convened to address various facets of the crisis. These gatherings almost always took place in hotels or convention centers, university conference rooms, or government buildings, all of which shared a particular institutional aesthetic. However, estranged from their conventional settings and repurposed as mise-en-scene for an art event, the tables and meeting procedures brought to the fore a series of questions seldom asked in these other settings: Who speaks? Whose voice is amplified? What do we speak of and to whom? Who listens and to what end do they listen? Who has a place at the table? Who determines who has a place at the table? And on whose behalf do those seated at the table speak?

It would be possible to consider these questions an effective end-point for a political art practice. In the context of a gallery, the empty table represents a horizon of possibilities vulnerable to the vagaries of power. As artists we formulate questions others must struggle to answer—whose table is it and who decides when, how, and by whom it will be occupied? The image of politics is not, however, the totality of every aesthetic operation at work in the organization of politics. Vigilance around the aesthetics of administration can lead us to interrogate the conditions under which those in struggle organize themselves, conduct their inquiries into shared experience, question their own contradictions and the limits of their knowledge, and thereby produce their collectivity. The basic problem remains: the formal demands of organizing invoke cultural practices comparable in urgency and, perhaps on occasion, even surpassing that of an art whose point is critique or the orientation of the viewer to the horizon of possibility.

In the second part of SILENT|LISTEN, which followed the performance of 4'33", we invited representatives of local AIDS organizations to enter statements into the record of the crisis in North America. The record was an accumulation of recordings of these events. The procedure activated this by first announcing the playing of "the minutes" from the prior event; thus we gestured to a broader network of affiliations and the fact that the table had and still was accumulating a history. Questions of participation, authority, and possibility exist within history, for others have sat at similar tables and in doing so have constituted or organized the possibilities with which we are now in conversation. The manner with which participants delivered their statements as well as the contents brought into the room many of these tones and styles. Some speakers announced directly their nervousness at the fact that they come to a place and a public they did not know. They may also have informed us that their position in their organization does not usually entail speaking publicly. Someone else had that responsibility. Some communicated their discomfort and anxiety through the waver in their voice. The organization's designated speakers demonstrated a smooth efficiency and easy familiarity developed over years spent moving from venue to venue and audience to audience sharing information about the crisis or mobilizing groups around one cause or another. Some spoke from clearly announced professional positions and delivered their statements in the appropriate bureaucratic vocabulary and well-disciplined voice. Others came unrehearsed and stumbled through statements assembled from the field's clichés and spontaneous propositions and analyses. A few shared personal stories, wept, sat in silence for a time overwhelmed by hearing themselves amplified, and encouraged us all to continue the struggle in the name of someone they had loved and admired.

As the statements accumulated and layered on each other, so the possibilities of the table became less and less abstract. The variations in positions and perspective elaborated divisions that had first emerged in response to the questions asked of the audience at the beginning of the event. As a whole, however, the rhythmic unfolding, the repeated invitations to speak, and the implied invitation to listen presented these

possibilities as a response to the question: "When was the last time you were in this space to talk about AIDS?," to which almost every person in every venue responded, "never," or "I can't remember," or "I don't think I've ever spoken about AIDS in this space." The procedure broke that silence. It was a silence we reflected on during each pause within or between statements as we waited for the next person to take his or her place at the table. In the immediate future or immediate past of each statement, the intake of breathe before a statement or the exhale at its conclusion, we reflected on how the terms used by each speaker deepened our understanding of the silence and the manner of its interruption. Those who spoke were all directly involved in AIDS work. They came from AIDS service organizations, groups established by people living with AIDS, and activist groups. Those who listened, however, represented a broader set of constituencies. Many who attended the event came from the organizations we visited. Some were people who had declined to make a statement but wished to be present for the event. Others were co-workers, family members, or friends of the speakers. The art venues recruited a large segment of each audience through their own networks. Thus, the audience included a contingent who had never attended an event of avantgarde music, let alone made regular visits to the museum or gallery that hosted the event. It also included another group well rehearsed in the conventions and investments of the museum but who were almost always at some distance from the AIDS sector.

The public

The third part of *SILENT*|*LISTEN* opened up the table and the protocol to the audience, who were invited to occupy one of the empty chairs remaining at the table (there were always at least four empty chairs) and enter a statement into the record. In a number of performances this turn to the audience produced a clear break with and even resistance to the protocol. Thus, rather than waiting until seated at the table to speak or only speaking in turn, people spoke from the audience and engaged in conversation. In every performance an awkward silence followed our announcement that the table was open to other participants. To the differences mapped in the preceding parts of the event were now added the various processes of becoming participants. It became increasingly difficult to maintain the illusion of a homogeneous "public" addressed by

us but with whom we were not in some sort of collaboration. The evacuation of this notion of a distant, silent public that passes autonomously through an art space was reminiscent of the efforts by AIDS cultural analysts to deconstruct the notion of "the general public."

The founding assertion of AIDS cultural analysis is that the epidemic is not natural. Rather, for a virus to become an epidemic, the AIDS crisis resulted from structural inequality and the ideologies of heteronormativity, racism, poverty, and private profit. Those ideologies were reaffirmed each time the state, bio-medical establishment, religious institutions, the media, and so forth asked the question, "Is the public at risk from AIDS?" The question presumes that the term "public" excludes always already those affected by HIV. Thus, the public is defined in exclusion of queers, people of color, migrants, and the poor-the very people most at risk of HIV because of the inequities that organize bourgeois society. Since those populations exist outside of the public they have no legitimate claim to public health or any other means of social well-being. This is a crucial determinant of who has access to education, prevention, research, and lifesaving treatment for HIV infection. Thus, it was the very representation of the public that produced the AIDS crisis. For AIDS activists, the public is always ideological. The public is always problematic.

The correlate in the art world is the usually un-interrogated, bourgeois contingent to which the art world addresses itself and from which it claims its authority. The hegemony of this "public" is the core ideological practice of its key institutions. The failure to address the conditions that produce and sustain this hegemony perpetuates the divide between those who circulate within the art world and those who do not. This leaves little room to maneuver other than "audience development" initiatives based on liberal notions of inclusion. The authority of established notions of the public also determines the politics of institutions and the terms by which, for example, they relate to the city around them. Among the consequences of this structure are the divisions between those who are the subjects of the art world—its patrons, curators, intellectuals, and artists—and those who are its objects, requiring that the experiences of those who do not circulate within its spheres enter solely as representations. Others are spoken of or someone speaks on their behalf.

Given the heterogeneity of an audience whose members locate themselves and are located in different, even oppositional social positions, the artist/activist's demand to break the silence around oppression quickly falls back onto the person making the demand. Whose silence must be broken, whose silence must be disciplined, and what is made of the listening that silence conditions? The Brazilian radical educator Paulo Freire once argued that the culture of silence arose from both the theft of the voice of the poor as well as the complicity of the poor in their own oppression—an interpellation into the subjectivity of domination. Silence, therefore, and its culture, was the thing that had to be broken for liberation to be realized. However, much later in his life, Freire introduced into his writings a very different conception of silence. Thinking about the role of the teacher as one who facilitates the articulation and transformation of the desires of others, Freire referred to teaching as adopting a discipline of silence. Silence, therefore, is not just the culture that must be broken in order for liberation to occur. Silence is also the very condition for listening.

From On Horizons: A Critical Reader in Contemporary Art, ed. Maria Hlavajova, Simon Sheikh, and Jill Winder (Utrecht: BAK/Rotterdam: Post Editions, 2011). Used by permission of the authors. Today our acoustic technology is beginning to restore the ancient union of words and music, but especially the tape recorder has brought back the voice of the bard. — Marshall McLuhan¹

No generation of composers has been exposed to as much different music as we have, thanks to the technology of recording and the resulting boom in the quantity of music available. Twenty or thirty years ago you had to bend over backward to find a record from Bali. Today, media's gone nuts. We're just trying to incorporate these different elements that are available to us.

— John Zorn²

The phonograph does not hear as do ears that have been immediately trained to filter voices, words, and sounds out of noise; it registers acoustic events as such. — Friedrich Kittler³

The microphone is an instrument which acts toward the ear as the microscope does to the eye. It will render evident to us sounds that are otherwise absolutely inaudible. I have heard myself the tramp of a little fly across a box with a tread almost as loud as that of a horse across a wooden bridge.

— W.H. Preece (1878)⁴

Technology precedes artistic invention (as much as we artists would like to think it's the other way around!). First came the electric guitar and *then* came rock and roll.

— John Adams⁵

The gramophone record is in fact a very mixed blessing [...] Its tendency [is] to emphasize the product status of the music engraved upon it [...] The idea becomes subtly implanted, not necessarily deliberately, that in owning a record one somehow owns a piece of the work itself [...] The record also has the undesirable effect, especially in many modern works where a degree of choice is left to the performer, and in improvised music, of fixing one particular version to the exclusion of all other possibilities.

— Christopher Small⁶

The whole culture of listening to records I don't understand. Where do you look? Do you stare at a wall when you listen to records? Normally, what do record buyers do? Do they buy the record, take it home, put it on for the next ... I mean, they can last for 74 minutes! Do they sit there for 74 minutes, they don't do the dishes, just sit and look at something, or close their eyes? [...] If you could only play a record *once*, imagine the intensity you'd have to bring to the listening! In the same way that if I play something I can only play it once. There might be a great similarity between each time I play, but I cannot repeat what I play. If you could only listen to it once, don't you think it might concentrate the eardrums? — Derek Bailey⁷

Cocuments such as tape-recordings of improvisation are essentially empty, as they preserve chiefly the form that something took and give at best an indistinct hint as to the feeling and cannot of course convey any sense of time and place [...] It is impossible to record with any fidelity a kind of music that is actually derived from the room in which it is taking place—its size, shape, acoustical properties, even the view from the window [...] This music is not ideal for home listening. It is not a suitable background for social intercourse. Besides, this music does not *occur* in a home environment, and its force depends to some extent on public response.

— Cornelius Cardew⁸

I hate going to improvised music concerts [...] I just want to buy the record. I mean, you've got people who are playing for you who have years and years of thought and trial and error with this form of music. What they're giving you is information so dense that, unless you're fucking brilliant, you're not going to get all the possible trains of thought that are going on there.

— Jim O'Rourke⁹

The studio must be like a living thing. The machine must be live and intelligent. Then I put my mind into the machine by sending it through the controls and the knobs or into the jack panel. The jack panel is the brain itself, so you've got to patch up the brain and make the brain a living man, but the brain can take what you're sending into it and live.

— Lee "Scratch" Perry¹⁰

I'm so paranoid I sometimes believe I can hear edits at live concerts.

— engineer Bob Katz¹¹

The esthetic of the fabrication defect will re-utilize the sonorous trash (everyday
symphony), be they conventional or unconventional instruments (for example: toys, cars, whistles, saws, hertz orchestra, street noises, etc.) [...] It will recycle the alphabet of emotions contained in songs and musical symbols of the First World, that sealed each marked step of our affective and emotional life. They will be put to use in small "cells" of "plagiarized" material. This deliberate practice unleashes an esthetic of plagiarism, an esthetic of *arrastão* [a dragnet: technique used in urban robbery. A small group fans out and then runs furiously through a crowd, taking people's money, jewelry, bags, sometimes even clothes] that ambushes the universe of well-known and traditional music. We are at the end, thus of the composer's era, inaugurating the plagi-combinator era.

— Tom Zé¹²

The concept of owning music is really falling apart [...] There is simply no technological backing for the traditional concepts anymore. Playback, storing, copying, distributing music is effortless. Music spreads like a virus. In the longterm, recorded music will be available to anyone, anytime [...] From an artistic standpoint, being able to tap into millions of other users' record collections and bootleg archives is unprecedented and fantastic.

— Sebastian Oschatz of Oval¹³

A commonplace in the electronics industry is that ordinary consumers buy equipment whose capabilities they will never use [...] This is the iPod, capable of storing and playing ten thousand three-minute songs. How, though, would you go about choosing the ten thousand songs, or find the time to download them? What will be your principles for sorting out the five hundred hours of music contained in the little white box? Could you possibly remember the ten thousand songs in order to choose which one you wanted to hear at any given moment? [...] The iPod [...] disables its user by its very overcapacity; the glut of information generated by modern technology more largely threatens to make its receivers passive. Overload prompts disengagement.

- Richard Sennett¹⁴

In the music- and film-based segments of the culture industry, the emphasis has shifted from an object-based economic form to a performance-based one, in which living actors are regarded less as a long-term investment whose status is comparable to that of the self-employed businesspeople in the world of the visual arts; instead, they tend to have the status of day laborers [...] Musicians can only support themselves by touring and taking advertising contracts, not from the sale of reproduced sound storage media, whose reproduction has become obsolete in the digital age because copies and originals have now become technically indistinguishable.

— Diedrich Diederichsen¹⁵

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III. Music in the Age of Electronic Reproduction

Introduction

Music has always occupied the space between nature and technology, intuition and artifice. It is said to be rooted in the heartbeat and the voice; but it is no less bound up with the history of the machine. "The moment man ceased to make music with his voice alone, the art became machine-ridden," remarked cultural historian Jacques Barzun in his introduction to the inaugural concert of the Columbia-Princeton Electronic Music Center in 1961. "Orpheus' lyre was a machine, a symphony orchestra is a regular factory for making artificial sounds, and a piano is the most appalling contrivance of levers and wires this side of the steam engine."¹

Experimental practices in contemporary music have exploited both sides of the nature/technology opposition, in the process unsettling that very opposition and any stable conception of "music." When John Cage, R. Murray Schafer, and Pauline Oliveros opened music to "environmental sound," they did so largely via the tape recorder, the most revolutionary piece of technology in the history of modern music. Pierre Schaeffer and Brian Eno showed how the tape recorder and subsequent recording media created a world of virtual sound, a realm of sonic simulacra detached from any specific moment, site, or source. By the same token, the microphone hears neither *what* the ear hears nor *how* it hears. It is what Marshall McLuhan calls a technological prosthesis, an extension of the human nervous system that retrains the ear, provoking a new auditory awareness and a new set of auditory desires.

In the mid-1960s and early 1970s, these technological developments began to undermine the category of musical "authenticity." This had a particularly unsettling effect on both classical music and popular musics, both of which place a premium on *presence*, the authenticity of the singular live event.² In 1964, the celebrated pianist Glenn Gould scandalized the classical music establishment by abandoning public performance in favor of the recording studio. For Gould, the perfect

performance could only be created in the studio, pieced together from multiple takes. Hence, for Gould, "the authentic" or "the real" was a technological product. A few years later, Miles Davis made a similar move within jazz. While jazz had been identified with virtuosic playing "in the moment," Davis began to create music by recording extended improvisations and then handing them over to his producer, Teo Macero, to edit and reassemble as he wished. At the same time, from within a tradition obsessed with origins, the natural, and the spiritual, reggae producers such as King Tubby and Lee "Scratch" Perry invented "dub," a music that gleefully exploited the capacities of the recording studio to create immersive and mystical electronic spaces by fracturing, magnifying, and multiplying the vocal and instrumental tracks of a reggae song.

Recording began as a reproduction of the live act. Yet, with the proliferation of records and tapes, recording all but displaced the primacy of the live event. Glenn Gould's intervention within classical music was already well under way within rock and pop. As soon as rock performers discovered the magic of the recording studio, live performance became, at best, a simulation of the recorded product. If the classical tradition resisted this move, and rock and pop were ambivalent about it, new musics rooted in electronics positively embraced it. Disco, dub, hiphop, house, techno – all these musics begin with and are built from samples, slices of recorded sound.

With the rise of a musical culture built around recording and sampling, traditional conceptions of the author and the work came under strain. As Chris Cutler and others note, the origins of the modern notion of the "author" and the "work" are coincident with the origin of capitalism. An author is the producer of a unique, fixed, and bounded work that bears his or her signature; and copyright laws insure and protect that property. As soon as recording becomes primary, the recorded entity begins to have a public life of its own apart from its author and becomes available for appropriation and reinscription by others. It's no surprise, then, that hiphop, for example, has been plagued by litigation concerning copyright infringement. In Cutler's view (one shared by many hiphop producers, as well as musicians such as John Oswald, Negativland, and Mattin), copyright laws are no longer appropriate to a new technological and musical setting that makes the entire archive of recorded sound available for use and reuse. Hence, the culture of the remix, which appropriates and alters an "original recording," itself often a remix, producing a mise en

abime that endlessly defers any originary instance.³

Musical technologies are constantly reappropriated and redirected to ends and uses other than those originally intended. The "electric guitar" began as an amplified guitar and ended up as an entirely different instrument. The multi-track tape recorder was soon taken out of the hands of the engineer and placed into the hands of the composer. In the hands of the hiphop DJ, the turntable was transformed from a "record player" into a live sampler and percussion instrument. And the computer glitch, once an unwanted digital error, became desirable sound material for many producers of contemporary electronica. Like the recorded sample, musical technology as a whole ceases to have any given or fundamental use value, but instead is laid open to endless transformation and redirection.

With records and tapes, the notion of the original remained intact. They could be copied, but only with a loss in quality. Digital media, however, enable the infinite duplication of identical copies. And with the easy circulation of MP3s, music lost nearly all economic value. Most musical careers could no longer survive on record sales, downloads, or streaming revenue, and so live performance regained its value – the value of the singular event, aura, and presence. Once the very model of musical reproduction, the vinyl record has returned as an artisanal and fetish object. Again, musical technology reveals itself to be an agent of both liberation and impoverishment that constantly alters the conditions of musical production and reception, forcing music producers to adapt and respond.

Notes

- 1 See Chapter 64.
- 2 See Simon Reynolds, "Post-Rock," Chapter 62. Also see Evan Eisenberg, *The Recording Angel: Explorations in Phonography* (New York: McGraw-Hill, 1987) and Theodor Gracyk, *Rhythm & Noise: An Aesthetics of Rock* (Durham, NC: Duke University Press, 1996).
- 3 See also Simon Reynolds, "Versus: The Science of Remixology," *Pulse!* (May 1996) and "In the Mix: DJ Culture and Remixology, 1993–97," in *Generation Ecstasy* (Boston: Little Brown, 1998), also Christoph Cox, "Versions, Dubs, and Remixes: Realism and Rightness in Aesthetic Interpretation," in *Interpretation and Its Objects: Studies in the Philosophy of Michael Krausz*, ed. Andreea Deciu Ritivoi (Amsterdam: Rodopi, 2003).

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The Prospects of Recording

Glenn Gould

Glenn Gould was among the leading classical pianists of the twentieth century. A child prodigy, he performed with the Toronto Symphony at the age of sixteen and, at twenty two, signed a recording contract with Columbia Masterworks. Later that year (1955), he made a recording of Bach's Goldberg Variations that quickly became an international bestseller. Over the next decade, Gould toured Europe, the Soviet Union, and the United States, performing with the world's greatest orchestras. Then, in 1964, he abruptly announced his retirement from public performance. Gould's withdrawal from the stage was prompted, in part, by his feeling that public performance was demeaning, and in part by his desire to dedicate more of his time to writing and producing radio documentaries. Yet it was also driven by his view that the live concert had been eclipsed by audio recording, which could produce perfect, ideal performances that highlighted the work itself rather than the virtuosity of performers. In this 1966 essay, Gould explores the vast changes in musical ontology, phenomenology, production, and listening brought about by audio recording.

In an unguarded moment some months ago, I predicted that the public concert as we know it today would no longer exist a century hence, that its functions would have been entirely taken over by electronic media. It had not occurred to me that this statement represented a particularly radical pronouncement. Indeed, I regarded it almost as self-evident truth and, in any case, as defining only one of the peripheral effects occasioned by developments in the electronic age. But never has a statement of mine been so widely quoted—or so hotly disputed [...]

A change of acoustic

If we were to take an inventory of those musical predilections most characteristic of our generation, we would discover that almost every item on such a list could be attributed directly to the influence of the recording. First of all, today's listeners have come to associate musical performance with sounds possessed of characteristics which two generations ago were neither available to the profession nor wanted by the publiccharacteristics such as analytic clarity, immediacy, and indeed almost tactile proximity. Within the last few decades the performance of music has ceased to be an occasion, requiring an excuse and a tuxedo, and accorded, when encountered, an almost religious devotion; music has become a pervasive influence in our lives, and as our dependence upon it has increased, our reverence for it has, in a certain sense, declined. Two generations ago, concertgoers preferred that their occasional experience of music be fitted with an acoustic splendor, cavernously reverberant if possible, and pioneer recording ventures attempted to simulate the cathedrallike sound which the architects of that day tried to capture for the concert hall-the cathedral of the symphony. The more intimate terms of our experience with recordings have since suggested to us an acoustic with a direct and impartial presence, one with which we can live in our homes on rather casual terms [...]

An untapped repertoire

From a musicological point of view, the effort of the recording industry in behalf of Renaissance and pre-Renaissance music is of even greater value. For the first time, the musicologist rather than the performer has become the key figure in the realization of this untapped repertoire; and in place of sporadic and, often as not, historically inaccurate concert performances of a Palestrina mass or a Josquin chanson, or whichever isolated items were heretofore considered approachable and not too offensively pretonal, the record archivists have documented a new perspective for the history of music.

The performer is inevitably challenged by the stimulus of this unexplored repertoire. He is also encouraged by the nature of studio techniques to appropriate characteristics that have tended for a century or two to be outside his private preserve. His contact with the repertoire he records is often the result of an intense analysis from which he prepares an interpretation of the composition. Conceivably, for the rest of his life he will never again take up or come in contact with that particular work. In the course of a lifetime spent in the recording studio he will necessarily encounter a wider range of repertoire than could possibly be his lot in the concert hall. The current archival approach of many recording companies demands a complete survey of the works of a given composer, and performers are expected to undertake productions of enormous scope which they would be inclined to avoid in the concert hall, and in many cases to investigate repertoire economically or acoustically unsuitable for public audition—the complete piano works of Mozart which Walter Gieseking undertook for Angel, for instance.

But most important, this archival responsibility enables the performer to establish a contact with a work which is very much like that of the composer's own relation to it. It permits him to encounter a particular piece of music and to analyze and dissect it in a most thorough way, to make it a vital part of his life for a relatively brief period, and then to pass on to some other challenge and to the satisfaction of some other curiosity. Such a work will no longer confront him with a daily challenge. His analysis of the composition will not become distorted by overexposure, and his performance top-heavy with interpretative "niceties" intended to woo the upper balcony, as is almost inevitably the case with the overplayed piece of concert repertoire [...]

The splendid splice

Of all the techniques peculiar to the studio recording, none has been the subject of such controversy as the tape splice. With due regard to the notso-unusual phenomenon of a recording consisting of single-take sonata or symphony movements, the great majority of present-day recordings consist of a collection of tape segments varying in duration upward from one twentieth of a second. Superficially, the purpose of the splice is to rectify performance mishaps. Through its use, the wayward phrase, the insecure quaver, can, except when prohibited by "overhang" or similar circumstances of acoustical imbalance, be remedied by minute retakes of the offending moment or of a splice segment of which it forms a part. The antirecord lobby proclaims splicing a dishonest and dehumanizing technique that purportedly eliminates those conditions of chance and accident upon which, it can safely be conceded, certain of the more unsavory traditions of Western music are founded. The lobbyists also claim that the common splice sabotages some unified architectural conception which they assume the performer possesses.

It seems to me that two facts challenge these objections. The first is that many of the supposed virtues of the performer's "unified conception" relate to nothing more inherently musical than the "running scared" and "go-for-broke" psychology built up through decades of exposure to the *loggione* of Parma and their like. Claudio Arrau was recently quoted by the English journal *Records and Recordings* to the effect that he would not authorize the release of records derived from a live performance since, in his opinion, public auditions provoke stratagems which, having been designed to fill acoustical and psychological requirements of the concert situation, are irritating and antiarchitectural when subjected to repeated playbacks. The second fact is that one cannot ever splice style—one can only splice segments which relate to a conviction about style. And whether one arrives at such a conviction pretaping or posttaping (another of the time-transcending luxuries of recording: the posttaping reconsideration of performance), its existence is what matters, not the means by which it is effected.

A recent personal experience will perhaps illustrate an interpretative conviction obtained posttaping. A year or so ago, while recording the concluding fugues from volume 1 of The Well-Tempered Clavier, I arrived at one of Bach's celebrated contrapuntal obstacle courses, the fugue in A minor. This is a structure even more difficult to realize on the piano than are most of Bach's fugues, because it consists of four intense voices that determinedly occupy a register in the center octaves of the keyboard—the area of the instrument in which truly independent voice leading is most difficult to establish. In the process of recording this fugue we attempted eight takes. Two of these at the time were regarded, according to the producer's notes, as satisfactory. Both of them, number 6 and number 8, were complete takes requiring no inserted splice—by no means a special achievement, since the fugue's duration is only a bit over two minutes. Some weeks later, however, when the results of this session were surveyed in an editing cubicle and when takes 6 and 8 were played several times in rapid alternation, it became apparent that both had a defect of which we had been quite unaware in the studio: both were monotonous.

Each take had used a different style of phrase delineation in dealing with the thirty-one-note subject of this fugue—a license entirely consistent with the improvisatory liberties of baroque style. Take 6 had treated it in a solemn, legato, rather pompous fashion, while in take 8 the fugue subject was shaped in a prevailingly staccato manner which led to a general impression of skittishness. Now, the fugue in A minor is given to concentrations of strettos and other devices for imitation at close quarters, so that the treatment of the subject determines the atmosphere of the entire fugue. Upon most sober reflection, it was agreed that neither the Teutonic severity of take 6 nor the unwarranted jubilation of take 8 could be permitted to represent our best thoughts on this fugue. At this point someone noted that, despite the vast differences in character between the two takes, they were performed at an almost identical tempo (a rather unusual circumstance, to be sure, since the prevailing tempo is almost always the result of phrase delineation), and it was decided to turn this to advantage by creating one performance to consist alternately of takes 6 and 8.

Once this decision had been made, it was a simple matter to expedite it. It was obvious that the somewhat overbearing posture of take 6 was entirely suitable for the opening exposition as well as for the concluding statements of the fugue, while the more effervescent character of take 8 was a welcome relief in the episodic modulations with which the center portion of the fugue is concerned. And so two rudimentary splices were made, one which jumps from take 6 to take 8 in bar 14 and another which at the return to A minor (I forget in which measure, but you are invited to look for it) returns as well to take 6. What had been achieved was a performance of this particular fugue far superior to anything that we could at the time have done in the studio. There is, of course, no reason why such a diversity of bowing styles could not have been applied to this fugue subject as part of a regulated a priori conception. But the necessity of such diversity is unlikely to become apparent during the studio session, just as it is unlikely to occur to a performer operating under concert conditions. By taking advantage of the posttaping afterthought, however, one can very often transcend the limitations that performance imposes upon the imagination.

When the performer makes use of this postperformance editorial decision, his role is no longer compartmentalized. In a quest for perfection, he sets aside the hazards and compromises of his trade. As an interpreter, as a go-between serving both audience and composer, the performer has always been, after all, someone with a specialist's knowledge about the realization or actualization of notated sound symbols. It is, then, perfectly consistent with such experience that he should assume something of an editorial role. Inevitably, however, the functions of the performer and of the tape editor begin to overlap. Indeed, in regard to decisions such as that taken in the case of the abovementioned A-minor fugue, it would be

impossible for the listener to establish at which point the authority of the performer gave way to that of the producer and the tape editor, just as even the most observant cinema goer cannot ever be sure whether a particular sequence of shots derives from circumstances occasioned by the actor's performance, the exigencies of the cutting room, or the director's a priori scheme. That the judgment of the performer no longer solely determines the musical result is inevitable. It is, however, more than compensated by the overwhelming sense of power which editorial control makes available to him [...]

The "live" performance on records

Before examining the larger ramifications for the future of recording, I should like to consider here some hardy strains of argument that perennially decry the influence of recording upon standard items of the repertoire and upon the hierarchy of the musical profession.

These arguments sometimes overlap each other, and it can become rather difficult to detect the area of protest with which each is concerned. However, under a general heading of "humanitarian idealism" one might list three distinguishable subspecies, which can be summarized as follows: (1) An argument for aesthetic morality: Elisabeth Schwarzkopf appends a missing high C to a tape of *Tristan* otherwise featuring Kirsten Flagstad, and indignant purists, for whom music is the last blood sport, howl her down, furious at being deprived a kill. (2) Eye versus ear orientation: a doctrine that celebrates the existence of a mystical communication between concert performer and public audience (the composer being seldom mentioned). There is a vaguely scientific pretension to this argument, and its proponents are given to pronouncements on "natural" acoustics and related phenomena. (3) Automation: a crusade which musicians' union leaders currently share with typesetters and which they affirm with the fine disdain of featherbedding firemen for the diesel locomotive. In the midst of a proliferation of recorded sound which virtually erases earlier listening patterns, the American Federation of Musicians promotes that challenging motto "Live Music Is Best"-a judgment with the validity of a "Win with Willkie" sticker on the windshield of a well-preserved '39 LaSalle.

As noted, these arguments tend to overlap and are often joined together in celebration of occasions that afford opportunity for a rearguard holding action. Among such occasions, none has proved more useful than the recent spate of recorded "live" performances—events which straddle two worlds and are at home in neither. These events affirm the humanistic ideal of performance; they eschew (so we are told!) splices and other mechanical adventures, and hence are decidedly "moral"; they usually manage to suppress a sufficient number of pianissimo chords by an outbreak of bronchitis from the floor to advertise their "live"-ness and confirm the faith of the heroically unautomated.

They have yet another function, which is, in fact, the essence of their appeal for the short-sellers: they provide documentation pertaining to a specific date. They are forever represented as occasions indisputably of and for their time. They spurn that elusive time-transcending objective which is always within the realization of recorded music. For all time, they can be examined, criticized, or praised as documents securely located in time, and about which, because of that assurance, a great deal of information and, in a certain sense, an emotional relation, is immediately available. With regard to the late Dutch craftsman who, having hankered to take upon himself the mantle of Vermeer, was martyred for a reluctance to live by the hypocrisy of this argument, I think of this fourth circumstance—this question of historical date—as the van Meegeren syndrome.

Hans van Meegeren was a forger and an artisan who for a long time has been high on my list of private heroes. Indeed, I would go so far as to say that the magnificent morality play which was his trial perfectly epitomizes the confrontation between those values of identity and of personalresponsibility-for-authorship which post-Renaissance art has until recently accepted and those pluralistic values which electronic forms assert. In the 1930s van Meegeren decided to apply himself to a study of Vermeer's techniques and-for reasons undoubtedly having more to do with an enhancement of his ego than with greed for guilders-distributed the works thus achieved as genuine, if long lost, masterpieces. His prewar success was so encouraging that during the German occupation he continued apace with sales destined for private collectors in the Third Reich. With the coming of VE Day, he was charged with collaboration as well as with responsibility for the liquidation of national treasures. In his defense van Meegeren confessed that these treasures were but his own invention and, by the values this world applies, quite worthless-an admission which so enraged the critics and historians who had authenticated his collection in the first place that he was rearraigned on charges of forgery and some while later passed away in prison.

The determination of the value of a work of art according to the information available about it is a most delinquent form of aesthetic appraisal. Indeed, it strives to avoid appraisal on any ground other than that which has been prepared by previous appraisals. The moment this tyranny of appraisaldom is confronted by confused chronological evidence, the moment it is denied a predetermined historical niche in which to lock the object of its analysis, it becomes unserviceable and its proponents hysterical. The furor that greeted van Meegeren's conflicting testimony, his alternate roles of hero and villain, scholar and fraud, decisively demonstrated the degree to which an aesthetic response was genuinely involved.

Some months ago, in an article in the Saturday Review, I ventured that the delinquency manifest by this sort of evaluation might be demonstrated if one were to imagine the critical response to an improvisation which, through its style and texture, suggested that it might have been composed by Joseph Haydn. (Let's assume it to be brilliantly done and most admirably Haydnesque.) I suggested that if one were to concoct such a piece, its value would remain at par-that is to say, at Haydn's valueonly so long as some chicanery were involved in its presentation, enough at least to convince the listener that it was indeed by Haydn. If, however, one were to suggest that although it much resembled Haydn it was, rather, a youthful work of Mendelssohn, its value would decline; and if one chose to attribute it to a succession of authors, each of them closer to the present day, then-regardless of their talents or historical significance-the merits of this same little piece would diminish with each new identification. If, on the other hand, one were to suggest that this work of chance, of accident, of the here and now, was not by Haydn but by a master living some generation or two before his time (Vivaldi, perhaps), then this work would become—on the strength of that daring, that foresight, that futuristic anticipation—a landmark in musical composition.

And all of this would come to pass for no other reason than that we have never really become equipped to adjudicate music per se. Our sense of history is captive of an analytical method which seeks out isolated moments of stylistic upheaval—pivot points of idiomatic evolution—and our value judgments are largely based upon the degree to which we can assure ourselves that a particular artist participated in or, better yet, anticipated the nearest upheaval. Confusing evolution with accomplishment, we become blind to those values not explicit in an analogy with stylistic metamorphosis.

The van Meegeren syndrome is entirely apropos of our subject, because the arguments contra the prospects of recording are constructed upon identical criteria. They rely, most of all, upon a similar confirmation of historical data. Deprived of this confirmation, their system of evaluation is unable to function; it is at sea, derelict amidst an unsalvageable debris of evidence, and it casts about in search of a point by which to take a bearing. When recordings are at issue, such a point cannot readily be found. The inclination of electronic media is to extract their content from historic date. The moment we can force a work of art to conform to our notion of what was appropriate to its chronology, we can attribute to it, arbitrarily if necessary, background against which in our analysis it can be portrayed. Most aesthetic analysis confines itself to background description and avoids the foreground manipulation of the object being analyzed. And this fact alone, discarding the idle propaganda of the public relations machines, accounts for the endorsement of the recorded public event. Indirectly, the real object of this endorsement is a hopelessly outmoded system of aesthetic analysis—a system incapable of a contribution in the electronic age but the only system for which most spokesmen of the arts are trained.

Recordings produced in a studio resist a confirmation of such criteria. Here date is an elusive factor. Though a few companies solemnly inscribe the date of the studio sessions with each recorded package, and though the material released by most large companies can, except perhaps in the case of reissues, be related to a release number that will suggest an approximate date to the aficionado, it is possible that the music heard on that recording will have been obtained from sessions held weeks, months, or indeed years apart. Those sessions may easily have been held in different cities, different countries, taped with different equipment and different technical personnel, and they may feature performers whose attitudes to the repertoire under consideration have metamorphosed dramatically between the taping of the first note and the last. Such a recording might currently pose insuperable contractual problems, but its complicated gestation would be entirely consistent with the nature of the recording process.

It would also be consistent with that evolution of the performing musician which recording necessitates. As the performer's once-sacrosanct privileges are merged with the responsibilities of the tape editor and the composer, the van Meegeren syndrome can no longer be cited as an indictment but becomes rather an entirely appropriate description of the aesthetic condition in our time. The role of the forger, of the unknown maker of unauthenticated goods, is emblematic of electronic culture. And when the forger is done honor for his craft and no longer reviled for his acquisitiveness, the arts will have become a truly integral part of our civilization [...]

The participant listener

At the center of the technological debate, then, is a new kind of listener—a listener more participant in the musical experience. The emergence of this mid-twentieth-century phenomenon is the greatest achievement of the record industry. For this listener is no longer passively analytical; he is an associate whose tastes, preferences, and inclinations even now alter peripherally the experiences to which he gives his attention, and upon whose fuller participation the future of the art of music waits.

He is also, of course, a threat, a potential usurper of power, an uninvited guest at the banquet of the arts, one whose presence threatens the familiar hierarchical setting of the musical establishment. Is it not, then, inopportune to venture that this participant public could emerge untutored from that servile posture with which it paid homage to the status structure of the concert world and, overnight, assume decision-making capacities which were specialists' concerns heretofore?

The keyword here is "public." Those experiences through which the listener encounters music electronically transmitted are not within the public domain. One serviceable axiom applicable to every experience in which electronic transmission is involved can be expressed in that paradox wherein the ability to obtain in theory an audience of unprecedented numbers obtains in fact a limitless number of private auditions. Because of the circumstances this paradox defines, the listener is able to indulge preferences and, through the electronic modifications with which he endows the listening experience, impose his own personality upon the work. As he does so, he transforms that work, and his relation to it, from an artistic to an environmental experience.

Dial twiddling is in its limited way an interpretative act. Forty years ago the listener had the option of flicking a switch inscribed "on" and "off " and, with an up-to-date machine, perhaps modulating the volume just a bit. Today, the variety of controls made available to him requires analytical judgment. And these controls are but primitive, regulatory devices compared to those participational possibilities which the listener will enjoy once current laboratory techniques have been appropriated by home playback devices.

It would be a relatively simple matter, for instance, to grant the listener tape-edit options which he could exercise at his discretion. Indeed, a significant step in this direction might well result from that process by which it is now possible to disassociate the ratio of speed to pitch and in so doing (albeit with some deterioration in the quality of sound as a current liability) truncate splice-segments of interpretations of the same work performed by different artists and recorded at different tempos. Let us say, for example, that you enjoy Bruno Walter's performance of the exposition and recapitulation from the first movement of Beethoven's Fifth Symphony but incline toward Klemperer's handling of the development section, which employs a notably divergent tempo. (I happen to like both performances all the way through, but there's no accounting for taste.) With the pitch-speed correlation held in abeyance, you could snip out these measures from the Klemperer edition and splice them into the Walter performance without having the splice procedure either an alteration of tempo or a fluctuation of pitch. This process could, in theory, be applied without restriction to the reconstruction of musical performance. There is, in fact, nothing to prevent a dedicated connoisseur from acting as his own tape editor and, with these devices, exercising such interpretative predilections as will permit him to create his own ideal performance [...]

En route to a stylistic mix

The listener's splice prerogative is but one aspect of that editorial mix which recorded music encourages. In terms of its unselfconscious juxtaposition of a miscellany of idioms, it will have an effect similar to that which André Malraux—in his *Voices of Silence*—attributes to art reproductions. One result of this stylistic permissiveness will be a more tolerant regard for the artistic by-products of those cultures which are, from our Western point of view, chronologically "out of sync." The transmission of events and sounds around our planet has forced us to concede that there is not just one musical tradition but, rather, many musics, not all of which are concerned—by our definition of the wordwith tradition [...]

Through simultaneous transmissions, through radio and television particularly, the art of such a [culture] becomes for those of us on the outside rather too easily accessible. Such media encourage us to invoke comparisons between the by-products of such a culture and those to which our own very different orientation gives rise. When we find that the expression of that culture represents what seems to us archaic ideologies, we condemn it as old-fashioned or sterile or puritanical or as possessed of any other limitation from which we consider ourselves emancipated. With simultaneous transmission we set aside our touristlike fascination with distant and exotic places and give vent to impatience at the chronological tardiness the natives display. To this extent, Professor McLuhan's concept of the "global village"—the simultaneity of response from McMurdo Sound to Murmansk, from Taiwan to Tacoma—is alarming. There just could be some fellow at McMurdo, "out of sync" and out of touch, revivifying C major as Mozart never dreamed of!

But these intrusions pertain only to those media developments that reproduce images or sounds instantaneously. Recordings arouse very different psychological reactions and should always be considered with this proviso in mind. Whereas simultaneous reception reveals differences on a current, comparative, indeed competitive basis, the preservation of sound and image makes possible the archival view, the unimpassioned reflection upon the condition of a society, the acceptance of a multifaceted chronological concept. Indeed, the two utilizations of electronic transmission-for clarification of present circumstances occasioned by radio and television and for indefinite future re-examination of the past permitted by recording—are antidotal. The recording process, with its encouragement of a sympathetic "after-the-fact" historical view, is the indispensable replenishment of that deteriorating tolerance occasioned by simultaneous transmission. Just as simultaneous reception tends to unproductive comparisons and provoke encourages conformity. preservation and archival replay encourage detachment and nonconformist historical premises.

In my opinion, the most important of the missing links in the evolution of the listener-consumer-participant, as well as the most persuasive argument for the stylistic mix, is to be found in that most abused of electronic manifestations—background sound. This much-criticized and often misunderstood phenomenon is the most productive method through which contemporary music can confide its objectives to a listening, consuming, Muzak-absorbing society. Cunningly disguised within the bland formulae from which background sounds are seemingly concocted is an encyclopedia of experience, an exhaustive compilation of the clichés of post-Renaissance music. Moreover, this catalogue provides a crossindex which permits connections between referenced stvlistic manifestations with fine disregard for chronological distinction. Within ten minutes of restaurant Muzak one can encounter a residue of Rachmaninoff or a blast of Berlioz proceeding without embarrassment from the dregs of Debussy. Indeed, all the music that has ever been can now become a background against which the impulse to make listener-supplied connections is the new foreground [...]

There is an interesting correlation between the neutrality of this background vocabulary—the unobtrusiveness of its contribution—and the fact that most background music is conveyed through recordings. These are in fact two complementary facets of the same phenomenon. For since the recording does not depend, as does the concert, upon the mood of a special occasion, and relies instead upon relating to a general set of circumstances, it exploits in background music those abilities through which that phenomenon is able to draw, without embarrassment, upon an incredible range of stylistic reference—summoning to the contemporary world idiomatic references from earlier times, placing them in a context in which, by being accorded a subdivided participation, they achieve a new validity.

Background music has been attacked from many quarters—by Europeans as a symptom of the decadence of North American society, by North Americans as a product of megalopolitan conformity. Indeed, it is perhaps accepted at face value only in those societies where no continuing tradition of Occidental music is to be found.

Background music, of course, confirms all the argumentative criteria by which the opponents of musical technology determine their judgments. It has no sense of historic date—the fact that it is studio produced and the stylistic compote of its musical substance prevent this; the personnel involved are almost always anonymous; a great deal of overtracking and other electronic wizardry is involved in its making—hence such arguments as those of automation, aesthetic morality, and the van Meegeren syndrome find in background music a tempting target. This target, however, protected at present by commercial rather than aesthetic considerations, is immune to attack.

Those who see in background music a sinister fulfillment of the Orwellian environment control assume that it is capable of enlisting all who are exposed to it as proponents of its own vast cliché. But this is precisely the point! Because it can infiltrate our lives from so many different angles, the cliché residue of all the idioms employed in background becomes an intuitive part of our musical vocabulary. Consequently, in order to gain our attention any *musical* experience must be of a quite exceptional nature. And meanwhile, through this ingenious glossary, the listener achieves a direct associative experience of the post-Renaissance vocabulary, something that not even the most inventive music appreciation course would be able to afford him.

Music's role in an electronic age

As this medium evolves, as it becomes available for situations in which the quite properly self-indulgent participation of the listener will be encouraged, those venerable distinctions about the class structure within the musical hierarchy—distinctions that separated composer and performer and listener—will become outmoded. Does this, then, contradict the fact that since the Renaissance the separation of function (specialization) has been the professional lot and that the medieval status of the musician, one who created and performed for the sake of his own enjoyment, has long since been supplanted by our post-Renaissance orgy of musical sophistication? I should say that these two concepts are not necessarily contradictory.

This overlapping of professional and lay responsibility in the creative process does tend to produce a set of circumstances that superficially suggests the largely unilateral participation of the pre-Renaissance world. In fact, it is deceptively easy to draw such parallels, to assume that the entire adventure of the Renaissance and of the world which it created was a gigantic historical error. But we are not returning to a medieval culture. It is a dangerous oversimplification to suggest that under the influence of electronic media we could retrograde to some condition reminiscent of the pre-Renaissance cultural monolith. The technology of electronic forms makes it highly improbable that we will move in any direction but one of even greater intensity and complexity; and the fact that a participational overlapping becomes unashamedly involved with the creative process should not suggest a waning of the necessity for specialized techniques.

What will happen, rather, is that new participation areas will proliferate and that many more hands will be required to achieve the execution of a particular environmental experience. Because of this complexity, because so many different levels of participation will, in fact, be merged in the final result, the individualized information concepts which define the nature of identity and authorship will become very much less imposing. Not that this identity reduction will be achieved without some harassment from those who resent its implications. After all, what are the batteries of public relations men, advertising executives, and press agents doing if not attempting to provide an identification for artist and producer in a society where duplication is everywhere and where identity in the sense of information about the authors means less and less?

The most hopeful thing about this process—about the inevitable disregard for the identity factor in the creative situation—is that it will permit a climate in which biographical data and chronological assumption can no longer be the cornerstone for judgments about art as it relates to environment. In fact, this whole question of individuality in the creative situation—the process through which the creative act results from, absorbs, and re-forms individual opinion—will be subjected to a radical reconsideration.

I believe the fact that music plays so extensive a part in the regulation of our environment suggests its eventual assumption of a role as immediate, as utilitarian, as colloquial as that which language now plays in the conduct of our daily lives. For music to achieve a comparable familiarity, the implications of its styles, its habits, its mannerisms, its tricks, its customary devices, its statistically most frequent occurrences-in other words, its clichés-must be familiar and recognized by everyone. A mass recognition of the cliché quotient of a vocabulary need not suggest our becoming saturated with the mundanities of those clichés. We do not value great works of literature less because we, as men in the street, speak the language in which they happen to be written. The fact that so much of our daily conversation is concerned with the tedious familiarities of common courtesy, the mandatory conversation openers about the weather and so on, does not for a moment dull our appreciation of the potential glories of the language we use. To the contrary, it sharpens it. It gives us background against which the foreground that is the habitat of the imaginative artist may stand in greater relief. It is my view that in the electronic age the art of music will become much more viably a part of our lives, much less an ornament to them, and that it will consequently change them much more profoundly.

If these changes are profound enough, we may eventually be compelled to redefine the terminology with which we express our thoughts about art. Indeed, it may become increasingly inappropriate to apply to a description of environmental situations the word "art" itself—a word that, however venerable and honored, is necessarily replete with imprecise, if not in fact obsolete, connotations.

In the best of all possible worlds, art would be unnecessary. Its offer of restorative, placative therapy would go begging a patient. The professional specialization involved in its making would be presumption. The generalities of its applicability would be an affront. The audience would be the artist and their life would be art.

^{*} From *High Fidelity* (April 1966). Used by permission of Glenn Gould Estate.

The Studio as Compositional Tool

Brian Eno

Brian Eno (see also Chapters 13 and 37) is a key figure in the shift from "composer" and "musician" to "producer" in contemporary electronic culture. Drawing lessons from a genealogy of visionary producers—Phil Spector, Joe Meek, George Martin, Teo Macero, Brian Wilson, Lee "Scratch" Perry and others —Eno was struck early on by the extraordinary creative potential of the recording studio, its ability to construct new sonic worlds. Here, he offers a brief history of the "studio as instrument" and meditates on the ways that this instrument has shaped modern music and sonic cognition.

The first thing about recording is that it makes repeatable what was otherwise transient and ephemeral. Music, until about 1900, was an event that was perceived in a particular situation, and that disappeared when it was finished. There was no way of actually hearing that piece again, identically, and there was no way of knowing whether your perception was telling you it was different or whether it was different the second time you heard it. The piece disappeared when it was finished, so it was something that only existed in time.

The effect of recording is that it takes music out of the time dimension and puts it in the space dimension. As soon as you do that, you're in a position of being able to listen again and again to a performance, to become familiar with details you most certainly had missed the first time through, and to become very fond of details that weren't intended by the composer or the musicians.

The effect of this on the composer is that he can think in terms of supplying material that would actually be too subtle for a first listening. Around about the 1920s—or maybe that's too early, perhaps around the '30s—composers started thinking that their work was recordable, and they started making use of the special liberty of being recorded.

I think the first place this had a real effect was in jazz. Jazz is an improvised form, primarily, and the interesting thing about improvisations is that they become more interesting as you listen to them more times.

What seemed like an almost arbitrary collision of events comes to seem very meaningful on relistening. Actually, almost any arbitrary collision of events listened to enough times comes to seem very meaningful. (There's an interesting and useful bit of information for a composer, I can tell you.) I think recording created the jazz idiom, in a sense; jazz was, from 1925 onwards, a recorded medium, and from '35 onwards I guess—I'm not a jazz expert by any means—it was a medium that most people received via records. So they were listening to things that were once only improvisations for many hundreds of times, and they were hearing these details as being compositionally significant.

Now, let's talk about another aspect of recording, which I call the detachable aspect. As soon as you record something, you make it available for any situation that has a record player. You take it out of the ambience and locale in which it was made, and it can be transposed into any situation. This morning I was listening to a Thai lady singing; I can hear the sound of the St. Sophia Church in Belgrade or Max's Kansas City in my own apartment, and I can listen with a fair degree of conviction about what these sounds mean. As Marshall McLuhan said, it makes all music all present. So not only is the whole history of our music with us now, in some sense, on record, but the whole global musical culture is also available. That means that a composer is really in the position, if he listens to records a lot, of having a culture unbounded, both temporally and geographically, and therefore it's not at all surprising that composers should have ceased writing in a European classical tradition, and have branched out into all sorts of other experiments. Of course, that's not the only reason that they did, either.

So, to tape recording: till about the late '40s, recording was simply regarded as a device for transmitting a performance to an unknown audience, and the whole accent of recording technique was on making what was called a "more faithful" transmission of that experience. It began very simply, because the only control over the relative levels of sounds that went onto the machine was how far they were from the microphonelike device. The accent was on the performance, and the recording was a more or less perfect transmitter of that, through the cylinder and wax disc recording stages, until tape became the medium by which people were recording things.

The move to tape was very important, because as soon as something's on tape, it becomes a substance which is malleable and mutable and cuttable and reversible in ways that discs aren't. It's hard to do anything very interesting with a disc—all you can do is play it at a different speed, probably; you can't actually cut a groove out and make a little loop of it. The effect of tape was that it really put music in a spatial dimension, making it possible to squeeze the music, or expand it.

Initially tape recording was a single track, all the information contained and already mixed together on that one track. Then in the mid-'50s experiments were starting with stereo, which was not significantly different. The only difference was that you had two microphones pointing to your ensemble, and you had some impression of a real acoustic-sound came to you from two different sources as you listened. Then came threetrack recording; it allowed the option of adding another voice or putting a string section on, or something like that. Now this is a significant step, I think; its the first time it was acknowledged that the performance isn't the finished item, and that the work can be added to in the control room, or in the studio itself. For the first time composers-almost always pop composers, as very few classical composers were thinking in this formwere thinking, "Well, this is the music. What can I do with it? I've got this extra facility of one track." Tricky things start getting added. Then it went to four-track after that, and the usual layout for recording a band on four track at that time [...]

From that impulse two things happened: you got an additive approach to recording, the idea that composition is the process of adding more, which was very common in early '70s rock (this gave rise to the well-known and gladly departed orchestral rock tradition, and it also gave rise to heavy metal music—that sound can't be got on simpler equipment); it also gave rise to the particular area that I'm involved in: in-studio composition, where you no longer come to the studio with a conception of the finished piece. Instead, you come with actually rather a bare skeleton of the piece, or perhaps with nothing at all. I often start working with no starting point. Once you become familiar with studio facilities, or even if you're not, actually, you can begin to compose in relation to those facilities. You can begin to think in terms of putting something on, putting something else on, trying this on top of it, and so on, then taking some of the original things off, or taking a mixture of things off, and seeing what you're left with—actually constructing a piece in the studio.

In a compositional sense this takes the making of music away from any traditional way that composers worked, as far as I'm concerned, and one

becomes empirical in a way that the classical composer never was. You're working directly with sound, and there's no transmission loss between you and the sound—you handle it. It puts the composer in the identical position of the painter—he's working directly with a material, working directly onto a substance, and he always retains the options to chop and change, to paint a bit out, add a piece, etc.

Compare that to the transmission intervals in a classical sequence: the composer writes a piece of music in a language that might not be adequate to his ideas—he has to say this note or this one, when he might mean this one just in between, or nearly this one here. He has to specify things in terms of a number of available instruments. He has to, in fact, use a language that, like all languages, will shape what he wants to do. Of course, any good composer understands that and works within that framework of limitations. Finally he has something on the page, and by a process this arrives at a conductor. The conductor looks at that, and if he isn't in contact with the composer, his job is to make an interpretation of it on the basis of what he thinks the composer meant, or whatever it is he'dlike to do. There's very likely another transmission loss here-there won't be an identity between what he supposes and what the composer supposes. Then the conductor has the job of getting a group of probably intransigent musicians to follow his instructions, to realize this image of the music he has. Those of you who work with classical musicians know what a dreadful task this is, not to be wished on anyone.

So they come up with something. One can see there's not necessarily an identity between what the composer—or the conductor—thought, and what they did, so that's three transmission losses. I'd argue there is another one in the performance of the piece: since you're not making a record, you're not working in terms of a controlled acoustic, and you're not working in a medium that is quite so predictable as a record. If I make a record, I assume it's going to be the same every time it's played. So I think there is a difference *in kind* between the kind of composition I do and the kind a classical composer does. This is evidenced by the fact that I can neither read nor write music, and I can't play any instruments really well, either. You can't imagine a situation prior to this where anyone like me could have been a composer. It couldn't have happened. How could I do it without tape and without technology?

One thing I said about the traditional composer was that he worked with a finite set of possibilities; that is, he knew what an orchestra was composed of, and what those things sounded like, within a range. If you carry on the painting analogy, it's like he was working with a palette, with a number of colors which were and weren't mixable. Of course, you can mix clarinets and strings to get different sounds, but you're still dealing with a range that extends from here to here. It's nothing like the range of sounds that's possible once electronics enter the picture. The composer was also dealing with a finite set of relationships *between* sounds; the instruments are only so loud, and that's what you're dealing with, unless you stick one out in a field and one up close to your ear. It was out of the question that he could use something, for example, as the Beach Boys once did—making the sound of someone chewing celery the loudest thing on a track.

Of course, everyone is constrained in one way or another, and you work within your constraints. It doesn't mean that suddenly the world is open, and we're going to do much *better* music, because we're not constrained in certain ways. We're going to do *different* music because we're not constrained in certain ways—we operate under a different set of constraints [...]

* This article first appeared, in two parts, in *Down Beat* 50 (July 1983) and (August 1983), edited by Howard Mandel. This is an abridged version of the whole. Used by permission of the author.

Bettered by the Borrower: The Ethics of Musical Debt

John Oswald

Since the early 1980s, Canadian multi-media artist John Oswald has played alto saxophone in the free-improvising trio CCMC, and has recorded with improvisers Henry Kaiser, Jim O'Rourke, John Zorn, and others. Yet he is best known for his practice of "plunderphonics": the sampling and radical re-editing of pop recordings. Inspired by the cut-up methods of William S. Burroughs and James Tenney's 1961 sampling composition Collage #1 ("Blue Suede"), Oswald began experimenting with musical cut-ups in the early 1970s, issuing these cut-up compositions on cassette via his own Mystery Tapes label. In 1989, Oswald released the CD Plunderphonics, which presented inventive and humorous remixes of recordings by Dolly Parton, Michael Jackson, Bing Crosby, The Beatles, Glenn Gould, Public Enemy, James Brown, and others. The record's cover featured a collaged photo of Michael Jackson as a nude woman. Though the CD was given away for free and all the samples were fully credited, Oswald was threatened with a lawsuit by the Canadian Recording Industry Association for infringing the copyrights of their clients CBS Records and Michael Jackson. He was forced to destroy all remaining copies of the CD and prohibited from distributing or reproducing it. Oswald continued to make legal plunderphonics compositions, filling commissions by Hal Willner, the Berlin Opera, the Kronos Quartet, the Grateful Dead and others. In 2002, the Seeland label released the 69 Plunderphonics 96 box-set, which included the original Plunderphonics CD and a number of Oswald's other plunderphonics experiments. In this essay, written shortly before the release of the Plunderphonics CD, Oswald meditates on the nature of music in the age of analog and digital reproduction.

Musical instruments produce sounds. Composers produce music. Musical instruments reproduce music. Tape recorders, radios, disc players, etc., reproduce sound. A device such as a wind-up music box produces sound and reproduces music. A phonograph in the hands of a "HipHop/scratch" artist who plays a record like an electronic washboard with a phonographic needle as a plectrum, produces sounds which are unique and *not* reproduced—the record player becomes a musical instrument. When tape

recorders, basically designed for documentation and reproduction, became available in the '40s, a few individuals, like Pierre Schaeffer in France, began transforming the recordings, distorting them into something new, producing music through them as if the tape recorders were magnetic violins. Even earlier, composer John Cage was specifying the use of radios and phonographs as musical instruments.

Quite often the sounds found emanating from phonographic and radio musical instruments have some prior ownership. These previous creators (including those who give credit to a divine source) have copyright: a charter of control over the commercial and moral implications of reproduction. But some sources continue to maintain a "finders-keepers" ethic.

The right of copy

In 1976, ninety-nine years after Edison went into the record business, the U.S. Copyright Act was revised to protect sound recordings for the first time. Before this, only written music was considered eligible for protection. Forms of music that were not intelligible to the human eye were deemed ineligible. The traditional attitude was that recordings were not artistic creations, but "mere uses or applications of creative works in the form of physical objects." For instance, Charles Ives' Symphony No. 3 was published and copyrighted in 1947 by Arrow Music Press Inc. That the copyright was assigned to the publisher instead of the composer was the result of Ives' disdain for copyright in relation to his own work, and his desire to have his music distributed as widely as possible. He at first self-published and distributed volumes of his music free of charge. In the postscripts of *114 Songs* he refers to the possessor as the *gentle borrower*.

Later in his life Ives did allow for commercial publication, but always assigned royalties to other composers. Ives admired the philosophy of Ralph Waldo Emerson who, in his essay "Quotation and Originality," said, "What you owe to me—you will vary the phrase—but I shall still recognize my thought. But what you say from the same idea, will have to me also the expected unexpectedness which belongs to every new work of Nature."

The real headache for the writers of copyright has been the new electronic contrivances, including digital samplers of sound and their accountant cousins, computers. The electronic brain business is cultivating, by grace of its relative youth, pioneering creativity and a corresponding conniving ingenuity, "the intimate cultural secretions of electronic, biological, and written communicative media."¹

"Blank tape is derivative, nothing of itself"²

While the popular intrigue of computer theft has inspired cinematic and paperback thrillers, the robbery of music is restricted to elementary poaching and blundering innocence. The plots are trivial. The Disney cable channel accuses Sony of conspiring with consumers to let them make unauthorized Mickey mice by taping TV broadcasts on videocassette.

The dubbing-in-the-privacy-of-your-own-home controversy is actually the tip of a hot iceberg of rudimentary creativity. After decades of being the passive recipients of music in packages, listeners now have the means to assemble their own choices, to separate pleasures from the filler. They are dubbing a variety of sounds from around the world, or at least from the breadth of their record collections, making compilations of a diversity unavailable from the music industry, with its circumscribed policy of only supplying the common denominator.

Former Beatle George Harrison was found guilty of an indiscretion in choosing a vaguely familiar sequence of pitches. He was nailed in court for subconsciously plagiarizing the 1962 tune "He's So Fine" by the Chiffons in his song "My Sweet Lord" (1970).

Yet the Beatles are an interesting case of reciprocity between fair use and the amassing of possession and wealth. "We were the biggest nickers in town. Plagiarists extraordinaire," says Paul McCartney.³ He owns one of the world's most extensive song catalogs, including a couple of state anthems. John Lennon incorporated collage technique into pieces like "Revolution #9," which contains dozens of looped unauthorized fragments taped from radio and television broadcasts.

The commerce of noise

The precarious commodity in music today is no longer the tune. A fan can recognize a hit from a ten-millisecond burst. One studio-spawned mass-market recording firm called the Art of Noise strings atonal arrays of timbres along an always inevitable beat—the melody is often retrofitted.

Singers with original material aren't studying Bruce Springsteen's

melodic contours; they're trying to *sound* just like him. And sonic impersonation is quite legal. While performing rights organizations continue to farm for proceeds to tunesters and poetricians, those who are really shaping the music—the rhythmatists, timbralists and mixologists under various monikers—have rarely been given compositional credit.

I found this comment on PAN, a musicians' computer network bulletin board, during a forum in January 1986:

Various DX7 programmers have told me that they "bury" useless data in their sounds so that they can prove ownership later. Sometimes the data is obvious, like weird keyboard scalings on inaudible operators, and sometimes it's not, like the nonsense characters (I seem to recall someone once thought they were Kanji) in a program name. Of course, any pirate worth his salt would find all these things and change them ... Synth programmers are skilled craftspeople, just like violin makers, so if they go to the trouble of making new and wonderful sounds that other people can use, they should be compensated for their efforts. Unfortunately it's not as easy as just selling the damn violin.

The cross-referencing blues

Musical language has an extensive repertoire of punctuation devices but nothing equivalent to literature's "" quotation marks. Jazz musicians do not wiggle two fingers of each hand in the air, as lecturers sometimes do, when cross-referencing during their extemporizations, as on most instruments this would present some technical difficulties.

Without a quotation system, well-intended correspondences cannot be distinguished from plagiarism and fraud. But anyway, the quoting of notes is but a small and not significant portion of common appropriation.

Am I underestimating the value of melody writing? Well, I expect that before long we'll have marketable expert tune-writing software which will be able to generate the banalities of catchy permutations of the diatonic scale in endless arrays of tuneable tunes, from which a not-necessarilyaffluent songwriter can choose; with perhaps a built-in checking lexicon of used-up tunes which would advise Beatle George not to make the same blunder again.

In his speculative story *Melancholy* Elephants,⁴ Spider Robinson writes about the pros and cons of rigorous copyright. The setting is half a century from now. The story centers on one person's opposition to a bill which would extend copyright to perpetuity. In Robinson's future, composition is

already difficult, as most works are being deemed derivative by the copyright office. The Harrison case is cited as an important precedent:

Artists have been deluding themselves for centuries with the notion that they create. In fact they do nothing of the sort. They discover. Inherent in the nature of reality are a number of combinations of musical tones that will be perceived as pleasing by a human central nervous system. For millennia we have been discovering them, implicit in the universe—and telling ourselves that we "created" them.

Hands-on listening

Sounding utensils, from the erh-hu to the Emulator, have traditionally provided such a potential for varied expression that they have not in themselves been considered musical manifestations. This is contrary to the great popularity of generic instrumental music ("The Many Moods of 101 Strings," "Piano for Lovers," "The Trucker's DX-7," etc.), not to mention instruments which play themselves, the most pervasive example in recent years being preprogrammed rhythm boxes. Such devices, as found in lounge acts and organ consoles, are direct kin to the juke box: push a button and out comes music. J.S. Bach pointed out that with any instrument "all one has to do is hit the right notes at the right time and the thing plays itself." The distinction between sound producers and sound reproducers is easily blurred, and has been a conceivable area of musical pursuit at least since John Cage's use of radios in the 1940s.

Just as sound producing and sound reproducing technology become more interactive, listeners are once again, if not invited, nonetheless encroaching upon creative territory. This prerogative has been largely forgotten in recent decades: gone are the days of lively renditions on the parlor piano.

Computers can take the expertise out of amateur music-making. A current *music-minus-one* program retards tempos and searches for the most ubiquitous chords to support the wanderings of a novice player. Some audio equipment geared for the consumer inadvertently offers interactive possibilities. But manufacturers have discouraged compatibility between their amateur and pro equipment. Passivity is still the dominant demographic. Thus the atrophied microphone inputs which have now all but disappeared from premium stereo cassette decks.

Starting from scratch

As a listener my own preference is the option to experiment. My listening system has a mixer instead of the one-choice-only function of a receiver; an infinitely variable-speed turntable, filters, reverse capability, and a pair of ears.

An active listener might speed up a piece of music in order to more clearly perceive its macrostructure, or slow it down to hear articulation and detail more precisely. One might trace "the motifs of the Indian raga Darbar over Senegalese drumming recorded in Paris and a background mosaic of frozen moments from an exotic Hollywood orchestration of the 1950s, a sonic texture like a 'Mona Lisa' which, in close-up, reveals itself to be made up of tiny reproductions of the Taj Mahal."⁵

During World War II concurrent with Cage's re-establishing the percussive status of the piano, Trinidadians were discovering that discarded oil barrels could be cheap, available alternatives to their traditional percussion instruments which were, because of the socially invigorating potential, banned. The steel drum eventually became a national asset. Meanwhile, back in the States, *scratch* and *dub* have, in the eighties, percolated through the black American ghettoes, for perhaps similar reasons. Within an environmentally imposed limited repertoire of possessions a portable disco may have a folk music potential exceeding that of the guitar. Pawned and ripped-off electronics are usually not accompanied by users' guides with consumer warnings like "this blaster is a passive reproducer." Any performance potential found in an appliance is often exploited.

Referring to DJ Francis Grasso at the Salvation Club in New York in the mid-seventies, Albert Goldman writes in *Disco* that "Grasso invented the technique of 'slipcueing': holding the disc with his thumb whilst the turntable whirled beneath, insulated by a felt pad. He'd locate with an earphone the best spot to make the splice then release the next side precisely on the beat ... His tour de force was playing two records simultaneously for as long as two minutes at a stretch. He would super the drum break of 'I'm a Man' over the orgasmic moans of Led Zeppelin's 'Whole Lotta Love' to make a powerfully erotic mix ... that anticipated the formula of bass drum beats and love cries ... now one of the cliches of the disco mix."⁶

Thus the sound of music conveyed with a new authority over the

airwaves is dubbed, embellished and manipulated in kind.

Aural wilderness

The reuse of existing recorded materials is not restricted to the street and the esoteric. The single guitar chord occurring infrequently on Herbie Hancock's hit arrangement "Rockit" was not struck by an in-studio union guitarist but was sampled directly from an old Led Zeppelin record. Similarly, Michael Jackson unwittingly turns up on Hancock's followup clone "Hard Rock." Now that keyboardists are getting instruments with the button for this appropriation built in, they're going to push it, easier than reconstructing the ideal sound from oscillation one. These players are used to fingertip replication, as in the case of the organ that had the titles of the songs from which the timbres were derived printed on the stops.⁷

Charles Ives composed in an era in which much of music existed in the public domain. Public domain is now legally defined, although it maintains a distance from the present which varies from country to country. In order to follow Ives' model we would be restricted to using the same oldies which in his time were current. Nonetheless, music in the public domain can become very popular, perhaps in part because, as *This Business of Music*⁸ puts it, "The public domain is like a vast national park without a guard to stop wanton looting, without a guide for the lost traveler, and in fact, without clearly defined roads or even borders to stop the helpless visitor from being sued for trespass by private abutting owners."

Professional developers of the musical landscape know and lobby for the loopholes in copyright. On the other hand, many artistic endeavors would benefit creatively from a state of music without fences, but where, as in scholarship, acknowledgement is insisted upon.

The medium is magnetic

Piracy or plagiarism of a work occur, according to Milton, "if it is not bettered by the borrower." Stravinsky added the right of possession to Milton's distinction when he said, "A good composer does not imitate; he steals." An example of this better borrowing is Jim Tenney's "Collage 1" (1961), in which Elvis Presley's hit record "Blue Suede Shoes" (itself borrowed from Carl Perkins) is transformed by means of multi-speed tape recorders and razorblade.

Tenney took an everyday music and allowed us to hear it differently. At the same time, all that was inherently Elvis radically influenced our perception of Jim's piece.

Fair use and *fair dealing* are respectively the American and the Canadian terms for instances in which appropriation without permission might be considered legal. Quoting extracts of music for pedagogical, illustrative and critical purposes has been upheld as legal fair use. So has borrowing for the purpose of parody. Fair dealing assumes use which does not interfere with the economic viability of the initial work.

In addition to economic rights, an artist can claim certain moral rights to a work. Elvis' estate can claim the same rights, including the right to privacy, and the right to protection of "the special significance of sounds peculiar to a particular artist, the uniqueness of which might be harmed by inferior unauthorized recordings which might tend to confuse the public about an artist's abilities."

My observation is that Tenney's "Blue Suede" fulfills Milton's stipulation; is supported by Stravinsky's aphorism; and does not contravene Elvis' morality.

Hitting back the parade

The property metaphor used to illustrate an artist's rights is difficult to pursue through publication and mass dissemination. The Hit Parade publicly promenades the aural floats of pop. As curious tourists, should we not be able to take our own snapshots ("tiny reproductions of the Taj Mahal") rather than be restricted to the official souvenir postcards and programs?

All popular music is (as is all folk music by definition) essentially, if not legally, existing in a public domain. Listening to pop music isn't a matter of choice. Asked-for or not, we're bombarded by it. In its most insidious state, filtered to an incessant bassline, it seeps through apartment walls and out of the heads of Walkpeople. Although people in general are making more noise than ever before, fewer people are making more of the total noise; specifically, in music, those with megawatt PAs, triple-platinum sales, and heavy rotation. Difficult to ignore, pointlessly redundant to imitate: how does one not become a passive recipient?

As oceanographer Bob Ballard of the Deep Emergence Laboratory described their plan to apprehend the Titanic once it had been located at

the bottom of the Atlantic, "You pound the hell out of it with every imaging system you have."

Notes

- 1 This is Chris Cutler's poignant phrase, from *File Under Popular* (New York: Autonomedia, 1993), which also includes a good analysis of attempted definitions of popular music: "There can be no such thing as a finished or definitive piece of music. At most there could be said to be 'matrices' or 'fields.' Consequently there is also no element of personal property, though there is of course individual contribution," 26.
- 2 David Horowitz of Warner Communications quoted in "The War Against Home Taping," *Rolling Stone* (Sept. 16, 1982): 62.
- 3 Quoted in *Musician* (February 1985): 62.
- 4 From Spider Robinson, *Melancholy Elephants* (New York: Penguin Books, 1984).
- 5 Quoted from Jon Hassell's essay "Magic Realism" [liner notes to Aka-Darbari-Java (Magic Realism), Editions EG EEGCD-31—Eds.], this passage refers in an evocative way to some appropriations and transformations in Hassell's recordings. In some cases this type of use obscures the identity of the original and at other times the sources are recognizable.
- 6 [Albert Goldman, *Disco* (New York: Hawthorn Books, 1978), 115.—Eds.]
- 7 I have been unable to relocate the reference to this device which had, for example, a "96 Tears" stop. According to one source it may have been only a one-off mockup in ads for the Roland Juno 60 synthesizer.
- 8 Sidney Schemel and William Krasilovsky, *This Business of Music*, 5th edition (New York: Watson-Guptill, 1985).
- * From *The Whole Earth Review* (Winter 1987). Used by permission of the author.

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Plunderphonia

Chris Cutler

Chris Cutler has been a key figure in vanguard music for more than four decades. *In 1971, he began playing drums for the English experimental rock outfit Henry Cow, which combined rock, improvised music, avant-garde composition, and left*wing politics, and collaborated with like-minded groups such as Soft Machine, Slapp Happy, and Gong. Following Henry Cow's dissolution in 1978, Cutler went on to found a number of other groups (Art Bears, Cassiber, etc.) and to perform with Pere Ubu and The Residents. Over the past three decades, he has been a significant presence on the British free improvisation scene, working with Eddie Prévost, Eugene Chadbourne, Fred Frith, Zeena Parkins, Iva Bittová, and others. *Cutler has been equally important as a musical organizer, distributor, and theorist.* In 1978, he formed "Rock in Opposition," a collective of musicians dedicated to resisting the power of the commercial music industry, and the same year founded the independent label and distributor Recommended Records. Cutler's essays have consistently pursued the ideal of a genuinely democratic culture. In this article, *Cutler places sampling and "plunderphonics" in historical perspective, examining* the ways that recording and musical technology have altered the very nature of music and musical practice.

Until 1877, when the first sound recording was made, sound was a thing predicated on its own immediate disappearance; today it is increasingly an *object* that will outlast its makers and consumers. It declines to disappear, causing a great weight of dead music to press upon the living. What to do with it? An organic response has been to recycle, an answer strenuously resisted by traditional music thinking. Yet, plagiarism, once rejected as insupportable, has today emerged both as a standard procedure and as a consciously self-reflexive activity, raising vexed debates about ownership, originality, copyright, skill and cultural exhaustion. This essay attempts to sketch the history of plunderphonics and relate it to the paradigm shift initiated by the advent of sound recording.

Introduction
"Sounds like a dive downwards as a sped up tape slows rapidly to settle into a recognisable, slightly high-pitched Dolly Parton. It continues to slow down, but more gradually now. The instruments thicken and their timbres stretch and richen. Details unheard at the right speed suddenly cut across the sound. Dolly is changing sex; she's a man already; the backing has become hallucinatory and strange. The grain of the song is opened up and the ear, seduced by detail lets a throng of surprising associations and ideas fall in behind it. The same thing is suddenly very different. Who would have expected this extraordinary composition to have been buried in a generic country song, 1000 times heard already and 1000 times copied and forgotten?"

So I hear John Oswald's version of Dolly Parton's version of "The Great Pretender," effectively a recording of Oswald playing Parton's single once through, transformed via varispeed media (first a high-speed cassette duplicator, then an infinitely variable speed turntable, finally a handcontrolled reel-to-reel tape-all seamlessly edited together). Apart from the *economy* of this single procedure of controlled deceleration, which is, as it were, *played* by Oswald, no modifications have been made to the original recording. However, although the source is plainly fixed and given, the choice, treatment and reading of this source are all highly conscious products of Oswald's own intention and skill. So much so indeed that it is easy to argue that the piece, although "only" Parton's record, undoubtedly forms, in Oswald's version, a self-standing composition with its own structure and logic-both of which are profoundly different from those of the original. Oswald's "Pretender" would still work for a listener who had never heard the Parton version, and in a way the Parton version never could. Though the Parton version is, of course, given-along with and against the plundered version. What Oswald has created—created because the result of his work is something startlingly new—is a powerful, aesthetic, significant, polysemic but highly focused and enjoyable sound artefact; both a source of direct listening pleasure and (for our purposes) a persuasive case for the validity and eloquence of its means.

John Oswald's "Pretender" and other pieces—all originated from existing copyright recordings but employing radically different techniques —were included on an EP and later a CD, *Plunderphonic* (1988). Both were given away free to radio stations and the press. None was sold. The liner note reads: "This disc may be reproduced but neither it, nor any reproductions of it are to be bought or sold. Copies are available only to public access and broadcast organisations, including libraries, radio or periodicals." The 12" EP, consisting of four pieces—"Pretender" (Parton), "Don't" (Presley), "Spring" (Stravinsky), "Pocket" (Basie)-was made between 1979 and 1988 and released in May 1988, with some support from the Arts Council of Canada. The CD, containing these and 20 other pieces was realised between 1979-89 and released on October 31st 1989 and was financed entirely by Oswald himself. Between Christmas Eve 1989 and the end of January 1990 all distribution ceased and all extant copies were destroyed. Of all the plundered artists it was Michael Jackson who pursued the CD to destruction. Curiously Jackson's own plundering, for instance the one minute and six seconds of The Cleveland Symphony Orchestra's recording of Beethoven's Ninth which opens Jackson's "Will You Be There?" on the CD Dangerous, for which Jackson claims no less than six credits, including composer copyright (adding plagiarism to sound piracy), seems to have escaped his notice.

Necessity and choice (continued)

In 1980 I wrote that "From the moment of the first recording, the actual performances of musicians on the one hand, and all possible sound on the other, had become the proper matter of music creation."¹ I failed, however, to underline the consequence that "all sound" has to include other people's already recorded work; that when all sound is just raw material, then recorded sound is *always* raw—even when it is cooked. This omission I wish now in part to redress.

Although recording offered all audible sound as material for musical organisation, art music composers were slow to exploit it, and remain so today. One reason is that the inherited paradigms through which art music continues to identify itself have not escaped their roots in notation, a system of mediation which determines both what musical material is available and what possible forms of organisation can be applied to it. The determination of material and organisation follows from the character of notation as a discontinuous system of instructions developed to model visually what we know as melody, harmony and rhythm represented by, and limited to, arrangements of *fixed tones* (quantised, mostly 12 to an octave) and *fixed durations* (of notes and silences). Notation does not

merely quantise the material, reducing it to simple units but, constrained by writability, readability and playability, is able to encompass only a very limited degree of complexity within those units. In fact the whole edifice of western art music can be said, after a fashion, to be constructed upon and through notation,² which, amongst other things, *creates* "the composer" who is thus constitutionally bound to it.

No wonder then that recording technology continues to cause such consternation. On the one hand it offers control of musical parameters beyond even the wildest dreams of the most radical mid-20th century composer; on the other hand it terminally threatens the deepest roots of the inherited art music paradigm, replacing notation with the direct transcription of performances and rendering the clear distinction between performance and composition null.

Perhaps this accounts for the curious relationship between the art music world and the new technology which has, from the start, been equivocal or at least highly qualified (Edgard Varèse and later Karlheinz Stockhausen notably excepted). And it is why the story I shall have to tell is so full of tentative high art experiments that seem to die without issue and why, although many creative innovations in the new medium were indeed made on the fringes of high art, their adoption and subsequent extension has come typically through other, less ideologically intimidated (or less paradigmatically confused?) musical genres. Old art music paradigms and new technology are simply *not able* to fit together.³

For art music then, recording is inherently problematic—and surely plunderphonics is recording's most troublesome child, breaking taboos art music hadn't even imagined. For instance, while plagiarism was already strictly off limits (flaunting non-negotiable rules concerning originality, individuality and property rights), plunderphonics was proposing routinely to appropriate as its raw material not merely other people's tunes or styles but finished recordings of them! It offered a medium in which, far from art music's essential creation *ex nihilo*, the origination, guidance and confirmation of a sound object may be carried through *by listening alone*.

The new medium proposes, the old paradigms recoil. Yet I want to argue that *it is precisely in this forbidden zone that much of what is genuinely new in the creative potential of new technology resides*. In other words, the moral and legal boundaries which currently constitute important determinants in claims for musical legitimacy, impede and restrain some of the most exciting possibilities in the changed circumstances of the age of recording. History to date is clear on such conflicts: the old paradigms will give way. The question is—to what?

One of the conditions of a new art form is that it produces a metalanguage, a theory through which it can adequately be described. A new musical form will need such a theory. My sense is that Oswald's *Plunderphonic* has brought at last into sharp relief many of the critical questions around which such a theory can be raised. For by coining the name, Oswald has identified and consolidated a musical practice which until now has been without focus. And like all such namings, it seems naturally to apply retrospectively, creating its own archaeology, precursors and origins.

Originality

Of all the processes and productions which have emerged from the new medium of recording, plunderphonics is the most consciously self-reflexive; it begins and ends only with recordings, with the *already played*. Thus, as I have remarked above, it cannot help but challenge our current understanding of originality, individuality and property rights. To the extent that sound recording as a medium negates that of notation and echoes in a transformed form that of biological memory, this should not be so surprising.⁴ In ritual and folk musics, for instance, originality as we understand it would be a misunderstanding—or a transgression—since proper performance is repetition. Where personal contributions are made or expected, these must remain within clearly prescribed limits and iterate sanctioned and traditional forms.

Such musics have no place for genius, individuality or originality as we know them or for the institution of intellectual property. Yet these were precisely the concepts and values central to the formation of the discourse that identified the musical, intellectual and political revolution that lay the basis for what we now know as the classical tradition. Indeed they were held as marks of its superiority over earlier forms. Thus, far from describing *hubris* or transgression, originality and the individual voice became central criteria of value for a music whose future was to be marked by the restless and challenging pursuit of progress and innovation. Writing became essential, and not only for transmission. A score was an individual's signature on a work. It also made unequivocal the author's claim to the legal ownership of a sound blueprint. "Blueprint" because a

score is mute and others have to give it body, sound, and meaning. Moreover, notation established the difference and immortality of a work in the abstract, irrespective of its performance.

Copyright

The arrival of recording, however, made each performance of a score as permanent and fixed as the score itself. Copyright was no longer so simple.⁵ When John Coltrane recorded his version of "My Favourite Things" (1961), a great percentage of which contains no sequence of notes found in the written score, the assigning of the composing rights to Rogers and Hammerstein hardly recognises the compositional work of Coltrane, Garrison, Tyner and Jones. A percentage can now be granted for an "arrangement" but this doesn't satisfy the creative input of such performers either. Likewise, when a collective improvisation is registered under the name, as often still occurs, of a bandleader, nothing is expressed by this except the power relations pertaining in the group. Only if it is registered in the names of all the participants, are collective creative energies honoured—and historically, it took decades to get copyright bodies to recognise such "unscored" works, and their status is still anomalous and poorly rated.⁶ Still, this is an improvement: until the mid 1970s, in order to claim a composer's copyright for an improvised or studio originated work, one had to produce some kind of score constructed from the record—a topsy-turvy practice in which the music created the composer. And to earn a royalty on a piece which started and ended with a copyright tune but had fifteen minutes of free improvising in the middle, a title or titles had to be given for the improvised parts or all the money would go to the author of the bookending melody. In other words, the response of copyright authorities to the new realities of recording was to cobble together piecemeal compromises in the hope that, between the copyrights held in the composition and the patent rights granted over a specific recording, most questions of assignment could be adjudicatedand violations could be identified and punished. No one wanted to address the fact that recording technology had called not merely the mechanics but the adequacy of the prevailing *concept* of copyright into question.

It was Oswald, with the release of his not-for-sale EP and then CD who, by naming, theorising and defending the use of "macrosamples" and "electroquotes," finally forced the issue. And it was not so much that the principles and processes involved were without precedent but rather that through Oswald they were at last brought together in a focused and fully conscious form.

The immediate result was disproportionate industry pressure, threats and the forcible withdrawal from circulation and destruction of all extant copies. This despite the fact that the CD in question was arguably an original work (in the old paradigmatic sense), was not for sale (thereby not exploiting other people's copyrights for gain) and was released precisely to raise the very questions which its suppression underlined but immediately stifled. Nevertheless, the genie was out of the bottle.

The fact is that, considered as raw material, a recorded sound is technically indiscriminate of source. All recorded sound, as recorded sound, is information of the same quality. A recording of a recording is just a recording. No more, no less. We have to start here. Only then can we begin to examine, as with photomontage (which takes as its strength of meaning the fact that a photograph of a photograph is—a photograph) how the message of the medium is qualified by a communicative intent that distorts its limits. Judgements about what is plagiarism and what is quotation, what is legitimate use and what, in fact if not law, is public domain material, cannot be answered by recourse to legislation derived from technologies that are unable even to comprehend such questions. When "the same thing" is so different that it constitutes a new thing, it isn't "the same thing" anymore-even if, like Oswald's hearing of the Dolly Parton record, it manifestly is the "same thing" and no other. The key to this apparent paradox lies in the protean self-reflexivity of recording technology, allied with its elision of the acts of production and reproduction—both of which characteristics are incompatible with the old models, centred on notation, from which our current thinking derives, and which commercial copyright laws continue to reflect.

Thus plunderphonics as a practice radically undermines three of the central pillars of the art music paradigm: *originality* (it deals only with copies), *individuality* (it speaks only with the voice of others), and *copyright* (the breaching of which is a condition of its very existence).

Recording history: The gramophone

As an attribute unique to recording, the history of plunderphonics is in part the history of the self-realisation of the recording process; its coming, so to speak, to consciousness.⁷ Sound recording began with experiments in acoustics and the discovery that different pitches and timbres of sound could be rendered visible, most notably in 1865 by Leon Scott de Martinville attaching a stylus to a membrane, causing the membrane to vibrate with a sound and allowing it to engrave its track on a glass cylinder coated with lampblack moving at a fixed speed. Such experiments were conducted only to convert otherwise invisible, transient sound into a "writing" (phono-graph means "voice-writer"), a fixed visible form that would allow it to be seen and studied. It was some ten years before it occurred to anyone that by simply reversing the process the sound thus written might be recovered. And it wasn't until the late 1870s that the first, purely mechanical phonograph was constructed, without clear purpose, speculatively appearing as a "dictaphone," sonic snapshot device, novelty item or talking doll mechanism. Interestingly, all Edison's early cylinders were recording devices as well as reproducing devices, but he quickly lost the initiative to the mass reproducible flat Berliner disc, which was only reproductive medium. Its mass production however fed the growing consumer market for music recordings. Though its reproductive quality was poorer than the Edison cylinder, the disc was cheaper and more accessible, and in the hands of entrepreneurs and users music quickly became the primary content of recorded media-a process accelerated after the electrification of the whole process in 1926 which resulted in improved recording techniques, superior reproductive quality and increasing uninterrupted playing times. The breakthrough for the record as a producing (as opposed to reproducing) medium, didn't come until 1948, in the studios of French Radio, with the birth of *musique concrète*. There were no technological advances to explain this breakthrough, only a thinking advance; the chance interpenetrations of time, place and problematic.

The first *concrète* pieces, performed at the *Concert de Bruits* in Paris by engineer/composer Pierre Schaeffer, were made by manipulating gramophone records in real time, employing techniques embedded in their physical form: varying the speed, reversing the direction of spin, making "closed grooves" to create repeated ostinati etc. Within two years the radio station, in the face of resistance from Schaeffer, had reequipped the studio with tape recorders; and Schaeffer, now head of the Groupe de Musique Concrète, continued to develop the same aesthetic of sound organisation and to extend the transformational procedures learned through turntable manipulations with the vastly more flexible resources of magnetic tape. Other composers began to experiment with disc manipulation around the same time, including Tristram Cary in London and Mauricio Kagel in Buenos Aires. Tape had completely displaced direct-to-disc recording by 1950 and the studio that was to become an instrument was the tape studio. Disc experiments seemed merely to have become a primitive forerunner to tape work. It is curious that, in spite of the intimacy of record and recording, the first commercially available *musique concrète* on disc was not released until 1956.

Tape

Where the gramophone was an acoustic instrument, the magnetic recorder, also invented at the end of the nineteenth century, was always electrical. The gramophone, however, had numerous initial advantages: it was easier to amplify (the energy of the recoverable signal was greater to start with), and as soon as Émile Berliner replaced the cylinder with the disc and developed a process to press copies from a single master (1895), records were easy to mass produce. Wire—and then tape—were both much more difficult. For these and other reasons, tape was not regularly employed in music until after the Second World War, when German improvements in recording and playback quality and in stable magnetic tape technology were generally adopted throughout the world. Within five years tape had become standard in all professional recording applications.

The vinyl disc meanwhile held its place as the principle commercial playback medium and thus the ubiquitous public source of recorded sound. This division between the professionally productive and socially reproductive media was to have important consequences, since it was on the gramophone record that music appeared in its public, most evocative form; and when resonant cultural fragments began to be taken into living sound art, it was naturally from records, from the "real" artefacts that bricoleurs would draw. But before we get to this part of the story, I want to take a quick look at plundering precedents in some other fields.

History/plunder

From early in the twentieth century conditions existed that one would expect to have encouraged sound plundering experiments as a matter of course. First, the fact of sound recording itself, its existence, its provision of a medium which offers the sonic simulacrum of an actual sound event in a permanent and alienable form. Moreover, in principle, a sound recording, like a photograph, is merely surface. It has no depths, reveals no process and is no palimpsest. It's just there; always the first, always a copy. It has no aura, or any connection to a present source. And with its special claims toward objectivity and transparency, the tongue of a recording is always eloquently forked and thus already placed firmly in the realm of art.⁸

Secondly, montage, collage, borrowing, bricolage have been endemic in the visual arts since at least the turn of the century. The importation of readymade fragments into original works was a staple of cubism (newspaper, label samples, advertising etc.), futurism and early soviet art. Dada took this much further (Kurt Schwitters above all and the photomontagists) and as early as 1914 Marcel Duchamp had exhibited his bottle rack, a work in which, for the first time, a complete unmodified object was simply imported whole into an "art space." Yet strangely it waited 25 years for John Cage in his *Imaginary Landscape No.1* (1939) to bring a gramophone record into a public performance as an instrument and he still only used test tones and the effect of speed changes.

Having said this, I recently learned that at a Dada event in 1920 Stephan Wolpe used eight gramophones to play records at widely different speeds simultaneously-a true precedent, but without consequences; and of course Ottorino Respighi did call for a gramophone recording of a nightingale in his 1924 Pina di Roma-a technicality this, but imaginative nonetheless (though a bird call would have sufficed). Moreover, Darius Milhaud (from 1922), László Moholy-Nagy at the Bauhaus (1923) and Edgard Varèse (1936) had all experimented with disc manipulation, but none eventually employed them in a final work. Paul Hindemith and Ernst Toch did produce three recorded "studies" (Grammophonmusik, 1929-1930), but these have been lost, so it is difficult to say much about them except that, judging from the absence of offspring, their influence was clearly small.⁹ More prescient, because the medium was more flexible, were sound constructions made by filmmakers in the late 1920s and 1930s, using techniques developed for film, such as splicing and montaging, and working directly onto optical film soundtrack—for instance, in Germany, Walter Ruttman's Weekend (1928) and Fritz Walter Bischoff's lost sound symphony, Hallo! Hier Welle Erdball (1928); and, in Russia,

constructivist experiments including G. V. Alexandrov's *A Sentimental Romance* (1930) and Dziga Vertov's *Enthusiasm* (1931). There had also been some pieces of film music which featured "various treatments of sound recordings ... probably created with discs before being transferred to celluloid—by such composers as Yves Baudrier, Arthur Honnegger and Maurice Jaubert."¹⁰

The ideas were around, but isolated in special project applications. And strangely, optical recording techniques developed for film in the 1920s, although endowed with many of the attributes of magnetic tape, simply never crossed ever into the purely musical domain—despite Edgard Varèse's visionary proposal in 1940 for an optical sound studio in Hollywood—a proposal which, needless to say, was ignored.

With so many precedents in the world of the visual arts, and the long availability of the means of direct importation and plunder, it does seem surprising that it took so long for there to be similar developments in the world of music. And when, at last, the first clear intimations of the two principle elements crucial to plunderphonic practice did arrive, they arrived in two very different spheres, each surrounded by its own quite separate publicity and theory. The key works were Pierre Schaeffer's early experiments with radio sound archive discs (e.g. *Étude aux tourniquets*, 1948) and John Cage's unequivocal importation of readymade material into his Imaginary Landscape No.4 (1951) for twelve radios-where all the sounds, voices and music were plundered whole, and at random, from the ionosphere. In 1955, Imaginary Landscape No. 5 specified as sound material forty-two gramophone records. Thus, although Schaeffer used pre-recorded materials, these were "concrete" sounds, not already recorded compositions; while Cage made his construction out of "copyright" works, although this fact was purely incidental to the intention of the piece.

It wasn't until 1961 that an unequivocal exposition of plunderphonic techniques arrived in James Tenney's celebrated *Collage No.1 (Blue Suede)*, a manipulation of Elvis Presley's hit record "Blue Suede Shoes." The gauntlet was down; Tenney had picked up a "non art," lowbrow work and turned it into "art'; not as with scored music by writing variations on a popular air, but simply by subjecting a gramophone record to various physical and electrical procedures.

Still no copyright difficulties.

To refer or not to refer

Now, it can easily be argued that performances with—and recordings which comprise—ready-made sounds, including other people's completed works, reflect a concern endemic in twentieth-century art with art media in and of themselves apart from all representational attributes. This can take the form, for instance, of an insistence that all that is imitation can be stripped away, leaving only sensual and essential forms with no external referents; or a belief that all semiotic systems consist of nothing but referentiality—signalled by the addition, as it were, of imaginary inverted commas to everything. But it is only a loss of faith, or illusion, or nerve, that stands between this century's younger belief in "pure" languages and today's acceptance of the "endless play of signification." Moreover, plunderphonics can be linked, historically and theoretically, to both perceptions. Thus a recording may be considered as no more than the anonymous carrier of a "pure"—which is to say a non-referential—sound; or it may be an instance of a text that *cannot exist without reference*. In the first way, as Michel Chion's "Ten Commandments For an Art of Fixed Sounds" makes clear, the composer "distinguishes completely sounds from their sonic source ... he has done with mourning the presence of the cause."¹¹ Here the goal is to "purify" the sound, to strip it of its origin and memories (though it may well be that that same erased origin remains still to haunt it). In the second way, the recording—for instance a sample may be no more than a fragment, a knowing self reference, a version, and may be used to point at this very quality in itself.

As a found (or stolen) object, a sound is no more than available-for articulation, fragmentation, reorigination; it may be given the form of pure "acoustics" made instance or an of the availability and interchangeability-the *flatness*-of a recording, its origin not so much erased as rendered infinitely relative. These applications, of course, do not exhaust it: as a pirated cultural artefact, a found object, as debris from the sonic environment, a plundered sound also holds out an invitation to be used because of its cause and because of all the associations and cultural apparatus that surround it. And surely, what has been done with "captured" visual images (Warhol, Rauschenberg, Lichtenstein)-or with directly imported objects (Duchamp, the mutilated poster works of Harris, Rotella, De la Villegle and others)—all of which *depend upon* their actuality and provenance (as readymades)—can equally be done with captured "images" of sound.

Plundered sound carries, above all, the unique ability not just to refer

but to *be*; it offers not just a new means but a new meaning. It is this dual character that confuses the debates about originality which so vex it.

High and low

Popular musics got off to a slow start with sound piracy. Nevertheless they soon proved far more able to explore its inherent possibilities than art musics, which even after fifty years of sporadic experiment remained unable rigorously so to do. It is interesting perhaps that Tenney, who made the most radical essay into unashamed plunder, chose popular music as his primary source. In a later piece, Viet Flakes, from 1967, he mixed pop, classical and Asian traditional musics together and in so doing drew attention to another significant facet of the life of music on gramophone records, namely that, in the same way that they conceal and level their sources, records as objects make no distinction between "high" and "low" culture, "art" and "pop."¹² A record makes all musics equally accessible in every sense. No special clothes are needed, no expensive tickets need be bought, no travel is necessary, one need belong to no special interest or social group, nor be in a special place at a special time. Indeed, from the moment recordings existed, a new kind of "past" and "present" were born -both immediately available on demand. Time and space are homogenised in the home loudspeaker or the headphone, and the pop CD costs the same as the classical CD and probably comes from the same shop. All commodities are equal.

For young musicians growing up in the electric recording age, immersed in this shoreless sea of available sound, electronics, Maltese folk music, bebop, rhythm and blues, show tunes, film soundtracks and the latest top ten hit were all equally on tap. Tastes, interests, studies could be nourished at the pace and following the desire of the listener. Sounds, techniques and styles could flit across genres as fast as you could change a record, tune a dial or analyse and imitate what you heard. A kind of sound intoxication arose. Certainly it was the ideas and applications encountered in recorded music of all types which led a significant fringe of the teenage generation of the late 1960s into experiments with sound, stylistic bricolage, importations, the use of noise, electronics, "inappropriate" instruments and —crucially—recording techniques.¹³ The influence of art music and especially the work of Varèse, Schaeffer, Stockhausen and others cannot be overestimated in this context and, more than anything, it would be the crossplay between high and low art that would feature increasingly as a vital factor in the development of much innovative music. In plunderphonics too, the leakages—or maybe simply synchronicities—between productions in what were once easily demarcated as belonging in high or low art discourses, are blatant. Indeed, in more and more applications, the distinction is meaningless and impossible to draw.

But there are simpler reasons for the special affinity between low art and plundering. For instance, although the first plunder pieces (viz. the early *concrète* and the Cage works mentioned) belonged firmly in the art camp, blatant plundering nevertheless remained fairly off limits there, precluded essentially by the non-negotiable concern with originality and peer status —and also with the craft aspect of creating from scratch: originating out of a "creative centre" rather than "just messing about with other people's work." The world of low art had few such scruples: indeed, in a profound sense plundering was endemic to it—in the "folk" practices of copying and covering for instance (few people played original compositions), or in the use of public domain forms and genres as vessels for expressive variation (the blues form, jazz interpretations, sets of standard chord progressions and so on). The twentieth-century art kind of originality and novelty simply was not an issue here. Moreover, in the "hands on," low expectation, terra nova world of rock, musicians were happy to make fools of themselves "rediscovering America" the hard way.

What I find especially instructive was how, in a sound world principally mediated by recording, the high and low art worlds increasingly appropriated from one another. And how problems that were glossed over when art was art and there was no genre confusion (like Tenney's appropriation of copyrighted, but lowbrow, recordings) suddenly threatened to become dangerously problematic when genres blurred and both plunder and original began to operate in the same disputed (art/commercial) space.

Low art takes a hand

Rock precedents for pure studio tapework come from Frank Zappa, with his decidedly Varèse-esque concrete pieces on the albums *Absolutely Free*, *Lumpy Gravy* and *We're Only In It For The Money*, all made in 1967— *We're Only In It For The Money* also contains an unequivocally plundered Surf music extract—and The Beatles' pure tapework on "Tomorrow Never Knows" from the 1966 album *Revolver*. "Revolution No 9" on *The White Album* is also full of plundered radio material. In the early 1960s radios were ubiquitous in the high art world and in some intermediary groups such as AMM and Faust (in the latter, on their second UK tour, guest member Uli Trepte played "Space Box"—a shortwave radio and effects—as his main instrument).

Such examples-taken in combination with, firstly, the increasing independence, confidence and self-consciousness of some rock musicians; secondly, a generation of musicians coming out of art schools; furthermore, the mass availability of ever cheaper home recording equipment; and, finally, a climate of experiment and plenitude-made straightforward plunder inevitable. This promise was first substantially filled by The Residents. Their second released album, Third Reich and Roll (1975), a highly self-reflexive commentary on rock culture and hit records, curiously employed a technique analogous to that used by Stockhausen in 1970 for his Beethoven Anniversary recording, Opus 1970, which had nothing to do with influence and everything to do with the medium. What Stockhausen had done was to prepare tapes of fragments of Beethoven's music which ran continuously throughout the performance of the piece. Each player could open and shut his own loudspeaker at will and was instantaneously to "develop" what he heard instrumentally (condense, extend, transpose, modulate, synchronise, imitate, distort). To different ends The Residents followed a similar procedure: instead of Beethoven, they copied well known pop songs to one track of a four-track tape and then played along with them (transposing, modulating, distorting, commenting on, intensifying), thus building up tracks. Though they subsequently erased most of the source material, you can often, as with Opus 1970, still hear the plundered originals breaking through.

In 1977 it was The Residents again who produced the first unequivocal 100% plunder to come out of pop, following in the high art footsteps of James Tenney's Presley-based *Collage No.1*, and the later, more successful 1975 work *Omaggio a Jerry Lee Lewis* by American composer Richard Trythall (plundered from various recordings of Lewis' "Whole Lotta Shakin' Goin' On"). Trythall comments: "Like the table or newspaper in a cubist painting, the familiar musical object served the listener as an orientation point within a maze of new material ... the studio manipulations ... carried the source material into new, unexpected areas, while maintaining its past associations."¹⁴ The Residents' work was a 7

inch single titled "Beyond The Valley Of A Day In The Life" and subtitled "The Residents Play The Beatles/The Beatles Play The Residents." It came packaged as an art object in a numbered, limited edition and hand-silkscreened cover, but was sold to—and known by—a rock public. One side of this single was a cover version of The Beatles song "Flying." The other was pure plunderphonics. This whole side was assembled from extracts dubbed off Beatles records, looped, multitracked, composed with razor blades and tape. It is an ingenious construction, and remains a landmark.

Sampling and scratching

Although there were some notable experiments and a few successful productions, tape and disc technologies made plundering difficult and time consuming and thus suitable only for specific applications. What brought plundering to the centre of mass consumption low art music was a new technology that made sound piracy so easy that it didn't make sense *not* to do it. This development was digital sampling, launched affordably by Ensoniq in the mid-1980s. Digital sampling is a purely electronic digital recording system which takes samples or "vertical slices" of sound and converts them into binary information, into data, which tells a sound producing system how *to reconstruct*, rather than *reproduce* it. Instantly.

At a fast enough sampling rate the detailed contours of a sound can be so minutely traced that playback quality is compatible with any analogue recording system. The revolutionary power associated with a digital system is that the sound when stored consists of information in a form that can be transformed, edited or rewritten electronically, without "doing" anything to any actual analogue recording but only to a code. This really is a kind of a writing. When it is stored, modified or reproduced, no grooves, magnetised traces or any other contiguous *imprint* link the sound to its means of storage (by imprint I mean as when an object is pressed into soft wax and leaves its analogue trace). It is stored rather as discrete data, which act as *instructions* for the eventual reconstruction of a sound (as a visual object when electronically scanned is translated only into a binary code). Digital sampling allows any recorded sound to be linked to a keyboard or to a MIDI trigger and, using electronic tools (computer software), to be stretched, visualised on screen as waveforms and rewritten or edited with keys or a light pencil. All and any parameters can be

modified and any existing electronic processing applied. Only at the end of all these processes will an audible sound be recreated. This may then be listened to and, if it is not what is wanted, reworked until it is and only then saved. It means that a work like Cage's four minute long *Williams Mix* (1952, the first tape collage made in America) which took a year to cut together, could now be programmed and executed quite quickly using only a domestic computer.

The mass application is even more basic. It simply puts any sound it records—or which has been recorded and stored as software—on a normal keyboard, pitched according to the key touched. The user can record, model and assign to the keys any sounds at all. At last here is a musical instrument which is a recording device and a performing instrument -whose voice is simply the control and modulation of recordings. How could this technology not give the green light to plundering? It was so simple. No expertise was needed, just a user friendly keyboard, some stuff to sample (records and CDs are easy—and right there at home), and plenty of time to try things out. Producing could be no more than critical consuming; an empirical activity of Pick'n'Mix. Nor was that all. Sampling was introduced into a musical climate where low art plundering was already deeply established in the form of "scratching'-which in its turn echoed in a radically sophisticated form the disc manipulation techniques innovated in high culture by Hindemith and Koch, Milhaud, Varèse, Honegger, Kagel, Cary, Schaeffer, Knizac et al., but now guided by a wholly different aesthetic.

From scratch

The term *scratching* was coined to describe the practice of the realtime manipulation of 12" discs on highly-adapted turntables. It grew up in US discos where DJs began to programme the records they played, running them together, cutting one into another on beat and in key, superimposing, crossfading and so on. Soon this developed to the point where a good DJ could play records as an accompanying or soloing instrument, along with a rhythm box, other tracks or singing. New and extended techniques emerged—for instance the rhythmic slipping of a disc to and fro rapidly by hand on a low friction mat to create rhythms and cross rhythms—alongside old Concrete techniques: controlled-speed alterations and *sillons fermés* riffs. ("Two manual decks and a rhythm box is all you need. Get a

bunch of good rhythm records, choose your favourite parts and groove along with the rhythm machine. Using your hands, scratch the record by repeating the grooves you dig so much. Fade one record into the other and keep that rhythm box going. Now start talking and singing over the record with your own microphone. Now you're making your own music out of other people's records. That's what scratching is."—sleeve note to Malcolm McLaren's B-BU-BUFFALO GALS, 1982.)

It was only after scratching had become fashionable in the mid-1970s in radical black disco music that it moved back toward art applications, adopted quite brilliantly by Christian Marclay. Marclay used all the above techniques and more, incorporating also an idea of Milan Knizac's, who had been experimenting since 1963 with deliberately mutilated discs, particularly composite discs comprising segments of different records glued together. Of course everything Marclay does (like Knizac) is 100% plundered, but on some recordings he too, like John Oswald on his seminal Plunderphonic recordings, creates works which, echoing Tenney and Trythall, concentrate on a single artist, thus producing a work which is about an artist and made only from that artist's sonic simulacrum. Listen, for instance, to the "Maria Callas" and "Jimi Hendrix" tracks on More Encores (subtitled "Christian Marclay plays with the records of Louis Armstrong, Jane Birkin & Serge Gainsbourg, John Cage, Maria Callas, Frederic Chopin, Martin Denney, Arthur Ferrante & Louis Teicher, Fred Frith, Jimi Hendrix, Christian Marclay, Johann Strauss, John Zorn").

Marclay rose to prominence as a member of the early 1980s New York scene, on the experimental fringe of what was still thought of unequivocally as low art. He emerged from the context of disco and scratching, not *concrète* or other artworld experiments with discs (though they were part of his personal history). His cultural status (like the status of certain other alumni of the New York school such as John Zorn) slowly shifted, from low to high, via gallery installations and visual works and through the release of records such as *Record Without A Cover* (1985), which has only one playable side (the other has titles and text pressed into it) and comes unwrapped with the instruction: "Do not store in a protective package." Or the 1987 grooveless LP, packaged in a black suede pouch and released in a limited and signed edition of 50 by Ecart Editions. Marclay's work appears as a late flowering of an attenuated and, even at its height, marginal high art form, reinvented and reinvigorated by low art creativity. It traces the radical inter-penetrations of low and high art in the

levelling age of sound recording; the swing between high art experiment, low art creativity and high art reappropriation, as the two approach one another until, at their fringes, they become indistinguishable. This *aesthetic levelling is a property of the medium* and this indistinguishability signals not a collapse but the coming into being of a new aesthetic form.

Oswald plays records

Curiously, the apotheosis of the record as an instrument—as the raw material of a new creation—occurred just as the gramophone record itself was becoming obsolete and when a new technology that would surpass the wildest ambitions of any scratcher, acousmaticist, tape composer or sound organiser was sweeping all earlier record/playback production systems before it. Sampling, far from destroying disc manipulation, seems to have breathed new life into it. Turntable techniques live on in live house and techno. Marclay goes from strength to strength, more credits for "turntables" appear on divers CDs and younger players like Otomo Yoshihide are emerging with an even more organic and intimate relation to the record/player as an expressive instrument.¹⁵

It is almost as if sampling had recreated the gramophone record as a craft instrument, an analogue, expressive voice, made authentic by nostalgia. Obsolescence empowers a new mythology for the old phonograph, completing the circle from passive repeater to creative producer, from dead mechanism to expressive voice, from the death of performance to its guarantee. It is precisely the authenticity of the 12" disc that keeps it in manufacture; it has become anachronistically indispensable.

Disc-tape-disc

Applications of a new technology to art are often first inspired by existing art paradigms, frequently simplifying or developing existing procedures. Then new ideas emerge that more directly engage the technology for itself. These arise as a product of use, accident, experiment or cross fertilisation —but always through hands-on interaction. New applications then feed back again into new uses of the old technologies and so on. For a long time such dynamic inter-penetrations can drive aspects of both. Painting and film, for instance, have just such a productive history. A similar process

could be traced in the tension between recording and performance. A particularly obvious example of this is the way that hard cuts and edits made with tape for musical effect inspire *played* "edits"—brilliantly exemplified in the work of John Zorn. This process can be traced more broadly, and more profoundly, in the growth and refinement of the new sound aesthetic itself, which from its origins in the crisis in art music at the turn of the century through to contemporary practices in many fields, is characterised by the dynamic interactions between fluid and fixed media. New instrumental techniques inform, and are informed by, new recording techniques. Each refines a shared sonic language, sets problems, makes propositions. Each takes a certain measure of itself from the other, both living and dead: "Records are … dead" as Christian Marclay carefully points out.¹⁶

More dead than quick

What is essential—and new—is that by far the largest part of the music that we hear is recorded music, live music making up only a small percentage of our total listening. Moreover, recording is now the primary medium through which musical ideas and inspiration spread (this says nothing about quality, it is merely a quantitative fact). For example, one of the gravitational centres of improvisation—which is in every respect the antithesis of fixed sound or notated music—is its relation to recorded sound, including recordings of itself or of other improvisations. This performance-recording loop winds through the rise of jazz as a mass culture music, through rock experiments and on to the most abstract noise productions of today. Whatever living music does, chances are that the results will be recorded—and this will be their immortality. In the new situation, *it is only what is* not *recorded that belongs to its participants while what is recorded is placed inevitably in the public domain*.

Moreover, as noted earlier, recorded music leaves its genre community and enters the universe of recordings. As such the mutual interactions between composers, performers and recordings refer back to sound and structure and not to particular music communities. Leakage, seepage, adoption, osmosis, abstraction, contagion: these describe the life of sound work today. They account for the general aesthetic convergence at the fringes of genres once mutually exclusive—and across the gulf of high and low art. There is a whole range of sound work now about which it simply makes no sense to speak in terms of high or low, art or popular, indeed where the two interpenetrate so deeply that to attempt to discriminate between them is to fail to understand the sound revolution which has been effected through the medium of sound recording.

Plunderphonics addresses precisely this realm of the recorded. It treats of the point where both public domain and contemporary sound world meet the transformational and organisational aspects of recording technology; where listening and production, criticism and creation elide. It is also where copyright law from another age can't follow where—as Oswald himself remarked—"If creativity is a field, copyright is the fence."¹⁷

Pop eats itself

I want now to look at some of the many applications of plundering beyond those of directly referential or self-reflexive intent like those of Tenney, Trythall, The Residents, Oswald and Marclay.

First, and most obvious, is the widespread plundering of records for samples that are recycled on hiphop, house and techno records in particular, but increasingly on pop records in general. This means that drum parts, bass parts (often loops of a particular bar), horn parts, all manner of details (James Brown whoops etc.) will be dubbed off records and built up layer by layer into a new piece. This is essentially the same procedure as that adopted by The Residents in their Beatles piece, except that nowadays the range and power of electronic treatments is far greater than before and the results achieved of far greater technical complexity. Rhythms and tempi can be adjusted and synchronised, pitches altered, dynamic shape rewritten and so on. Selections sampled may be traceable or untraceable, it need not matter. Reference is not the aim so much as a kind of creative consumerism, a bricolage assembly from parts. Rather than start with instruments or a score, you start with a large record and CD collection and then copy, manipulate and laminate.

Moral and copyright arguments rage around this. There have been several high profile copyright infringement cases, and since 1990 bigger studios have employed departments to note and clear all samples and register and credit all composers, artists and original recording owners. "Sampling licences" are negotiated and paid for. This is hugely time consuming and slightly ridiculous and really not an option for amateurs and small fish. Oswald's CD *Plexure* (1993), for instance, has so many tiny cuts and samples on it that, not only are their identities impossible to register by listening, but compiling credit data would be like assembling a telephone directory for a medium sized town. Finding, applying, accounting and paying the 4000-plus copyright and patent holders would likewise be a full-time occupation, effectively impossible. Therefore such works simply could not exist. We have to address the question whether this is what we really want.

For now I am more interested in the way pop really starts to eat itself. Here together are cannibalism, laziness and the feeling that everything has already been originated, so that it is enough now endlessly to reinterpret and rearrange it all. The old idea of originality in *production* gives way to another (if to one at all) of originality in *consumption*, in hearing.

Cassiber

Other applications use plundered parts principally as sound elements which relate in a constitutive or alienated way to the syntax of a piece. They may or may not carry referential weight, this being only one optional attribute which the user may choose to employ. The Anglo-German group Cassiber (comprising Chris Cutler, Heiner Goebbels and Christoph Anders) uses just such techniques in which samples act both as structure and as fragments of cultural debris. Cassiber creates complexities; no piece is reducible to a score, a set of instructions, a formula. Simultaneity and superimposed viewpoints are characteristic of much of the work—as is the tension between invention and passion on the one hand and "dead" materials on the other.

When the group was formed, singer Christoph Anders worked with a table stacked with prepared cassettes, each containing loops or raw extracts taken from all manner of musics (on one Cassiber piece, there might be fragments of Schubert, Schoenberg, The Shangri-La's, Maria Callas and Them). The invention of the sampler put in his hands a similar facility, except with more material and infinitely greater transformational power, all accessible immediately on a normal keyboard. It means that, in a way impossible—though desired—before, they can be played. They can be as unstable as any performed musical part—and as discontinuous. Cassiber's use of familiar fragments, though these are often recognisable —and thus clearly referential—doesn't depend on this quality which is

accepted merely as a possible aspect—but rather on their musical role within the piece. Where House and Rap use samples to reinforce what is familiar, Goebbels and Anders use them to make the familiar strange, dislocated, more like debris—but (and this is the key) as structural rather than decorative debris. It is an affect only plundered materials can deliver.¹⁸

The issue

What is the issue? Is it whether *sound* can be copyrighted or snatches of a performance? If so, where do we draw the line—at length or recognisability? Or does mass-produced, mass-disseminated music have a kind of folk status? Is it so ubiquitous and so involuntary (you *have* to be immersed in it much of your waking time) that it falls legitimately into the category of "public domain"? Since violent action (destruction of works, legal prohibition, litigation and distraint) have been applied by one side of the argument, these are questions we cannot avoid.

A brief review of applications

A. There It Is: There are cases such as that of Cage, in *Imaginary Landscapes* 4 and 5, where materials are all derived directly from records or radio and subjected to various manipulations. Though there are copyright implications, the practice implies that music picked randomly "out of the air" is simply *there*. Most of Cage's work is more a kind of listening than of producing.

B. Partial Importations: An example of partial importation is *My Life in the Bush of Ghosts* (David Byrne and Brian Eno) and the work of Italians Roberto Musci and Giovanni Venosta. In both cases recordings of ethnic music are used as important voices, the rest of the material being constructed around them. The same might be done with whale songs, sound-effects records and so on; I detect political implications in the absence of copyright problems on such recordings. At least, it is far from obvious to me why an appeal to public domain status should be any more or less valid for "ethnic" music than it is for most pop—or any other recorded music.

C. Total Importation: This might rather be thought of as interpretation or re-hearing of existing recordings. Here we are in the territory of Tenney,

Trythall, The Residents, Marclay and quintessentially, of plunderphonic pioneer John Oswald. Existing recordings are not randomly or instrumentally incorporated so much as they become the simultaneous *subject* and *object* of a creative work. Current copyright law is unable to distinguish between a plagiarised and a new work in such cases, since its concerns are still drawn from old pen and paper paradigms. In the visual arts Duchamp with readymades, Warhol with soupcans and Brillo boxes, Lichtenstein with cartoons and Sherry Levine with re-photographed "famous" photographs are only some of the many who have, one way or another, broached the primary artistic question of "originality," which Oswald too can't help but raise.

D. Sources Irrelevant: This is where recognition of parts plundered is not necessary or important. There is no self-reflexivity involved; sound may be drawn as if "out of nothing," bent to new purposes or simply used as raw material. Also within this category falls the whole mundane universe of sampling or stealing "sounds": drum sounds (not parts), guitar chords, riffs, vocal interjections etc., sometimes creatively used but more often simply a way of saving time and money. Why spend hours creating or copying a sound when you can snatch it straight off a CD and get it into your own sampler-sequencer?

E. Sources Untraceable: These are manipulations which take the sounds plundered and stretch and treat them so radically that it is impossible to divine their source at all. Techniques like this are used in electronic, concrete, acousmatic, radiophonic, film and other abstract sound productions. Within this use lies a whole universe of viewpoints. For instance, the positive exploration of new worlds of sound and new possibilities of aestheticisation—or the idea that there is no need to originate any more, since what is already there offers such endless possibilities—or the expression of an implied helplessness in the face of contemporary conditions, namely, everything that *can* be done *has* been done and we can only rearrange the pieces.

This is a field where what may seem to be quite similar procedures may express such wildly different understandings as a hopeless tinkering amidst the ruins or a celebration of the infinitude of the infinitesimal.

Final comments

Several currents run together here. There is the technological aspect:

plundering is impossible in the absence of sound recording. There is the cultural aspect: since the turn of the century the importation of readymade materials into artworks has been a common practice, and one which has accumulated eloquence and significance. The re-seeing or re-hearing of familiar material is a well-established practice and, in high art at least, accusations of plagiarism are seldom raised. More to the point, the two-way traffic between high and low art (each borrowing and quoting from the other) has proceeded apace. Today it is often impossible to draw a clear line between them—witness certain advertisements, Philip Glass, Jeff Koons, New York subway graffiti.

It seems inevitable that in such a climate the applications of a recording technology that gives instant playback, transposition and processing facilities will not be intimidated by the old proscriptions of plagiarism or the ideal of originality. What is lacking now is a discourse under which the new practices can be discussed and adjudicated. The old values and paradigms of property and copyright, skill, originality, harmonic logic, design and so forth are simply not adequate to the task. Until we are able to give a good *account* of what is being done, *how* to think and speak about it, it will remain impossible to adjudicate between legitimate and illegitimate works and applications. Meanwhile outrages such as that perpetrated on John Oswald will continue unchecked [...]

Notes

- Chris Cutler, "Necessity and Choice in Musical Forms," *File Under Popular: Theoretical and Critical Writings on Music* (New York: Autonomedia, 1993), 33.
- 2 As I have argued in "Necessity and Choice in Musical Forms," section II (i).
- 3 There were sporadic experiments, as we shall see, and notably Varèse grasped the nettle early. Pierre Schaeffer made the radical proposal, but precisely from his work as an engineer, and not as a product of the art music tradition. A few followed—Stockhausen, Berio, Nono and others—and new schools formed which in part or whole abandoned mediating notation (*musique concrète* and electronic, tape, acousmatic and electroacoustic musics, for example), but these too tried to retain, as far as possible, the old status and values for their creators, merely replacing the score with direct personal manipulation, and continuing to make the same claims to originality, personal ownership, creation *ex nihilo*, etc. John Cage was an interesting exception: his originality and individuality being claimed precisely in their negation.

- 4 For the full argument, see "Necessity and Choice in Musical Forms," Section III (ii).
- 5 The first Copyright Act in England was passed in 1709. The current Act dates from 1988 and includes rights of the author to remuneration for all public performances (including broadcasts, jukeboxes, Muzak, fairground rides, concerts, discothèques, film, TV and so on) as well as for recordings of all kinds. The recording is copyrighted separately from the composition, so that every individual recording of a composition also has an owner.
- 6 Most copyright bodies still discriminate between works which earn a lot by the minute ("serious" composed works) and those which earn a little (pop music, for instance and improvised-compositions). Criteria for making such decisions vary, reflecting the prejudices of the day.
- 7 Which is to say, where it raises questions that reflect upon its own identity.
- 8 And through its documentary authenticity also in the realm of the political, as the purity of the retouched photograph and doctored tape attest.
- 9 Hugh Davies recently brought to my attention a notice from a 1993 conference in Berlin where it was reported that in the mid-1980s Hindemith's discs had been offered to the director of a German musicological institute. He refused them and their current whereabouts remain unknown.
- 10 See Hugh Davies, "A History of Sampling," *unfiled: Music under New Technology* (ReR/Recommended Sourcebook 0401), 11–12.
- 11 Michel Chion, *L'Art des sons fixés* (Fontaine: Editions Metamkine/Nota Bene/Sono-Concept, 1991), 22.
- 12 I shall treat the quotation marks as read from here on.
- 13 See Cutler "The Residents," "Necessity and Choice," and "Progressive Music in the UK," in *File Under Popular*.
- 14 Richard Trythall, programme note on *Omaggio a Jerry Lee Lewis*, on Various Artists, *CMCD: Six Classic Concrete, Electroacoustic, and Electronic Works* 1970–1990, ReR CMCD.
- 15 Hear, for instance, Otomo's Ground Zero recording *Revolutionary Peking Opera*, ReR GZ1 CD.
- 16 From an interview with J. Dean Kuipers in *Ear* magazine (1993).
- 17 From the *Plunderphonic* CD booklet.
- 18 For example "Start the Show" from the CD *A Face We All Know*, ReRCD (1989).
- * From *Musicworks* 60 (Fall 1994). Slightly modified and used by permission of the author.

Operating System for the Redesign of Sonic Reality

Kodwo Eshun

Kodwo Eshun is a cultural theorist and artist. Along with colleagues such as Mark Sinker, Greg Tate, John Corbett, Erik Davis, and Paul D. Miller, Eshun helped to define the concept of "Afrofuturism," which marks out a lineage of black artists (Sun Ra, George Clinton, Lee "Scratch" Perry, Alice Coltrane, Samuel R. Delany, Octavia Butler, Derrick May, etc.) for whom black identity is fundamentally connected with science fiction and electronic technology. With Anjalika Sagar, Eshun is half of the celebrated artist duo The Otolith Group, noted for a series of essay films that often combine archival research with science fiction. In this selection from the introduction to his 1998 book More Brilliant Than the Sun: Adventures in Sonic Fiction, Eshun unsettles the stereotypical view that black artists uniquely embody "soul," "authenticity," "reality," and "humanism." Instead, he uncovers, in Afrofuturism, a view of the black artist as posthuman cyborg.

[...] At the Century's End, the Futurhythmachine has two opposing tendencies, two synthetic drives: the soulful and the postsoul. But then all music is made of both tendencies running simultaneously at all levels, so you can't merely *oppose* a humanist r&b with a posthuman techno.

Disco remains the moment when black music falls from the grace of gospel tradition into the metronomic assembly line. Ignoring that disco is therefore *audibly* where the twenty-first begins, nine out of ten cultural crits prefer their black popculture humanist, and emphatically nineteenth century. Like Brussels sprouts, humanism is good for you, nourishing, nurturing, soulwarming and from Phyllis Wheatley to R. Kelly, present-day r&b is a perpetual fight for human status, a yearning for human rights, a struggle for inclusion within the human species. Allergic to cybersonic if not to sonic technology, mainstream American media—in its drive to banish alienation, and to recover a sense of the whole human being through belief systems that talk to the "real you"—compulsively deletes any intimation of an AfroDiasporic futurism, of a "webbed network" of computerhythms, machine mythology and conceptechnics which routes,

reroutes and crisscrosses the Black Atlantic. This digital diaspora connecting the UK to the US, the Caribbean to Europe to Africa, is in Paul Gilroy's definition a "rhizomorphic, fractal structure," a "transcultural, international formation."¹

The music of Alice Coltrane and Sun Ra, of Underground Resistance and George Russell, of Tricky and Martina, comes from the Outer Side. It alienates itself from the human; it arrives from the future. Alien music is a synthetic recombinator, an applied art technology for amplifying the rates of becoming alien. Optimize the ratios of excentricity. Synthesize yourself.

From the outset, this postsoul era has been characterized by an extreme indifference towards the human. The human is a pointless and treacherous category.

And in synch with this posthuman perspective comes Black Atlantic futurism. Whether it's the AfroFuturist *concrète* of George Russell and Roland Kirk, the jazz fission of Teo Macero and Miles Davis, the World 4 electronics of Sun Ra and Herbie Hancock, the Astro Jazz of Alice Coltrane and Pharoah Sanders, the cosmophonic hiphop of Dr Octagon and Ultramagnetic MCs, the post-hiphop of The Jungle Brothers and Tricky, the spectral dub of Scientist and Lee Perry, the offworld electro of Haashim and Ryuichi Sakamoto, the despotic acid of Bam Bam and Phuture, the sinister phonoseduction of Parliament's Star Child, the hyperrhythmic psychedelia of Rob Playford and Goldie, 4 Hero and A Guy Called Gerald, sonic futurism always adopts a cruel, despotic, amoral attitude towards the human species [...]

More Brilliant than the Sun's achievement, therefore, is to design, manufacture, fabricate, synthesize, cut, paste and edit a so-called artificial discontinuum for the Futurhythmachine.

Rejecting today's ubiquitous emphasis on black sound's necessary ethical allegiance to the street, this project opens up the new plane of sonic fiction, the secret life of forms, the discontinuum of AfroDiasporic futurism, the chain reaction of phonofiction. It moves through the explosive forces which technology ignites in us, the temporal architecture of inner space, audiosocial space, living space, where postwar alienation breaks down into the twenty-first century alien.

From Sun Ra to 4 Hero, today's alien discontinuum therefore operates not through continuities, retentions, genealogies or inheritances but rather through intervals, gaps, breaks. It turns away from roots; it opposes common sense with the force of the fictional and the power of falsity.

One side effect of the alien discontinuum is the rejection of any and all notions of a compulsory black condition. Where journalism still insists on a solid state known as "blackness," *More Brilliant* dissolves this solidarity with a corpse into a *fluid*arity maintained and exacerbated by soundmachines.

Today's cyborgs are too busy manufacturing themselves across timespace to disintensify themselves with all the Turing tests for transatlantic, transeuropean and transafrican consciousness: affirmation, keeping it real, representing, staying true to the game, respect due, staying black. Alien music today deliberately fails all these tests, these putrid corpses of petrified moralism: it treats them with utter indifference; it replaces them with nothing whatsoever.

It deserts forever the nauseating and bizarre ethic of "redemption."

AfroDiasporic futurism has assembled itself along inhuman routes, and it takes artificial thought to reveal this. Such relief: jaws unclench, as conviction collapses.

Where crits of CyberCult still gather, 99.9% of them will lament the disembodiment of the human by technology. But machines *don't* distance you from your emotions, in fact quite the opposite. Sound machines make you feel *more* intensely, along a broader band of emotional spectra than ever before in the twentieth century.

Sonically speaking, the posthuman era is not one of disembodiment but the exact reverse: it's a *hyperembodiment*, via the Technics SL 1200. A non-sound scientist like Richard Dawkins "talks very happily about cultural viruses," argues Sadie Plant, "but doesn't think that he himself is a viral contagion."² Migrating from the lab to the studio, Sonic Science not only talks about cultural viruses, it is itself a viral contagion. It's a sensational infection by the spread of what Ishmael Reed terms antiplagues.³

Machine Music doesn't call itself science because it controls technology, but because music is the artform most thoroughly undermined and recombinated and reconfigured by technics. Scientists set processes in motion which swallow them up: the scientist's brain is caught up in the net. Acid's alien frequency modulation turns on its DJ-producers Phuture and Sleezy D and begins to "stab your brain" and "disrupt thought patterns" [...]

Alien music is all in the breaks: the distance between Tricky and what

you took to be the limits of black music, the gap between underground resistance and what you took black music to be, between listening to Miles & Macero's "He Loved Him Madly" and crossing all thresholds with and through it, leaving every old belief system: rock, jazz, soul, electro, hiphop, house, acid, drum 'n' bass, electronics, techno and dub—forever.

Notes

- 1 Paul Gilroy, *The Black Atlantic* (London: Verson, 1993), p. 4.
- 2 Sadie Plant, Matthew Fuller, *Alien Underground Version 0.1* (Spring 1995).
- 3 Ishmael Reed, *Mumbo Jumbo* (London: Alison and Busby, 1978), p. 6.
- From Kodwo Eshun, More Brilliant Than the Sun: Adventures in Sonic Fiction (London: Quartet, 1998). Used by permission of the author.

Six File-Sharing Epiphanies

Kenneth Goldsmith

With the emergence of the MP3 in the late 1990s, music became more portable than ever, capable of being uploaded to websites or rapidly distributed through email. Peer-to-peer file-sharing services such as Napster quickly arose to facilitate this distribution, running afoul of copyright regulations and the legal arm of the corporate music industry. Though Napster was eventually defeated, the genie was out of the bottle. Record sales plummeted as consumers increasingly expected music to be free. Greeted by some as a disaster, this situation was taken by others to be liberating. Squarely in the latter camp is Kenneth Goldsmith, a prominent conceptual poet and founder of UbuWeb, an online archive that hosts an enormous and ever-growing quantity of avant-garde music, film, video, poetry, and essays, all offered for free. The following essay first appeared in The Wire magazine and set off a spate of responses and criticisms that are archived on the magazine's website.

Epiphany No. 1: While I could discuss any number of musical epiphanies I've personally experienced over the past half a century, all of them would pale in comparison to the epiphany of seeing Napster for the first time. Although prior to Napster I had been a member of several file-sharing communities, the sheer scope, variety and seeming endlessness of Napster was mind-boggling: you never knew what you were going to find and how much of it was going to be there. It was as if every record store, fleamarket and charity shop in the world had been connected by a searchable database and had flung their doors open, begging you to walk away with as much as you could carry for free. But it was even better, because the supply never exhausted; the coolest record you've ever dug up could now be shared with all your friends. Of course, this has been exacerbated many times over with the advent of torrents and MP3 blogs.

Epiphany No. 2: One of the first things that struck me about Napster was how damn impure (read: eclectic) people's tastes were. While browsing another user's files, I was stunned to find John Cage MP3s alphabetically snuggled up next to, say, Mariah Carey files in the same directory.

Everyone has guilty pleasures; however, never before had they been so exposed—and celebrated—so publicly. While such impure impulses have always existed in the avant garde, they've pretty much remained hidden. For instance, on UbuWeb we host a compilation of the ultra-modernist conductor and musicologist Nicholas Slonimsky's early recordings of Varèse, Ives and Ruggles. But we also host a recording of Slonimsky croaking out bawdy tunes about constipated children—"*Opens up the BOW-ELS*"—on an out-of-tune piano. He sounds absolutely smashed. The Slonimsky recording is part of The 365 Days Project, which is a collection of crazy stuff: celebrity, children, demonstration, indigenous, Industrial, outsider, song-poem, spoken, ventriloquism, etc; snuggled in with the crazy Mormons, twangy garage bands and singing stewardesses is one of the fathers of the avant garde, Nicholas Slonimsky.

Epiphany No. 3: File sharing is non-contextual. The cohesive vision of an album has been ditched in favour of the single or the playlist. Many people getting music online have no idea where something came from, nor do they care. For instance, we find that many people downloading MP3s from UbuWeb have no interest in the historical context; instead, the site is seen as a vast resource of 'cool' and 'weird' sounds to remix or throw into dance mixes. It has been reported that samples from Bruce Nauman's mantric chant, "Get Out Of My Mind, Get Out Of This Room," from his *Raw Materials* compilation on Ubu, has recently been mixed with beats and is somewhat the rage with unwitting partygoers on dancefloors in São Paulo.

Epiphany No. 4: As a result, just like you, I stopped buying music. I used to be a record junkie. For years, I spent most of my free time hunting down discs in dusty corners of the world. I'll never forget my honeymoon in Amsterdam in 1989. I had to purchase an extra suitcase so that I could bring home dozens of Dutch reissues of Stax and Atco soul LPs that were completely unavailable in New York. While I travel extensively these days, I haven't set foot in a record store in well over a decade. Why bother, when the best record store sits on my laptop in my hotel room? A few nights ago at home, after putting the kids to bed, I was parked in front of the computer sipping bourbon. My wife asked me what I was doing. I told her I was going record shopping. As I glanced at my screen, ten ultra-rare discs I would have killed for way back when were streaming down to my living room for free.

Epiphany No. 5: I don't know about you, but I've lost my object fetish.

But then again, I was never the type of collector who bought records for their cool covers: the music had to be great. Still, I have 10,000 vinyls gathering dust in my hallway and as many CDs in racks on my wall. I don't use them. To me, if music can't be shared, I'm not interested in it. However, once I digitize these objects and they enter into the file-sharing ecosystem, they become alive for me again. As many dead LPs and CDs as I have, I've got many times that number of discs sitting on a dozen hard drives, flying up and down my network.

Epiphany No. 6: It's all about quantity. Just like you, I'm drowning in my riches. I've got more music on my drives than I'll ever be able to listen to in the next ten lifetimes. As a matter of fact, records that I've been craving for years (such as the complete recordings of Jean Cocteau, which we just posted on Ubu) are languishing unlistened-to. I'll never get to them either, because I'm more interested in the hunt than I am in the prey. The minute I get something, I just crave more. So something has really changed—and I think this is the real epiphany: the ways in which culture is distributed have become profoundly more intriguing than the cultural artifact itself. What we've experienced is an inversion of consumption, one in which we've come to prefer the acts of acquisition over that which we are acquiring, the bottles over the wine.¹

Notes

1 For replies to Goldsmith's essay and alternative arguments, see *The Wire*'s "Collateral Damage" series, archived at http://www.thewire.co.uk/inwriting/collateral-damage

^{*} From *The Wire* 327 (April 2011). Used by permission of the author.

Cultivating Activist Lives in Sound

Tara Rodgers

Tara Rodgers (a.k.a. Analog Tara) is a composer, historian, and theorist of electronic music. In 2000 she launched the website PinkNoises.com to promote work by women in electronic music and sound art, and to encourage the production of creative audio by women and girls. This project culminated in Pink Noises, a book of interviews with electronic music pioneers such as Éliane Radigue, Pauline Oliveros, Maggi Payne, Annea Lockwood, and Christina Kubisch, as well as with younger artists such as Antye Greie, Beth Coleman, Bevin Kelley, Giulia Loli, and Maria Chavez. In the following essay, Rodgers reflects on the production and circulation of sound in contemporary digital culture and, specifically, on the conditions of labor facing producers of electronic media—for example, the obligation to provide free content, the affective labor demanded by social media, the privatization of public institutions and services, etc. Alongside her diagnosis and discussion of these conditions, Rodgers offers alternatives, suggesting ways that contemporary audio culture could become more genuinely collective and diverse.

An activist life in sound¹ cuts across various realms, such as the social structures and modes of time and feeling that make creativity possible, the communication networks and means of music production and distribution that articulate individual efforts to collective consciousness, and the ecological impacts of electronic technologies. The propagation of sound waves across space and time is a useful metaphor for thinking about relations of individuals and collectives: consider a sonic-political act at the center, with its ripple effects as the various social, political-economic and ecological impacts that resonate from that act locally and in more farreaching scales. Myriad acts overlap, while collective social organization enables multiple sonic-political acts to be amplified or rendered more powerful. As Doris Sommer asserts with regard to the civic value of the arts and humanities: "All of us would do well to consider art's ripple effects, from producing pleasure to triggering innovation."²

Sonic-political acts that generate ripple effects may encompass various

forms and practices of doing, researching or advocating creative work in sound or music. Or, they may be composed of more explicitly political actions that employ sonic metaphors or aural performances, such as when Occupy protesters innovated the "human microphone" to amplify public speech³ or when activists interrupted the bourgeois comfort of a St. Louis Symphony performance by singing a requiem for Michael Brown, the unarmed Black teenager killed in Ferguson, Missouri, by a white police officer.⁴ I write this essay with artists, arts educators and arts collectives in mind, with the assumption that art is inherently political in the many ways that it modulates, and is modulated by, relations of power. At the same time, I argue that feminist, antiracist, anticapitalist political activisms are necessary for the survival of artistic expression as the province of all people, rather than only a privileged few.

Inhabiting the historical present

The historical present in electronic music and sound cultures is full of contradiction. Some progress has been made on the question of gender. Books such as Pink Noises and Pauline Oliveros' Deep Listening are showing up on course syllabi, and community-based projects such as Bonnie Jones and Suzanne Thorpe's Techne initiative and the Women's Audio Mission are changing the ways that electronic music composition, audio engineering and sound histories are taught in university classrooms and community workshops.⁵ And yet some of the same problems that existed in electronic music and sound cultures decades ago persist, from the lack of gender and racial diversity in music and technology classrooms (in terms of both students enrolled and artists discussed) to concomitant disparities in professional opportunities and pay. The Female Pressure collective has launched important efforts to document the widespread marginalization of women on electronic music festival lineups and record labels with statistics and infographics and to organize collectively voiced calls to action 6

What is behind this one-step-forward, two-steps-back progression? First, deeply entrenched patriarchal histories of music, technology and creativity make structural change in the present difficult to achieve. In my research on the history of synthesizers, for example, I draw upon feminist scholarship in the history and philosophy of science, which has shown how Western technoscientific discourses align with Judeo-Christian narratives

of creation and salvation and how the subject of science is normatively white, Western and male.⁷ This alignment manifests in audio-technical discourses when the male composer or audio technologist assumes a kindred subject position to that of a creator/God—a seemingly natural inheritance from foundational, gendered and imperialist creation myths in Western history and culture. Race-based expectations operate in tandem with gendered assumptions about creative authority and technical skills, and with sexualized assumptions about bodies in performance. Overall, the very notion of who is legible as a "creator," an "innovator," a "composer," a "producer" or an "experimental musician" in the present is up against mythologies articulate and longstanding that socially culturally differentiated bodies and subjects to particular social roles and expectations.⁸ Second, neoliberal forces are bearing down on artists and arts organizations in strikingly difficult ways. Arts education and arts programming are profoundly underfunded. Arguably more devastating, and harder to quantify, is the erosion of creative spirit and capacity that occurs when freedom of artistic expression is relegated to the sphere of free-market economies and hitched to profit-minded notions of entrepreneurialism. We need to meet and counter these trends with a sense of urgency in our local communities as well as through the strength of international networks.

Sustaining creativity

What conditions make it possible to do creative work in sound and music at this moment in the twenty-first century? "Artistic subjectivity and aesthetic labor ... in the digital age"⁹ unfold in the long shadow of neoliberalism. This set of values includes the privatization of public institutions and services, deregulated free-market competition, a generally upward drift of resources to the privileged few, and increased individual responsibility for employment, health and overall welfare. Public funding for the arts has been decimated, and jobs in affinity areas such as higher education are few and ever more precarious. The draining of support for arts education in public schools at all levels positions the arts as a superfluous indulgence that cannot be accommodated in tough economic times, while a narrow focus on quantifiable outcomes and STEM (science, technology, engineering and mathematics) fields in higher education is deemed most prudent. A 1977 essay by Audre Lorde is prophetic on this subject. Claiming poetry's usefulness in accounting for Black women's lives within a Eurocentric, white-supremacist and patriarchal culture, Lorde wrote: "Poetry is not a luxury. It is a vital necessity of our existence. It forms the quality of the light within which we predicate our hopes and dreams toward survival and change, first made into language, then into idea, then into more tangible action."¹⁰ Without diminishing the powerful specificity of Lorde's intervention in its original time and context, I argue for the clarion resonance of her words in relation to artistic and activist lives today— especially for those for whom creativity is an absolute lifeline for excavation of, and testimony to, the felt effects of racism, sexism, classism and other interlocking modes of oppression. The suppression of feelings-even sometimes their partial dilution into "like" and "share" gestures on social media—is an operation of power.¹¹ In the context of institutions and technological platforms that are oriented toward profit and sustained by the production of inequalities, as Lorde pointed out, "our feelings were not meant to survive."¹² So, to advocate art-making and arts education is to advocate the survival of feelings, their radical and diverse expressions, and their proliferating translations into social action.

Critiquing digital cultures

I want to unpack certain media rituals that have become familiar in the day-to-day work of many artists and cultural producers at this moment—to cultivate what Cynthia Enloe has called a "feminist curiosity" that exposes and critiques ideologies that support everyday norms.¹³ I am especially interested in accounting for how technological platforms that are presented as neutral or, at least, inevitable choices for artists and arts professionals are both problematic and not the only available options. We are intimately familiar with implicit expectations that artists and arts organizations will brand and market themselves, fundraise for their projects by crowdfunding (tapping into their social networks) with tools such as Kickstarter, and sell their work directly to the public—or, more commonly, distribute much of it for free through online platforms such as SoundCloud and YouTube. These practices are not necessarily all bad; nonetheless, it is timely to reflect on the structural and political dimensions of our complicity with these trends.

Web 2.0, the now-familiar structure of the World Wide Web that emphasizes user-generated content and interactivity, is an economy that
relies on the unpaid labor of users who are also producers of content, as well as on the affective labor of distributed social networks to "like," "share," comment on and otherwise hierarchize and circulate that content. For artists, for whom art-making likely already unfolds in "spare time" outside other employment, this economy demands increasing time for acquiring and cultivating the skills necessary to maintain an online presence and for doing the continual work of scanning, making and uploading media assets to serve a perceived need. To be sure, many of us have embraced this work as a welcome dimension of our creative process, and we benefit from learning from one another via social media networks and from expanding the audience for our work to new communities online. At the same time, the clear, material beneficiaries of our time and labor are large corporations such as Facebook and Google that acquire rich troves of data and freely supplied content from our use of their platforms. Another corollary of this "prosumerism" or "produserism" (i.e. when users become producers of the content they consume) is that it participates in a larger economy that has rendered interconnected occupations and public services obsolete over time. From the museum guide who has been displaced by downloadable audio files, to the skilled graphic designer whose work now seems too expensive if we can do a halfway decent job ourselves, to the small record labels whose relevance has been diminished amid the dominant online distribution networks, neoliberal social organization tends to encourage and reward competition among individuals at the expense of a more robust and egalitarian community structure.¹⁴

A quality of inevitability makes the contours of digital cultures very hard to challenge. An example is the widespread enthusiasm for "freely available" Web content. Under what conditions might artists support offering content for free or pursue alternatives? On the one hand, knowledge sharing and open access to information are crucial educational and political initiatives that we need to figure out how to do in better ways. On the other hand, content creators need to be paid for their work and we need not groom future generations to expect that creative labor will always be provided for free. Organizations such as Working Artists and the Greater Economy (W.A.G.E.), and Canadian Artists' Representation/Le Front des artistes canadiens (CARFAC) offer resources such as cumulative statistics on artistic labor that is done for free, as well as proposed rates of pay for various roles and tasks in the arts.¹⁵ These are helpful starting points for artists negotiating pay for themselves and for curators lobbying

institutions about payment for visiting artists. We need to push back on this expectation of free or low-paid creative labor each time we have an opportunity to do so, raising it for public debate and collective advocacy rather than letting compensation issues get buried within the realm of individual negotiations.

If artists must compete in a marketplace with a glut of freely available online content, what are the implications for the work that they will and will not make? Thet Shein Win raises key concerns about this issue, asking: "If the [online] marketplace [is] the hub" that determines the success of a work-for example, by whether it "goes viral" (a phenomenon that we know is contingent on proprietary algorithms), is successfully crowdfunded or is shown to be viable by Web analytics —"What projects will forever remain on the table or in the studio?"¹⁶ There are also temporal pressures on creative output, given expectations that new content will be continuously available. I joke that every time I log into my Facebook account, it reprimands me that "Pink Noises fans haven't heard from you in 14 days!" But art and critical thought take time. The performance artist Penny Arcade recently addressed this phenomenon, urging young artists not to succumb to external notions of "success," but rather to "honor [their] own trajectory" and rededicate themselves to the long "developmental arc" that constitutes an artistic life and career.¹⁷ The science fiction author Ursula Le Guin likewise has observed that now more than ever we need writers and artists "who can see alternatives to how we live now, and ... who can remember freedom: poets, visionaries the realists of a larger reality."¹⁸ My position (and provocation) is that artists have an expansive mandate in the arenas of aesthetics and politics to depict and bear witness to the social, cultural, political and economic systems and times in which they are enmeshed—in Adrienne Rich's words, "to be a voice of hunger, desire, discontent, passion, reminding us that the democratic project is never-ending."¹⁹ Artists' capacity to fully inhabit this crucial social role can be compromised if there is noncritical acceptance of technologies, practices and timeframes for producing work that are in fact deeply in service of capitalism. To be clear, I am not advocating for wholesale abandonment of social media and other new technologies, but rather for critical consciousness of their political dimensions and for the avid exploration and invention of novel, better, community-based alternatives.

Collective alternatives

The expansion of networks that make artists' lives and work sustainable through the collective distribution of knowledge and resources is the antithesis of an individual-centered, competitive-market, entrepreneurial culture. What would happen if large, brave, brilliant groups of artists flatly refused to distribute their work freely through existing channels and created new, collectively owned online distribution networks and/or novel modes of, say, handcrafting or hand-wrapping sound and music objects, calling attention to this innovation by sheer means of its countercultural stance? There is little to lose in pursuing such alternatives: the value of digital music downloads to most independent artists is effectively nil, and fees for performances and exhibitions not much better. There are certainly some who have begun to innovate in these ways. For example, the new wave of "boutique" synthesizer and effects-pedal designers represent a kind of reaction against the dominance of multinational corporations in mass-producing electronic music instruments in the 1980s and 1990s.

Artists might ask: How can we redistribute money to support our friends and colleagues if none of us has any funding and no one wants to pay for music? It is worth examining what small amounts of money we might personally contribute to the arts and where that money can best be spent, and, if fundraising for a project, seek approaches that are consistent with one's politics. Josh MacPhee points out that Kickstarter, and its financial partner Amazon, take 10% off the top of funds raised from projects that meet their goals. There are also less well-quantified costs shared by artists and their networks, of gifts donated as fundraising perks, promotional expenses and hours of labor that are invested to make campaigns successful.²⁰ Whenever possible, we can be more mindful consumers in deciding where to invest even very small sums in the arts, and to deliberately and directly support other artists.²¹ A useful analogy can be made to the local food movement: going to a farmers' market rather than a chain store, and other small changes of habit among those with the means to make such choices, can make a big difference over time if adopted on a widespread scale. Artists might also organize music production collectives that pool instruments and tools for sharing among the community. Opensource software solutions are promising in this regard. Some of these approaches also offer ways to reduce electronics waste, running counter to dominant ideologies of planned obsolescence and individual ownership of electronic devices.

Aspirations and actions

As is the case with other forms of activism, an activist life in sound must be made and remade through adaptive and renewable commitments to social justice. What might sonic activists work toward? It can help to name some values and aspirations. I start with the following:

- 1. That people have the resources and time to pursue creative sonic or musical expression in ways that are unrestricted by gender identity, race, ethnicity, class position, sexuality, physical ability, age and other socially differentiating factors. This goal needs to be bolstered by a broad array of social services (e.g. access to education, employment, healthcare and family care), as well as through opposition to mass incarceration and militarization.
- 2. That such unrestricted creative sonic expressions foster:
 - diversity of individual expressions
 - senses of community or belonging
 - recognition of differences without insistence on their resolution or appropriation by those in positions of power
 - shared commitments to eradicating socioeconomic inequalities
 - consciousness of social and environmental interdependency.
- 3. That creative lives in sound are personally and economically sustainable, through:
 - collective organization and/or ownership of the means of music production and distribution
 - societal recognition of art's inherent cultural, economic and civic value.
- 4. That detrimental environmental impacts resulting from creative uses of electronics and audio technologies are minimized.

This list is designed for ongoing revision and to motivate artists to make their own. It emerges from my particular geopolitical and social location, and it is not intended to be comprehensive, universal or prescriptive. While it has a utopic feel, it is also generative, like an instructional score: there are many possible ways to interpret it and turn the stated aspirations into actions. A single project might zero in on one area of the list very well: for example, Pauline Oliveros and collaborators' Adaptive Use Musical Instruments project implements the goal of expanding access to musicmaking to people with physical disabilities.²² Or, an artist's entire career or the mission of an organization might focus on one area, such as an ecologically minded composer's ongoing uses of sound to raise consciousness about environmental sustainability; a music educator's lifelong project to teach younger generations about art's inherent values and meanings; or an antipoverty nonprofit's efforts to improve material living conditions for many, which can increase capacity for creative expression among a wider range of community members. Alternatively, a sonic activist might endeavor to do a small action in support of most or all of the above aspirations each day. For me, this list is a useful compass and practical guide, so that I can routinely ask myself: In what ways does my music-making today address X? How does my research further Y? If I'm not doing enough to support Z, what needs to change? It reveals how there can indeed be many approaches to cultivating an activist life in sound many areas toward which we can direct our efforts-resulting in a proliferation of sonic-political acts that have local and far-reaching ripple effects.

Notes

- 1 This essay addresses the organizing question of the 2014 "Sound::Gender::Feminism::Activism" conference: "What, in the historical present, might constitute an activist life in sound?" As indicated by the references, the essay is based on interdisciplinary research that centers on arts and cultural contexts in the U.S., Canada and the U.K.; while the arguments may be relevant in other contexts, they emerge from and critique these cultural locations in particular.
- 2 Doris Sommer, *The Work of Art in the World: Civic Agency and Public Humanities* (Durham, NC: Duke University Press, 2014), 3.
- 3 Lilian Radovac, "Mic Check: Occupy Wall Street and the Space of Audition," in Jack Bratich, ed., Occupy Communication and Culture, special issue of Communication and Critical/Cultural Studies 11, No. 1, 34–41 (2014).
- 4 Robert Samuels, "Protesters Interrupt St. Louis Symphony with 'Requiem for Mike Brown,' "*Washington Post* (October 5, 2014).
- 5 See Tara Rodgers, *Pink Noises: Women on Electronic Music and Sound* (Durham, NC: Duke University Press, 2010); Pauline Oliveros, *Deep Listening: A Composer's Practice* (New York: iUniverse, 2005); Techne: Modular Workshops in Music, Technology & Improvisation: https://technesound.org; Women's Audio Mission (WAM): https://www.womensaudiomission.org
- 6 "Female Pressure Facts," 2013: www.femalepressure.net/PDFs/fempressreport-03-

2013.pdf.

- 7 Donna J. Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14, No. 3 (1988): 575–99; Luce Irigaray, "Is the Subject of Science Sexed?" *Hypatia* 2, No. 3 (1987): 65–87; and Tara Rodgers, "Synthesizing Sound: Metaphor in Audio-Technical Discourse and Synthesis History," Ph.D. dissertation, McGill University, McGill University.
- 8 See Tara Rodgers, "'What, for Me, Constitutes Life in a Sound?': Electronic Sounds as Lively and Differentiated Individuals," in Kara Keeling and Josh Kun, eds. *Sound Clash: Listening to American Studies*, special issue of *American Quarterly* 63, No. 3 (2011): 509–30; and George E. Lewis, "Improvised Music after 1950: Afrological and Eurological Perspectives," *Black Music Research Journal* 16, No. 1 (1996): 91–122, reprinted in this volume.
- 9 Thet Shein Win, "Marketing the Entrepreneurial Artist in the Innovation Age: Aesthetic Labor, Artistic Subjectivity, and the Creative Industries," *Anthropology of Work Review* 35, No. 1 (2014): 2.
- 10 Audre Lorde, "Poetry Is Not a Luxury" (1977), in *Sister Outsider* (Berkeley: Crossing Press, 2007), 37.
- See Jonathan Sterne, "What if Interactivity Is the New Passivity?" FlowTV.org 15, No. 10 (2012): http://www.flowjournal.org/2012/04/the-new-passivity; and RobtheIdealist, "Are You Tired of the Social Justice Outrage Machine?" Orchestrated Pulse (2014): www.orchestratedpulse.com/2014/01/tired-social-justice-outragemachine
- 12 Lorde, Sister Outsider, 39.
- 13 Cynthia Enloe, "Introduction: Being Curious about Our Lack of Feminist Curiosity," in *The Curious Feminist: Searching for Women in a New Age of Empire* (Berkeley: University of California Press, 2004), 1–8.
- See Jen Harvie, *Fair Play: Art, Performance and Neoliberalism* (New York: Palgrave Macmillan, 2013); and T.L. Cowan and Jasmine Rault, "The Labour of Being Studied in a Free Love Economy," *Ephemera: Theory and Politics in Organization* 14, No. 3 (2014): 473–90.
- 15 Working Artists and the Greater Economy (W.A.G.E.): www.wageforwork.com; and Canadian Artists' Representation/Le Front des artistes canadiens (CARFAC): www.carfac.ca
- 16 Thet Shein Win, "Marketing the Entrpreneurial Artist," 9.
- 17 Penny Arcade, "Letter to a Young Artist #1" (2014): pennyarcade.tv/letter-to-ayoung-artist-1
- 18 Quoted in Rachel Arons, " 'We Will Need Writers who Can Remember Freedom':

Ursula Le Guin and Last Night's N.B.A.s," *New Yorker* (20 November 2014): www.newyorker.com/books/page-turner/national-book-awards-ursula-le-guin

- 19 Adrienne Rich, "Why I Refused the National Medal for the Arts" (3 July 1997), Arts of the Possible: Essays and Conversations (New York: Norton, 2001), 105.
- 20 Josh MacPhee, "Who's the Shop Steward on your Kickstarter?" *The Baffler* 21 (2012): www.thebaffler.com/articles/whos-the-shopsteward-on-your-kickstarter
- 21 See Austin Thomas, essay in Sharon Louden, ed., *Living and Sustaining a Creative Life: Essays by 40 Working Artists* (Chicago: University of Chicago Press, 2013), 31–34.
- 22 Deep Listening Institute, "Adaptive Use Musical Instruments (AUMI)": http://deeplistening.org/site/adaptiveuse
- * From *Leonardo Music Journal* 25 (2015). Used by permission of the author.

Part Two

Practices

When, at the end of the Middle Ages, the Occident attempted to notate musical discourse, it was actually only a sort of shorthand to guide an accomplished performer, who was otherwise a musician of oral and traditional training. These graphic signs were sufficiently imprecise to be read only by an expert performer and sufficiently precise to help him find his place if, by mishap, he had a slip of memory [...] Later on, the appearance of the musical staff on the one hand, and symbols of time duration on the other, made it possible to move to real notation which reflects with exactitude the whole of the musical material presented in this manner. At this point in history it does not seem as if the contemporaries of that time fully realised the consequences of their discovery. For in actual fact, from that moment on, a musical work was no longer strictly musical; it existed outside of itself, so to speak, in the form of an object to which a name was given: the score. The score very soon ceased to be the mere perpetuator of tradition, to become the instrument of elaboration of the musical work itself.

— Jacques Charpentier¹

The reason I am less and less interested in music is not only that I find environmental sounds and noises more useful aesthetically than the sounds produced by the world's musical cultures, but that, when you get right down to it, a composer is simply someone who tells other people what to do. I find this an unattractive way of getting things done. I'd like our activities to be more social and anarchically so.

— John Cage²

My desire was not to "compose" but to project sounds into time, free from a compositional rhetoric that had no place here.

- Morton Feldman³

Music is not painting, but it can learn from this more perceptive temperament that waits and observes the inherent mystery of its materials, as opposed to the composer's vested interest in his craft [...] The painter achieves mastery by allowing what he is doing to be itself. In a way, he must step aside in order to be in control. The composer is just learning to do this. He is just beginning to learn that

controls can be thought of as nothing more than accepted practice.

- Morton Feldman⁴

I find [John Cage's notion of "chance composition"] so highly unproductive, because "chance" is not an aesthetic category [...] Composing by chance is no composing at all. Composing [...] means to put things together.

— Pierre Boulez⁵

John Cage and Earle Brown have carried the cut-up method much further in music than I have in writing.

— William S. Burroughs⁶

A composition must make possible the freedom and dignity of the performer. It should allow both concentration and release.

No sound or noise is preferable to any other sound or noise.

Listeners should be as free as the players.

— Christian Wolff⁷

I am personally astounded that even today one does not play Kandinsky or Miro, even though it would be so simple and easy to do so.

- Roman Haubenstock-Ramati⁸

Both aleatory and indeterminism are words which have been coined [...] to bypass the word improvisation and as such the influence of non-white sensibility — Anthony Braxton⁹

As a result of the impasse in serial music, as well as other causes, I originated in 1954 a music constructed from the principle of indeterminism; two years later I named it "Stochastic Music" [...] Natural events such as the collision of hail or rain with hard surfaces, or the song of cicadas in a summer field [...] are made out of thousands of isolated sounds; this multitude of sounds, seen as a totality, is a new sonic event. This mass event is articulated and forms a plastic mold of time which itself follows aleatory and stochastic laws [...] Everyone has observed the sonic phenomena of a political crowd of dozens or hundreds of thousands of people. The human river shouts a slogan in a uniform rhythm. Then another slogan springs from the head of the demonstration; it spreads towards the tail, replacing the first. A wave of transition thus passes from the head to the tail. The clamor fills the city, and the inhibiting force of voice and rhythm reaches a climax. It is an event of great power and beauty in its ferocity [...] The statistical laws of these

events, separated from their political or moral context, are the same as those of the cicadas or the rain. They are the laws of the passage from complete order to total disorder in a continuous or explosive manner. They are stochastic laws [...] For some time now I have been conducting these fascinating experiments in instrumental works; but the mathematical character of this music has frightened musicians and has made the approach especially difficult.

— Iannis Xenakis¹⁰

With the early Oval works, we used random processes like sampling prepared CDs. We mostly prepared them without even having heard the material in normal playback mode. It was exactly like John Cage said: We never would have been able to come up with these samples by means of any inspiration or composition. These samples were not imaginable beforehand [...] The sensibility of working with rhythms and digital sound glitches is educated by exposure to random sounds and structures.

- Sebastian Oschatz of Oval¹¹

IV. The Open Work

Introduction

Cornelius Cardew's composition *Treatise* is a one hundred and ninety three-page compendium of lines, curves, circles, discs, and boxes, its pages often more closely resembling circuit diagrams or Russian Constructivist graphics than a musical score. The set of blank musical staves that run along the bottom of each page provide a clue, suggesting that one read the wild profusion of graphic signs above as exploded or deconstructed fragments of a traditional musical score, staff lines flying upward or bending into primary shapes. Occasionally a musical symbol appears: an eighth note, a treble clef, a sharp or flat. How might one perform this work? The score itself provides no indication – a deliberate move by Cardew's to encourage musicians (or better yet, he noted elsewhere, *non*-musicians) to come to it with fresh eyes and ears.¹

Treatise and scores by contemporaries such as Earle Brown, Christian Wolff, Karlheinz Stockhausen, and Henri Pousseur indicated a radical shift in contemporary classical music – a shift that Chris Cutler has seen as marking the boundary between two technological eras: the age of print and the age of recording, the former favoring fixed, bounded works, the latter fostering fluid, open ones.² The conventional score presents a "closed work." It uniquely determines pitch, rhythm, meter, instrumentation, and formal shape, offering only a little latitude for performer interpretation (for example, with regard to tempo and dynamics). But in the 1950s and 60s, Cardew, Brown, Wolff and others began to produce genuinely "open" works that gave enormous freedom to performers. Not surprisingly, the many "realizations" of *Treatise* (or parts of it) recorded over the past fifty years bear little audible resemblance to one another.

Though such "open" compositions come in a tremendous variety of forms, John Cage helpfully sorted them into two general categories. His own *Music of Changes* (1951) exemplifies one of these. Composed by tossing coins to determine pitch, duration, and attack, it is "indeterminate with respect to composition"; but, since these elements are fixed once chosen by the composer, the piece is "determinate with respect to its

performance." Scores such as Cardew's represent another category: compositions that are "determinate with respect to their composition" but "indeterminate with respect to their performance."

"Graphic scores" such as *Treatise* or Earle Brown's *December 1952* offer performers a radical degree of freedom. Composers such as Pierre Boulez and and Karlheinz Stockhausen came to advocate a more modest form of performance indeterminacy they termed "aleatory" composition. The opening section of Boulez's *Third Piano Sonata* consists of standard musical notation distributed over ten sheets of paper, which the performer can arrange in any sequence he or she likes. Stockhausen's *Klavierstück XI* consists of nineteen discrete passages of notation scattered over a single large sheet of paper. The performer is instructed to begin wherever his or her eye falls on the page and then proceed to any other passage as he or she wishes. The performance ends when any one passage has been played three times.

Within classical music, "open" composition had a relatively short life span, virtually disappearing during the mid-1970s. But, subsequently, these strategies came to be adopted by musicians and performers in other musical domains, particularly in jazz, improvised music, and electronic music. Emerging from the jazz tradition, Anthony Braxton, John Zorn, Lawrence "Butch" Morris, Fred Frith and others developed a range of open-ended compositional strategies intended to guide improvisation: graphic scores, cue cards, hand signals, and various other rules and guidelines that constrain but do not uniquely determine the outcome of a performance. Braxton has also embraced another radical procedure introduced by Cage in which two independent compositions can be played simultaneously. Electronic music, too, has become increasingly fascinated with the creative indeterminacies of electronic systems and equipment (see chaps. 39 and 68).

Of course, "open" strategies are not unique to music. There have been parallel developments in literature, film, architecture, and the fine arts. Indeed, philosophers Umberto Eco and Gilles Deleuze have suggested that open art forms express something characteristic of contemporary culture as a whole. If the classic "closed work" expressed the closed system of Newtonian physics and a God-centered universe, "open works" express the indeterminate world of quantum physics and a post-theological universe, an authorless world without a unique origin, essence, or end.³ Whatever one thinks of this historical/philosophical thesis, it is clear that "open" composition productively challenges traditional conceptions of the composer and the work, and the roles of the performer and the audience as well.

Notes

- 1 See Cornelius Cardew, "Toward an Ethic of Improvisation," in *Treatise Handbook* (New York: Edition Peters, 1971).
- 2 Chris Cutler, "Necessity and Choice in Musical Forms," in *File Under Popular: Theoretical and Critical Writings on Music* (New York: Autonomedia, 1993), 30.
- 3 See Eco's "Poetics of the Open Work" (chap. 28, below), and Gilles Deleuze, *Difference and Repetition*, trans. Paul Patton (New York: Columbia University Press, 1994), 66–69.

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The Poetics of the Open Work

Umberto Eco

Umberto Eco was a leading intellectual in post-war Europe. Trained in medieval philosophy and aesthetics, Eco went on to become an influential cultural critic and theorist, publishing books on literary interpretation, linguistics, semiotic theory, and pop culture. In the mid-1950s, while working as cultural director at RAI, Italy's state radio-television network, Eco encountered the composer Luciano Berio, who had recently established an electronic music studio upstairs from Eco's office. Berio's indeterminate compositions prompted Eco to think about the history and theory of what Eco would term "the open work": works of art that call on performers, readers, viewers, or listeners to complete or realize them. According to Eco, works of art reflect the intellectual worldviews of their time; and "indeterminate" composition represents in music the post-theological, open-ended universe of Einstein, Heisenberg, and Bohr. The following essay was written in 1959, in the early days of indeterminate composition. The much more radically open compositions discussed in other essays in this section push Eco's argument even further.

A number of recent pieces of instrumental music are linked by a common feature: the considerable autonomy left to the individual performer in the way he chooses to play the work. Thus he is not merely free to interpret the composer's instructions following his own discretion (which in fact happens in traditional music), but he must impose his judgment on the form of the piece, as when he decides how long to hold a note or in what order to group the sounds: all this amounts to an act of improvised creation. Here are some of the best known examples of the process.

 In *Klavierstück XI*, by Karlheinz Stockhausen, the composer presents the performer a single large sheet of music paper with a series of note groupings. The performer then has to choose among these groupings, first for the one to start the piece and, next, for the successive units in the order in which he elects to weld them together. In this type of performance, the instrumentalist's freedom is a function of the "combinative" structure of, the piece, which allows him to "mount" the sequence of musical units in the order he chooses.

- 2. In Luciano Berio's *Sequenza for solo flute*, the composer presents the performer a text which predetermines the sequence and intensity of the sounds to be played. But the performer is free to choose how long to hold a note inside the fixed framework imposed on him, which in turn is established by the fixed pattern of the metronome's beat.
- 3. Henri Pousseur has offered the following description of his piece *Scambi*:

Scambi is not so much a musical composition as a *field of possibilities*, an explicit invitation to exercise choice. It is made up of sixteen sections. Each of these can be linked to any two others, without weakening the logical continuity of the musical process. Two of its sections, for example, are introduced by similar motifs (after which they evolve in divergent patterns); another pair of sections, on the contrary, tends to develop towards the same climax. Since the performer can start or finish with any one section, a considerable number of sequential permutations are made available to him. Furthermore, the two sections which begin on the same motif can be played simultaneously, so as to present a more complex structural polyphony. It is not out of the question that we conceive these formal notations as a marketable product: if they were tape-recorded and the purchaser had a sufficiently sophisticated reception apparatus, then the general public would be in a position to develop a private musical construct of its own and a new collective sensibility in matters of musical presentation and duration could emerge.

4. In Pierre Boulez's *Third Sonata for Piano*, the first section (*Antiphonie, Formant I*) is made up of ten different pieces on ten corresponding sheets of music paper. These can be arranged in different sequences like a stack of filing cards, though not all possible permutations are permissible. The second part (*Formant 2, Thrope*) is made up of four parts with an internal circularity, so that the performer can commence with any one of them, linking it successively to the others until he comes round full circle. No major interpretative variants are permitted inside the various sections, but one of them, *Parenthèse*, opens with a prescribed time beat, which is followed by extensive pauses in which the beat is left to the player's discretion, A further prescriptive note is evinced by the composer's instructions on the manner of linking one piece to the next (for example, *sans retenir, enchaîner sans interruption*, and so on).

What is immediately striking in such cases is the macroscopic divergence

between these forms of musical communication and the time-honored tradition of the classics. This difference can be formulated in elementary terms as follows: a classical composition, whether it be a Bach fugue, Verdi's *Aïda*, or Stravinsky's *Rite of Spring*, posits an assemblage of sound units which the composer arranged in a closed, well-defined manner before presenting it to the listener. He converted his idea into conventional symbols which more or less oblige the eventual performer to reproduce the format devised by the composer himself. Whereas the new musical works referred to above reject the definitive, concluded message and multiply the formal possibilities of the distribution of their elements. They appeal to the initiative of the individual performer, and hence they offer themselves, not as finite works which prescribe specific repetition along given structural coordinates, but as "open" works, which are brought to their conclusion by the performer at the same time as he experiences them on an aesthetic plane.¹

To avoid any confusion in terminology, it is important to specify that here the definition of the "open work," despite its relevance in formulating a fresh dialectics between the work of art and its performer, still requires to be separated from other conventional applications of this term. Aesthetic example, often have recourse to the notions theorists. for of "completeness" and "openness" in connection with a given work of art. These two expressions refer to a standard situation of which we are all aware in our reception of a work of art: we see it as the end product of an author's effort to arrange a sequence of communicative effects in such a way that each individual addressee can refashion the original composition devised by the author. The addressee is bound to enter into an interplay of stimulus and response which depends on his unique capacity for sensitive reception of the piece. In this sense, the author presents a finished product with the intention that this particular composition should be appreciated and received in the same form as he devised it. As he reacts to the play of stimuli and his own response to their patterning, the individual addressee is bound to supply his own existential credentials, the sense conditioning which is peculiarly his own, a defined culture, a set of tastes, personal inclinations, and prejudices. Thus his comprehension of the original artifact is always modified by his particular and individual perspective. In fact, the form of the work of art gains its aesthetic validity precisely in proportion to the number of different perspectives from which it can be viewed and understood. These give it a wealth of different resonances and

echoes without impairing its original essence; a road traffic sign, on the other hand, can only be viewed in one sense, and, if it is transfigured into some fantastic meaning by an imaginative driver, it merely ceases to be *that* particular traffic sign with that particular meaning. A work of art, therefore, is a complete and *closed* form in its uniqueness as a balanced organic whole, while at the same time constituting an *open* product on account of its susceptibility to countless different interpretations which do not impinge on its unadulterable specificity. Hence every reception of a work of art is both an *interpretation* and a *performance* of it, because in every reception the work takes on a fresh perspective for itself.

Nonetheless, it is obvious that works like those of Berio and Stockhausen are "open" in a far more tangible sense. In primitive terms we can say that they are quite literally "unfinished": the author seems to hand them on to the performer more or less like the components of a construction kit. He seems to be unconcerned about the manner of their eventual deployment. This is a loose and paradoxical interpretation of the phenomenon, but the most immediately striking aspect of these musical forms can lead to this kind of uncertainty, although the very fact of our uncertainty is itself a positive feature: it invites us to consider *why* the contemporary artist feels the need to work in this kind of direction, to try to work out what historical evolution of aesthetic sensibility led up to it and which factors in modern culture reinforced it. We are then in a position to surmise how these experiences should be viewed in the spectrum of a theoretical aesthetics [...]

In every century the way that artistic forms are structured reflects the way in which science or contemporary culture views reality. The closed, single conception in a work by a medieval artist reflected the conception of the cosmos as a hierarchy of fixed, preordained orders. The work as a pedagogical vehicle, as a monocentric and necessary apparatus (incorporating a rigid internal pattern of meter and rhymes) simply reflects the syllogistic system, a logic of necessity, a deductive consciousness by way of which reality could be made manifest step by step without unforeseen interruptions, moving forward in a single direction, proceeding from first principles of science which were seen as one and the same with the first principles of reality. The openness and dynamism of the Baroque mark, in fact, the advent of a new scientific awareness: the substitution of the *tactile* by the *visual* (meaning that the subjective element comes to prevail) and attention is shifted from the essence to the appearance of architectural and pictorial products. It reflects the rising interest in a psychology of impression and sensation—in short, an empiricism which converts the Aristotelian concept of real substance into a series of subjective perceptions by the viewer. On the other hand, by giving up the essential focusing center of the composition and the prescribed point of view for its viewer, aesthetic innovations were in fact mirroring the Copernican vision of the universe. This definitively eliminated the notion of geocentricity and its allied metaphysical constructs. In the modern scientific universe, as in architecture and in Baroque pictorial production, the various component parts are all endowed with equal value and dignity, and the whole construct expands towards a totality which is near to the infinite. It refuses to be hemmed in by any ideal normative conception of the world. It shares in a general urge toward discovery and constantly renewed contact with reality.

In its own way the "openness" that we meet in the decadent strain of Symbolism reflects a cultural striving to unfold new vistas. For example, one of [Stéphane] Mallarmé's projects for a pluridimensional deconstructible book envisaged the breaking down of the initial unit into sections which could be reformulated and which could express new perspectives by being deconstructed into correspondingly smaller units which were also mobile and reducible. This project obviously suggests the universe as it is conceived by modern, non-Euclidean geometries.

Hence it is not overambitious to detect in the poetics of the "open" work -and even less so in the "work in movement"²-more or less specific overtones of trends in contemporary scientific thought. For example, it is a critical commonplace to refer to the spatiotemporal continuum in order to account for the structure of the universe in [James] Joyce's works. Pousseur has offered a tentative definition of his musical work which involves the term "field of possibilities." In fact, this shows that he is prepared to borrow two extremely revealing technical terms from contemporary culture. The notion of "field" is provided by physics and implies a revised vision of the classic relationship posited between cause and effect as a rigid, one-directional system: now a complex interplay of motive forces is envisaged, a configuration of possible events, a complete dynamism of structure. The notion of "possibility" is a philosophical canon which reflects a widespread tendency in contemporary science: the discarding of a static, syllogistic view of order, a corresponding devolution of intellectual authority to personal decision, choice, and social context.

If a musical pattern no longer necessarily determines the immediately following one, if there is no tonal basis which allows the listener to infer the next steps in the arrangement of the musical discourse from what has physically preceded them, this is just part of a general breakdown in the concept of causation. The two-value truth logic which follows the classical aut-aut [either/or], the disjunctive dilemma between true and false, a fact and its contradictory, is no longer the only instrument of philosophical experiment. Multivalue logics are now gaining currency, and these are quite capable of incorporating *indeterminacy* as a valid stepping-stone in the cognitive process. In this general intellectual atmosphere, the poetics of the open work is peculiarly relevant: it posits the work of art stripped of necessary and foreseeable conclusions, works in which the performer's freedom functions as part of the *discontinuity* which contemporary physics recognizes, not as an element of disorientation, but as an essential stage in all scientific verification procedures and also as the verifiable pattern of events in the subatomic world.

From Mallarmé's *Livre* to the musical compositions which we have considered, there is a tendency to see every execution of the work of art as divorced from its ultimate definition. Every performance *explains* the composition, but does not *exhaust* it. Every performance makes the work an actuality, but is itself only complementary to all possible other performances of the work. In short, we can say that every performance offers us a complete and satisfying version of the work, but at the same time makes it incomplete for us, because it cannot simultaneously give all the other artistic solutions which the work may admit.

Perhaps it is no accident that these poetic systems emerge at the same period as the physicists' principle of *complementarity*, which rules that it is not possible to indicate the different behavior patterns of an elementary particle simultaneously. To describe these different behavior patterns, different *models*, which Heisenberg has defined as adequate when properly utilized, are put to use, but, since they contradict one another, they are therefore also complementary.³ Perhaps we are in a position to state that for these works of art an incomplete knowledge of the system is in fact an essential feature in its formulation. Hence one could argue, with Bohr, that the data collected in the course of experimental situations cannot be gathered in one image, but should be considered as complementary, since only the sum of all the phenomena could exhaust the possibilities of information.⁴ [...]

It would be quite natural for us to think that this flight away from the old, solid concept of necessity and the tendency toward the ambiguous and the indeterminate reflect a crisis of contemporary civilization. Or, on the other hand, we might see these poetical systems, in harmony with modern science, as expressing the positive possibility of thought and action made available to an individual who is open to the continuous renewal of his life patterns and cognitive processes. Such an individual is productively committed to the development of his own mental faculties and experiential horizons. This contrast is too facile and Manichean. Our main intent has been to pick out a number of analogies which reveal a reciprocal play of problems in the most disparate areas of contemporary culture and which point to the common elements in a new way of looking at the world.

What is at stake is a convergence of new canons and requirements which the forms of art reflect by way of what we could term *structural homologies*. This need not commit us to assembling a rigorous parallelism —it is simply a case of phenomena like the "work in movement" simultaneously reflecting mutually contrasted epistemological situations, as yet contradictory and not satisfactorily reconciled. Thus the concepts of "openness" and dynamism may recall the terminology of quantum physics: indeterminacy and discontinuity. But at the same time they also exemplify a number of situations in Einsteinian physics.

The multiple polarity of a serial composition in music, where the listener is not faced by an absolute conditioning center of reference, requires him to constitute his own system of auditory relationships.⁵ He must allow such a center to emerge from the sound continuum. Here are no privileged points of view, and all available perspectives are equally valid and rich in potential. Now, this multiple polarity is extremely close to the spatiotemporal conception of the universe which we owe to Einstein. The thing which distinguishes the Einsteinian concept of the universe from quantum epistemology is precisely this faith in the totality of the universe, a universe in which discontinuity and indeterminacy can admittedly upset us with their surprise apparitions, but in fact, to use Einstein's words, do not presuppose a God playing random games with dice but the Divinity of Spinoza, who rules the world according to perfectly regulated laws. In this kind of universe, relativity means the infinite variability of experience as well as the infinite multiplication of possible ways of measuring things and viewing their position. But the objective side of the whole system can be found in the invariance of the simple formal descriptions (of the differential equations) which establish once and for all the relativity of empirical measurement.

This is not the place to pass judgment on the scientific validity of the metaphysical construct implied by Einstein's system. But there is a striking analogy between his universe and the universe of the work in movement. The God in Spinoza, who is made into an untestable hypothesis by Einsteinian metaphysics, becomes a cogent reality for the work of art and matches the organizing impulse of its creator.

The *possibilities* which the work's openness makes available always work within a given *field of relations*. As in the Einsteinian universe, in the "work in movement" we may well deny that there is a single prescribed point of view. But this does not mean complete chaos in its internal relations. What it does imply is an organizing rule which governs these relations. Therefore, to sum up, we can say that the *work in movement* is the possibility of numerous different personal interventions, but it is not an amorphous invitation to indiscriminate participation. The invitation offers the performer the chance of an oriented insertion into something which always remains the world intended by the author.

In other words, the author offers the interpreter, the performer, the addressee a work *to be completed*. He does not know the exact fashion in which his work will be concluded, but he is aware that once completed the work in question will still be his own. It will not be a different work, and, at the end of the interpretative dialogue, a form which is *his* form, will have been organized, even though it may have been assembled by an outside party in a particular way that he could not have foreseen. The author is the one who proposed a number of possibilities which had already been rationally organized, oriented, and endowed with specifications for proper development.

Berio's *Sequenza*, which is played by different flutists, Stockhausen's *Klavierstück XI*, or Pousseur's *Mobiles*, which are played by different pianists (or performed twice over by the same pianists), will never be quite the same on different occasions. Yet they will never be gratuitously different. They are to be seen as the actualization of a series of consequences whose premises are firmly rooted in the original data provided by the author.

This happens in the musical works which we have already examined, and it happens also in the plastic artifacts we considered. The common factor is a mutability which is always deployed within the specific limits of a given taste, or of predetermined formal tendencies, and is authorized by the concrete pliability of the material offered for the performer's manipulation. Brecht's plays appear to elicit free and arbitrary response on the part of the audience. Yet they are also rhetorically constructed in such a way as to elicit a reaction oriented toward, and ultimately anticipating, a Marxist dialectic logic as the basis for the whole field of possible responses.

All these examples of "open" works and "works in movement" have this latent characteristic which guarantees that they will always be seen as "works" and not just as a conglomeration of random components ready to emerge from the chaos in which they previously stood and permitted to assume any form whatsoever.

Now, a dictionary clearly presents us with thousands upon thousands of words which we could freely use to compose poetry, essays on physics, anonymous letters, or grocery lists. In this sense the dictionary is clearly open to the reconstitution of its raw material in any way that the manipulator wishes. But this does not make it a "work." The "openness" and dynamism of an artistic work consist in factors which make it susceptible to a whole range of integrations. They provide it with organic complements which they graft into the structural vitality which the work already possesses, even if it is incomplete. This structural vitality is still seen as a positive property of the work, even though it admits of all kinds of different conclusions and solutions for it.

The preceding observations are necessary because, when we speak of a work of art, our Western aesthetic tradition forces us to take "work" in the sense of a personal production which may well vary in the ways it can be received but which always maintains a coherent identity of its own and which displays the personal imprint that makes it a specific, vital, and significant act of communication. Aesthetic theory is quite content to conceive of a variety of different poetics, but ultimately it aspires to general definitions, not necessarily dogmatic or *sub specie aeternitatis*, which are capable of applying the category of the "work of art" broadly speaking to a whole variety of experiences, which can range from the *Divine Comedy* to, say, electronic composition based on the different permutations of sonic components.

We have, therefore, seen that (i) "open" works, insofar as they are *in movement*, are characterized by the invitation to *make the work* together with the author and that (ii) on a wider level (as a subgenus in the species

"work in movement") there exist works which, though organically completed, are "open" to a continuous generation of internal relations which the addressee must uncover and select in his act of perceiving the totality of incoming stimuli. (iii) *Every* work of art, even though it is produced by following an explicit or implicit poetics of necessity, is effectively open to a virtually unlimited range of possible readings, each of which causes the work to acquire new vitality in terms of one particular taste, or perspective, or personal *performance* [...]

This doctrine can be applied to all artistic phenomena and to art works throughout the ages. But it is useful to have underlined that now is the period when aesthetics has paid especial attention to the whole notion of "openness" and sought to expand it. In a sense these requirements, which aesthetics have referred widely to every type of artistic production, are the same as those posed by the poetics of the "open work" in a more decisive and explicit fashion. Yet this does not mean that the existence of "open" works and of "works in movement" adds absolutely nothing to our experience [...] While aesthetics brings to light one of the fundamental demands of contemporary culture, it also reveals the latent possibilities of a certain type of experience in every artistic product, independently of the operative criteria which presided over its moment of inception.

The poetic theory or practice of the "work in movement" senses this possibility as a specific vocation. It allies itself openly and self-consciously to current trends in scientific method and puts into action and tangible form the very trend which aesthetics has already acknowledged as the general background to performance. These poetic systems recognize "openness" as *the* fundamental possibility of the contemporary artist or consumer. The aesthetic theoretician, in his turn, will see a confirmation of his own intuitions in these practical manifestations: they constitute the ultimate realization of a receptive mode which can function at many different levels of intensity.

Certainly this new receptive mode vis-à-vis the work of art opens up a much vaster phase in culture and in this sense is not intellectually confined to the problems of aesthetics. The poetics of the "work in movement" (and partly that of the "open" work) sets in motion a new cycle of relations between the artist and his audience, a new mechanics of aesthetic perception, a different status for the artistic product in contemporary society. It opens a new page in sociology and in pedagogy, as well as a new chapter in the history of art. It poses new practical problems by organizing new communicative situations. In short, it installs a new relationship between the *contemplation* and the *utilization* of a work of art.

Seen in these terms and against the background of historical influences and cultural interplay which links it by analogy to widely diversified aspects of the contemporary world view, the situation of art has now become a situation in the process of development. Far from being fully accounted for and catalogued, it deploys and poses problems in several dimensions. In short, it is an "open" situation, *in movement*. A work in progress.

Notes

- Here we must eliminate a possible misunderstanding straightaway: the practical intervention of a "performer" (the instrumentalist who plays a piece of music or the actor who recites a passage) is different from that of an interpreter in the sense of consumer (somebody who looks at a picture, silently reads a poem, or listens to a musical composition performed by somebody else). For the purposes of aesthetic analysis, however, both cases can be seen as different manifestations of the same interpretative attitude. Every "reading," "contemplation," or "enjoyment" of a work of art represents a tacit or private form of "performance."
- 2 [Works, such as Pousseur's *Scambi*, that are essentially incomplete, that call upon the performer or auditor to collaborate with the composer in realizing them.—Eds.]
- 3 Werner Heisenberg, *Physics and Philosophy* (London: Allen and Unwin, 1959), Chapter 3.
- 4 Niels Bohr, in his epistemological debate with Einstein (see P. A. Schlipp, ed., *Albert Einstein: Philosopher-Scientist* [Evanston, Ill.: Library of Living Philosophers, 1949]). Epistemological thinkers connected with quantum methodology have rightly warned against an ingenuous transposition of physical categories into the fields of ethics and psychology (for example, the identification of indeterminacy with moral freedom; see P. Frank, *Present Role of Science*, Opening Address to the Seventh International Congress of Philosophy, Venice, September 1958). Hence it would not be justified to understand my formulation as making an analogy between the structures of the work of art and the supposed structures of the world. Indeterminacy, complementarity, noncausality are not *modes of being* in the physical world, but *systems for describing* it in a convenient way. The relationship which concerns my exposition is not the supposed nexus between an "ontological" situation and a morphological feature in the work of art, but the relationship between an operative procedure for explaining physical

processes and an operative procedure for explaining the processes of artistic production and reception. In other words, the relationship between a *scientific methodology* and a *poetics*.

- 5 On this "éclatement multidirectionnel des structures," see A. Boucourechliev, "Problèmes de la musique moderne," *Nouvelle Revue Française* (December– January, 1960–1961).
- From Umberto Eco, *The Open Work*, trans. Anna Cancogni (Cambridge, MA: Harvard University Press, 1989). Used by permission of RCS Libri SpA— Bompiani.

Composition as Process: Indeterminacy

John Cage

In the late 1940s, John Cage (see also Chapters 5 and 36) discovered Zen Buddhism, which deeply influenced his aesthetic worldview. His Zen practice sparked a philosophical commitment to "nonintention," the affirmation of life as it is rather than the desire to improve upon it. In the wake of this realization, Cage developed a range of techniques that would allow him to relinquish control over his compositions and to place himself in the role of listener and discoverer rather than creator. In the 1950s, he introduced "indeterminacy" and "graphic notation" into contemporary musical practice, using coin tosses, the I Ching, star maps, and other devices to make compositional decisions and to spark performers to make decisions of their own. Cage's famous "silent" piece 4'33" (1952) aimed to allow audiences to experience non intentional sound as musical. Non intention was also fostered by the technique of "simultaneity," which called for several compositions to be performed at once, producing unexpected sonic conjunctions. In this essay, *Cage criticizes indeterminate compositions—such as his own* Music of Changes (1951), composed by the tossing of coins—that are "indeterminate with respect to their composition" but "determinate with respect to their performance." Such compositions do not allow the same freedom to the performer that they allow to the composer. Hence, Cage favors a more radical indeterminacy: compositions that are "indeterminate with respect to their performance." The essay is the text of a lecture delivered in 1958, a year before the publication of Eco's essay. Like Eco (see Chapter 28), Cage begins with the example of Stockhausen's Klavierstück XI. But Cage goes on to affirm a conception of the musical work that is more radically "open" than Eco's, a conception of the musical work that would lead the way from "indeterminate" to "experimental" composition: compositions that are not objects *but* processes.

This is a lecture on composition which is indeterminate with respect to its performance. The *Klavierstück XI* by Karlheinz Stockhausen is an example. *The Art of the Fugue* by Johann Sebastian Bach is an example. In *The Art of the Fugue*, structure, which is the division of the whole into parts; method, which is the note-to-note procedure; and form, which is the

expressive content, the morphology of the continuity, are all determined. Frequency and duration characteristics of the material are also determined. Timbre and amplitude characteristics of the material, by not being given, are indeterminate. This indeterminacy brings about the possibility of a unique overtone structure and decibel range for each performance of *The Art of the Fugue*. In the case of the *Klavierstück XI*, all the characteristics of the material are determined, and so too is the note-to-note procedure, the method. The division of the whole into parts, the structure, is determinate. The sequence of these parts, however, is indeterminate, bringing about the possibility of a unique form, which is to say a unique morphology of the continuity, a unique expressive content, for each performance.

The function of the performer, in the case of The Art of the Fugue, is comparable to that of someone filling in color where outlines are given. He may do this in an organized way which may be subjected successfully to analysis. (Transcriptions by Arnold Schoenberg and Anton Webern give examples pertinent to this century.) Or he may perform his function of colorist in a way which is not consciously organized (and therefore not subject to analysis)-either arbitrarily, feeling his way, following the dictates of his ego; or more or less unknowingly, by going inwards with reference to the structure of his mind to a point in dreams, following, as in automatic writing, the dictates of his subconscious mind; or to a point in the collective unconscious of Jungian psychoanalysis, following the inclinations of the species and doing something of more or less universal interest to human beings; or to the "deep sleep" of Indian mental practice -the Ground of Meister Eckhart-identifying there with no matter what eventuality. Or he may perform his function of colorist arbitrarily, by going outwards with reference to the structure of his mind to the point of sense perception, following his taste; or more or less unknowingly by employing some operation exterior to his mind: tables of random numbers, following the scientific interest in probability; or chance operations, identifying there with no matter what eventuality.

The function of the performer in the case of the *Klavierstück XI* is not that of a colorist but that of giving form, providing, that is to say, the morphology of the continuity, the expressive content. This may not be done in an organized way: for form unvitalized by spontaneity brings about the death of all the other elements of the work. Examples are provided by academic studies which copy models with respect to all their

compositional elements: structure, method, material, and form. On the other hand, no matter how rigorously controlled or conventional the structure, method, and materials of a composition are, that composition will come to life if the form is not controlled but free and original. One may cite as examples the sonnets of Shakespeare and the haikus of Basho. How then in the case of the *Klavierstück XI* may the performer fulfill his function of giving form to the music? He must perform his function of giving form to the music in a way which is not consciously organized (and therefore not subject to analysis), either arbitrarily, feeling his way, following the dictates of his ego, or more or less unknowingly, by going inwards with reference to the structure of his mind to a point in dreams, following, as in automatic writing, the dictates of his subconscious mind; or to a point in the collective unconscious of Jungian psychoanalysis, following the inclinations of the species and doing something of more or less universal interest to human beings; or to the "deep sleep" of Indian mental practice-the Ground of Meister Eckhart-identifying there with no matter what eventuality. Or he may perform his function of giving form to the music arbitrarily, by going outwards with reference to the structure of his mind to the point of sense perception, following his taste; or more or less unknowingly by employing some operation exterior to his mind: tables of random numbers, following the scientific interest in probability; or chance operations, identifying there with no matter what eventuality.

However, due to the presence in the *Klavierstück XI* of the two most essentially conventional aspects of European music—that is to say, the twelve tones of the octave (the frequency characteristic of the material) and regularity of beat (affecting the element of method in the composing means), the performer—in those instances where his procedure follows any dictates at all (his feelings, his automatism, his sense of universality, his taste)—will be led to give the form aspects essentially conventional to European music. These instances will predominate over those which are unknowing where the performer wishes to act in a way consistent with the composition as written. The form aspects essentially conventional to European music are, for instance, the presentation of a whole as an object in time having a beginning, a middle, and an ending, progressive rather than static in character, which is to say possessed of a climax or climaxes and in contrast a point or points of rest.

The indeterminate aspects of the composition of the *Klavierstück XI* do not remove the work in its performance from the body of European

musical conventions. And yet the purpose of indeterminacy would seem to be to bring about an unforeseen situation. In the case of *Klavierstück XI*, the use of indeterminacy is in this sense unnecessary since it is ineffective. The work might as well have been written in all of its aspects determinately. It would lose, in this case, its single unconventional aspect: that of being printed on an unusually large sheet of paper which, together with an attachment that may be snapped on at several points enabling one to stretch it out flat and place it on the music rack of a piano, is put in a cardboard tube suitable for safekeeping or distribution through the mails.

This is a lecture on composition which is indeterminate with respect to its performance. The Intersection 3 by Morton Feldman is an example. The Music of Changes¹ is not an example. 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. Though no two performances of the Music of Changes will be identical (each act is virgin, even the repeated one, to refer to René Char's thought), two performances will resemble one chance operations another closely. Though brought about the determinations of the composition, these operations are not available in its performance. The function of the performer in the case of the Music of *Changes* is that of a contractor who, following an architect's blueprint, constructs a building. That the *Music of Changes* was composed by means of chance operations identifies the composer with no matter what eventuality. But that its notation is in all respects determinate does not permit the performer any such identification: his work is specifically laid out before him. He is therefore not able to perform from his own center but must identify himself insofar as possible with the center of the work as written. The Music of Changes is an object more inhuman than human, since chance operations brought it into being. The fact that these things that constitute it, though only sounds, have come together to control a human being, the performer, gives the work the alarming aspect of a Frankenstein monster. This situation is of course characteristic of Western music, the masterpieces of which are its most frightening examples, which when concerned with humane communication only move over from Frankenstein monster to Dictator.

In the case of the *Intersection 3* by Morton Feldman, structure may be viewed as determinate or as indeterminate; method is definitely

indeterminate. Frequency and duration characteristics of the material are determinate only within broad limits (they are with respect to narrow limits indeterminate); the timbre characteristic of the material, being given by the instrument designated, the piano, is determinate; the amplitude characteristic of the material is indeterminate. Form conceived in terms of a continuity of various weights-that is, a continuity of numbers of sounds, the sounds themselves particularized only with respect to broad range limits (high, middle, and low)—is determinate, particularly so due to the composer's having specified boxes as time units. Though one might equally describe it as indeterminate for other reasons. The term "boxes" arises from the composer's use of graph paper for the notation of his composition. The function of the box is comparable to that of a green light in metropolitan thoroughfare control. The performer is free to play the given number of sounds in the range indicated at any time during the duration of the box, just as when driving an automobile one may cross an intersection at any time during the green light. With the exception of method, which is wholly indeterminate, the compositional means are characterized by being in certain respects determinate, in others indeterminate, and an interpenetration of these opposites obtains which is more characteristic than either. The situation is therefore essentially nondualistic; a multiplicity of centers in a state of non-obstruction and interpenetration.

The function of the performer in the case of the *Intersection 3* is that of a photographer who on obtaining a camera uses it to take a picture. The composition permits an infinite number of these, and, not being mechanically constructed, it will not wear out. It can only suffer disuse or loss. How is the performer to perform the Intersection 3? He may do this in an organized way which may be subjected successfully to analysis. Or he may perform his function of photographer in a way which is not consciously organized (and therefore not subject to analysis) either arbitrarily, feeling his way, following the dictates of his ego; or more or less unknowingly, by going inwards with reference to the structure of his mind to a point in dreams, following, as in automatic writing, the dictates of his subconscious mind; or to a point in the collective unconsciousness of Jungian psychoanalysis, following the inclinations of the species and doing something of more or less universal interest to human beings; or to the "deep sleep" of Indian mental practice-the Ground of Meister Eckhart

his function of photographer arbitrarily, by going outwards with reference to the structure of his mind to the point of sense perception, following his taste; or more or less unknowingly by employing some operation exterior to his mind: tables of random numbers, following the scientific interest in probability; or chance operations, identifying there with no matter what eventuality.

One evening Morton Feldman said that when he composed he was dead; this recalls to me the statement of my father, an inventor, who says he does his best work when he is sound asleep. The two suggest the "deep sleep" of Indian mental practice. The ego no longer blocks action. A fluency obtains which is characteristic of nature. The seasons make the round of spring, summer, fall, and winter, interpreted in Indian thought as creation, preservation, destruction, and quiescence. Deep sleep is comparable to quiescence. Each spring brings no matter what eventuality. The performer then will act in any way. Whether he does so in an organized way or in any one of the not consciously organized ways cannot be answered until his action is a reality. The nature of the composition and the knowledge of the composer's own view of his action suggest, indeed, that the performer act sometimes consciously, sometimes not consciously and from the Ground of Meister Eckhart, identifying there with no matter what eventuality.

This is a lecture on composition which is indeterminate with respect to its performance. Indices by Earle Brown is not an example. Where the performance involves a number of players, as it does in the case of *Indices*, the introduction of a score—that is, a fixed relation of the parts—removes the quality of indeterminacy from the performance. Though tables of random numbers (used in a way which introduces bias), brought about the determinations of the composition (structure, method, materials, and form are in the case of Indices all thus determined), those tables are not available in its performance. The function of the conductor is that of a contractor, who, following an architect's blueprint, constructs a building. The function of the instrumentalists is that of workmen who simply do as they are bid. That the Indices by Earle Brown was composed by means of tables of random numbers (used in a way which introduces bias) identifies the composer with no matter what eventuality, since by the introduction of bias he has removed himself from an association with the scientific interest in probability. But that the notation of the parts is in all respects determinate, and that, moreover, a score provides a fixed relation of these parts, does not permit the conductor or the players any such identification.

Their work is laid out before them. The conductor is not able to conduct from his own center but must identify himself insofar as possible with the center of the work as written. The instrumentalists are not able to perform from their several centers but are employed to identify themselves insofar as possible with the directives given by the conductor. They identify with the work itself, if at all, by one remove. From that point of view from which each thing and each being is seen as moving out from its own center, this situation of the subservience of several to the directives of one who is himself controlled, not by another but by the work of another, is intolerable.

(In this connection it may be remarked that certain Indian traditional practices prohibit ensemble, limiting performance to the solo circumstance. This solo, in traditional Indian practice, is not a performance of something written by another but an improvisation by the performer himself within certain limitations of structure, method, and material. Though he himself by the morphology of the continuity brings the form into being, the expressive content does not reside in this compositional element alone, but by the conventions of Indian tradition resides also in all the other compositional elements.)

The intolerable situation described is, of course, not a peculiarity of *Indices*, but a characteristic of Western music, the masterpieces of which are its most imposing examples, which, when they are concerned not with tables of random numbers (used in a way which introduces bias) but rather with ideas of order, personal feelings, and the integration of these, simply suggest the presence of a man rather than the presence of sounds. The sounds of *Indices* are just sounds. Had bias not been introduced in the use of the tables of random numbers, the sounds would have been not just sounds but elements acting according to scientific theories of probability, elements acting in relationship due to the equal distribution of each one of those present—elements, that is to say, under the control of man.

This is a lecture on composition which is indeterminate with respect to its performance. The *4 Systems* by Earle Brown is an example. This piece may be performed by one or several players. There is no score, either for the solo circumstance or for that of ensemble. The quality of indeterminacy is for this reason not removed from the performance even where a number of players are involved, since no fixed relation of the parts exists. The original notation is a drawing of rectangles of various lengths and widths in ink on a single cardboard having four equal divisions (which are the systems). The vertical position of the rectangles refers to relative time. The width of the rectangles may be interpreted either as an interval where the drawing is read as two-dimensional, or as amplitude where the drawing is read as giving the illusion of a third dimension. Any of the interpretations of this material may be superimposed in any number and order and, with the addition or not of silences between them, may be used to produce a continuity of any time-length. In order to multiply the possible interpretations the composer gives a further permission—to read the cardboard in any of four positions: right side up, upside down, sideways, up and down.

This further permission alters the situation radically. Without it, the composition was highly indeterminate of its performance. The drawing was not consciously organized. Drawn unknowingly, from the Ground of Meister Eckhart, it identified the composer with no matter what eventuality. But with the further permission—that of reading the cardboard right side up, upside down, sideways, up and down-the drawing became that of two different situations or groups of situations and their inversions. Inversions are a hallmark of the conscious mind. The composer's identification (though not consciously so according to him) is therefore no longer with no matter what eventuality but rather with those events that are related by inversion. What might have been non-dualistic becomes dualistic. From a non-dualistic point of view, each thing and each being is seen at the center, and these centers are in a state of interpenetration and non-obstruction. From a dualistic point of view, on the other hand, each thing and each being is not seen: relationships are seen and interferences are seen. To avoid undesired interferences and to make one's intentions clear, a dualistic point of view requires a careful integration of the opposites.

If this careful integration is lacking in the composition, and in the case of *4 Systems* it is (due to the high degree of indeterminacy), it must be supplied in the performance. The function of the performer or of each performer in the case of *4 Systems* is that of making something out of a store of raw materials. Structure, the division of the whole into parts, is indeterminate. Form, the morphology of the continuity, is also indeterminate. In given interpretations of the original drawing (such as those made by David Tudor sufficient in number to provide a performance by four pianists lasting four minutes) method is determinate and so too are the amplitude, timbre, and frequency characteristics of the material. The duration characteristic of the material is both determinate and indeterminate, since lines extending from note-heads indicate exact length of time, but the total length of time of a system is indeterminate. The performer's function, in the case of *4 Systems* is dual: to give both structure and form; to provide, that is, the division of the whole into parts and the morphology of the continuity.

Conscious only of his having made a composition indeterminate of its performance, the composer does not himself acknowledge the necessity of this dual function of the performer which I am describing. He does not agree with the view here expressed that the permission given to interpret the drawing right side up, upside down, and sideways, up and down obliges the integration of the opposites: conscious organization and its absence. The structural responsibility must be fulfilled in an organized way, such as might be subjected successfully to analysis. (The performers in each performance have, as a matter of record, given to each system lengths of time which are related as modules are in architecture: fifteen seconds and multiples thereof by two or four.) The formal responsibility must be fulfilled in one or several of the many ways which are not consciously organized. However, due to the identification with the conscious mind indicated in 4 Systems by the presence of inversions, though not acknowledged by the composer, those ways which are not consciously organized that are adjacent to the ego are apt to be used, particularly where the performer wishes to act in a way consistent with the composition as here viewed. He will in these cases perform arbitrarily, feeling his way, following the dictates of his ego; or he will perform arbitrarily, following his taste, in terms of sense perception.

What might have given rise, by reason of the high degree of indeterminacy, to no matter what eventuality (to a process essentially purposeless) becomes productive of a time-object. This object, exceedingly complex due to the absence of a score, a fixed relation of the parts, is analogous to a futurist or cubist painting, perhaps, or to a moving picture where flicker makes seeing the object difficult.

From the account which appears to be a history of a shift from nondualism to dualism (not by intention, since the composer does not attach to the inversions the importance here given them, but as a by-product of the action taken to multiply possibilities) the following deduction may be made: To ensure indeterminacy with respect to its performance, a composition must be determinate of itself. If this indeterminacy is to have a non-dualistic nature, each element of the notation must have a single interpretation rather than a plurality of interpretations which, coming from a single source, fall into relation. Likewise—though this is not relevant to *4 Systems*—one may deduce that a single operation within the act of composition itself must not give rise to more than a single notation. Where a single operation is applied to more than one notation, for example to those of both frequency and amplitude characteristics, the frequency and amplitude characteristics are by that operation common to both brought into relationship. These relationships make an object; and this object, in contrast to a process which is purposeless, must be viewed dualistically. Indeterminacy when present in the making of an object, and when therefore viewed dualistically, is a sign not of identification with no matter what eventuality but simply of carelessness with regard to the outcome.

This is a lecture on composition which is indeterminate with respect to its performance. Duo II for Pianists by Christian Wolff is an example. In the case of Duo II for Pianists, structure, the division of the whole into parts, is indeterminate. (No provision is given by the composer for ending the performance.) Method, the note-to-note procedure, is also indeterminate. All the characteristics of the materials (frequency, amplitude, timbre, duration) are indeterminate within gamut limitations provided by the composer. The form, the morphology of the continuity, is unpredictable. One of the pianists begins the performance: the other, noticing a particular sound or silence which is one of a gamut of cues, responds with an action of his own determination from among given possibilities within a given time bracket. Following this beginning, each pianist responds to cues provided by the other, letting no silence fall between responses, though these responses themselves include silences. Certain time brackets are in zero time. There is no score, no fixed relation of the parts. Duo II for Pianists is evidently not a time-object, but rather a process the beginning and ending of which are irrelevant to its nature. The ending, and the beginning, will be determined in performance, not by exigencies interior to the action but by circumstances of the concert occasion. If the other pieces on the program take forty-five minutes of time and fifteen minutes more are required to bring the program to a proper length, Duo II for Pianists may be fifteen minutes long. Where only five minutes are available, it will be five minutes long.

The function of each performer in the case of *Duo II for Pianists* is comparable to that of a traveler who must constantly be catching trains the
departures of which have not been announced but which are in the process of being announced. He must be continually ready to go, alert to the situation, and responsible. If he notices no cue that fact itself is a cue calling for responses indeterminate within gamut limitations and time brackets. Thus he notices (or notices that he does not notice) a cue, adds time bracket to time bracket, determines his response to come (meanwhile also giving a response), and, as the second hand of a chronometer approaches the end of one bracket and the beginning of the next, be prepares himself for the action to come (meanwhile still making an action), and, precisely as the second hand of a chronometer begins the next time bracket, he makes the suitable action (meanwhile noticing or noticing that he does not notice the next cue), and so on. How is each performer to fulfill this function of being alert in an indeterminate situation? Does he need to proceed cautiously in dualistic terms? On the contrary, he needs his mind in one piece. His mind is too busy to spend time splitting itself into conscious and not-conscious parts. These parts, however, are still present. What has happened is simply a complete change of direction. Rather than making the not-conscious parts face the conscious part of the mind, the conscious part, by reason of the urgency and indeterminacy of the situation, turns towards the not-conscious parts. He is therefore able, as before, to add two to two to get four, or to act in organized ways which on being subjected to analysis successfully are found to be more complex. But rather than concentrating his attention here, in the realm of relationships, variations, approximations, repetitions, logarithms, his attention is given inwardly and outwardly with reference to the structure of his mind to no matter what eventuality. Turning away from himself and his ego-sense of separation from other beings and things, he faces the Ground of Meister Eckhart, from which all impermanencies flow and to which they return. "Thoughts arise not to be collected and cherished but to be dropped as though they were void. Thoughts arise not to be collected and cherished but to be dropped as though they were rotten wood. Thoughts arise not to be collected and cherished but to be dropped as though they were pieces of stone. Thoughts arise not to be collected and cherished but to be dropped as though they were the cold ashes of a fire long dead." Similarly, in the performance of Duo II for Pianists, each performer, when he performs in a way consistent with the composition as written, will let go of his feelings, his taste, his automatism, his sense of the universal, not attaching himself to this or to that, leaving by his performance no traces, providing by his

actions no interruption to the fluency of nature. The performer therefore simply does what is to be done, not splitting his mind in two, not separating it from his body, which is kept ready for direct and instantaneous contact with his instrument.

This is a lecture on composition which is indeterminate with respect to its performance. That composition is necessarily experimental. An experimental action is one the outcome of which is not foreseen. Being unforeseen, this action is not concerned with its excuse. Like the land, like the air, it needs none. A performance of a composition which is indeterminate of its performance is necessarily unique. It cannot be repeated. When performed for a second time, the outcome is other than it was. Nothing therefore is accomplished by such a performance, since that performance cannot be grasped as an object in time. A recording of such a work has no more value than a postcard; it provides a knowledge of something that happened, whereas the action was a non-knowledge of something that had not yet happened.

There are certain practical matters to discuss that concern the performance of music the composition of which is indeterminate with respect to its performance. These matters concern the physical space of the performance. These matters also concern the physical time of the performance. In connection with the physical space of the performance, where that performance involves several players (two or more), it is advisable for several reasons to separate the performers one from the other, as much as is convenient and in accord with the action and the architectural situation. This separation allows the sounds to issue from their own centers and to interpenetrate in a way which is not obstructed by the conventions of European harmony and theory about relationships and interferences of sounds. In the case of the harmonious ensembles of European musical history, a fusion of sound was of the essence, and therefore players in an ensemble were brought as close together as possible, so that their actions, productive of an object in time, might be effective. In the case, however, of the performance of music the composition of which is indeterminate of its performance so that the action of the players is productive of a process, no harmonious fusion of sound is essential. A non-obstruction of sounds is of the essence. The separation of players in space when there is an ensemble is useful towards bringing about this non-obstruction and interpenetration, which are of the essence. Furthermore, this separation in space will facilitate the independent action

of each performer, who, not constrained by the performance of a part which has been extracted from a score, has turned his mind in the direction of no matter what eventuality. There is the possibility when people are crowded together that they will act like sheep rather than nobly. That is why separation in space is spoken of as facilitating independent action on the part of each performer. Sounds will then arise from actions, which will then arise from their own centers rather than as motor or psychological effects of other actions and sounds in the environment. The musical recognition of the necessity of space is tardy with respect to the recognition of space on the part of the other arts, not to mention scientific awareness. It is indeed astonishing that music as an art has kept performing musicians so consistently huddled together in a group. It is high time to separate the players one from another, in order to show a musical recognition of the necessity of space, which has already been recognized on the part of the other arts, not to mention scientific awareness. What is indicated, too, is a disposition of the performers, in the case of an ensemble in space, other than the conventional one of a huddled group at one end of a recital or symphonic hall. Certainly the performers in the case of an ensemble in space will be disposed about the room. The conventional architecture is often not suitable. What is required perhaps is an architecture like that of Mies van der Rohe's School of Architecture at the Illinois Institute of Technology. Some such architecture will be useful for the performance of composition which is indeterminate of its performance. Nor will the performers be huddled together in a group in the center of the audience. They must at least be disposed separately around the audience, if not, by approaching their disposition in the most radically realistic sense, actually disposed within the audience itself. In this latter case, the further separation of performer and audience will facilitate the independent action of each person, which will include mobility on the part of all.

There are certain practical matters to discuss that concern the performance of music the composition of which is indeterminate with respect to its performance. These matters concern the physical space of the performance. These matters also concern the physical time of the performance. In connection with the physical time of the performance, where that performance involves several players (two or more), it is advisable for several reasons to give the conductor another function than that of beating time. The situation of sounds arising from actions which arise from their own centers will not be produced when a conductor beats time in order to unify the performance. Nor will the situation of sounds arising from actions which arise from their own centers be produced when several conductors beat different times in order to bring about a complex unity to the performance. Beating time is not necessary. All that is necessary is a slight suggestion of time, obtained either from glancing at a watch or at a conductor who, by his actions, represents a watch. Where an actual watch is used, it becomes possible to foresee the time, by reason of the steady progress from second to second of the second hand. Where, however, a conductor is present, who by his actions represents a watch which moves not mechanically but variably, it is not possible to foresee the time, by reason of the changing progress from second to second of the conductor's indications. Where this conductor, who by his actions represents a watch, does so in relation to a part rather than a score-to, in fact, his own part, not that of another—his actions will interpenetrate with those of the players of the ensemble in a way which will not obstruct their actions. The musical recognition of the necessity of time is tardy with respect to the recognition of time on the part of broadcast communications, radio, television, not to mention magnetic tape, not to mention travel by air, departures and arrivals from no matter what point at no matter what time, to no matter what point at no matter what time, not to mention telephony. It is indeed astonishing that music as an art has kept performing musicians so consistently beating time together like so many horseback riders huddled together on one horse. It is high time to let sounds issue in time independent of a beat in order to show a musical recognition of the necessity of time which has already been recognized on the part of broadcast communications, radio, television, not to mention magnetic tape, not to mention travel by air, departures and arrivals from no matter what point at no matter what time, to no matter what point at no matter what time, not to mention telephony.

Notes

- 1 [A 1951 composition by Cage composed in part by tossing coins in the manner of the *I Ching*, the ancient Chinese book of oracles.—Eds.]
- * From Silence: Lectures and Writings by John Cage (Hanover, NH: University Press of New England/Wesleyan University Press, 1973). Used by permission of

the publisher.

Every Sound You Can Imagine: On Graphic Scores

Christoph Cox

In this essay, philosopher and art theorist Christoph Cox presents an introduction to "graphic scores"—forms of notation that forgo traditional musical symbols in favor of novel graphic elements intended to provoke open-ended musical performance and improvisation. "Graphic scores" lead to a radical indeterminacy that pushes the traditional musical score to its limit, beyond which composition gives way to free improvisation. Such scores also draw attention to the role of musical notation as a form of visual and graphic art, highlighting the tenuous relationship between the visual and the auditory, instruction and performance.

A large white sheet of paper is speckled with a few dozen black lines or bars—some horizontal, some vertical, some fat, some thin. In its geometric assymetry, it might be mistaken for a sketch by Piet Mondrian or Kasimir Malevich. In fact, it's a musical score: Earle Brown's *December 1952*. Graphically, Brown's piece bears only a distant resemblance to a traditional musical score, as though all the notes and most of the staves had been erased, leaving only a fragmentary scaffold. As musical notation, it's thoroughly idiosyncratic, eschewing the standards of conventional sheet music in favor of a symbolic language all its own. So how does one perform this piece? A separate page of instructions offers only a slim bit of guidance. "For one or more instruments and/or sound-producing media," it reads. "The composition may be performed in any direction from any point in the defined space for any length of time and may be performed from any of the four rotational positions in any sequence."¹

December 1952 exemplifies a set of compositional strategies that emerged in the early 1950s and that continue to thrive today. Intersecting with a range of visual art movements and forms—Abstract Expressionism, Pop Art, Fluxus, Minimalism, Conceptualism, Performance Art, Video Art, and others—such strategies envision the production of the score as a branch of visual art parallel to and partly independent from musical performance. As such, they challenge the traditional function of the score and propose a new set of relationships between composer, performer, and audience.

We generally take for granted that music is something composers "write" and musicians "read," and that musical "writing" and "reading" are distinct sorts of activities. Yet notation is a relatively recent invention in the history of music, as is the distinction between composition and performance. For most of human history, music was strictly an oral art, learned through hearing and transmitted and altered by way of performance itself. Within such a folk culture, music was in constant flux, without finished works or individual composers.² While oral cultures adhered to traditional forms, improvisation always played a part and, like evolutionary mutation, caused traditional forms to drift and change continually.

Musical notation was introduced in the Middle Ages as a mnemonic aid for accomplished musicians, a crutch that became ever more necessary with the introduction of multiple melodic lines. Yet economic and political pressures made musical literacy a necessity. The transition from feudalism to capitalism meant the collapse of the courtly patronage system that had supported musicians for centuries. Musicians were thrust onto the open market; and the emergent capitalism favored exchangeable objects rather than intangible, ephemeral forms such as music. Musical notation was thus enlisted as a solution to the problem of how to commodify the inherently transitory nature of sound and the fluid matter of music. Copyright regulations eventually assured the legal status of the musical work as the private property of its author, establishing a division between the work and its performance, the composer and the performer. These conditions served to fix music in the form of stable, finished products and led to the waning of real-time improvisation. The score shifted attention from the ear to the eye, as music became something to see and to read before it was something to hear. What began as a mere supplement to musical performance-the score-became an autonomous entity that governed performances and to which they were held accountable.

Today's system of staff notation first appeared in the eleventh century and, over the next three centuries, achieved its familiar form: five parallel lines overlaid with notes and rests, clefs and time signatures. By the sixteenth century, staff notation had become the international standard in Western art music; and it continues to function today as the dominant system for notating all kinds of music. Yet in the past half-century, a crisis of musical representation has unsettled not only staff notation but also the whole musical edifice of which it is a part. This crisis was initially precipitated by the invention of the phonograph in the late nineteenth century and of magnetic tape a few decades later. These technologies challenged the status of written notation as the primary mode of capturing and commodifying music. Written notation could offer a description or set of instructions for musical performance; but electronic recording could preserve musical performances themselves. And while written notation was restricted to discrete pitches and their combinations, electronic recording could capture what John Cage called "the entire field of sound"-not only so-called "musical sounds" but the rush of the wind, the crackling of embers, the wail of sirens, the whir of machines, the roar of crowds, and the rest of the audible universe.³ These "non-musical sounds" enthralled artists and composers such as Luigi Russolo, Edgard Varèse, Cage, Pierre Schaeffer, and Iannis Xenakis, who began incorporating them into their compositions, either approximating them via traditional musical instruments or directly incorporating them through the use of phonograph records or magnetic tape. New electronic instruments-theremins, vocoders, synthesizers, and, eventually, computers-contributed to the exploration of this vastly expanded musical field, which traditional notation could not adequately represent. Already in 1936, Edgard Varèse prophesied the need for a "seismographic" notation to capture electronic sounds; and, within a few decades, composers such as Xenakis, Karlheinz Stockhausen, and György Ligeti were producing just such graphic forms to represent the sonic sheets, waves, and pulses characteristic of their electronic compositions.⁴

These developments coincided with the golden age of jazz, which treated the written score as a mere sketch, a springboard for creative improvisation. Jazz enthusiasts such as Earle Brown turned to indeterminate notational strategies as a way of jump-starting the improvisatory impulse. "I couldn't understand why classical musicians couldn't improvise, and why so many looked down on improvisation," noted Brown. "The whole series [of open-form pieces] *October*, *November*, and *December* [1952] was progressively trying to get them free of having every bit of information before they had confidence enough to play."⁵ From the other side, composers emerging out of the "free jazz" explosion of the 1960s came to see experimental notation as a way of focusing what could otherwise be chaotic improvisatory blowouts. "One of the problems of collective improvisation, as far as I'm concerned,"

quipped composer and improviser Anthony Braxton, "is that people [...] will interpret that to mean 'Now I can kill you'; and I'm saying, wait a minute!"⁶ Hence, Braxton, Wadada Leo Smith, Werner Dafeldecker and others began to use novel notational schemes to create a common point of reference so that improvisation could be genuinely collective rather than individualistic and competitive.

Whether used to encourage or to rein in improvisation, the turn toward experimental notational schemes often had political underpinnings. Brown's invitation to performers to become co-creators of his pieces sprang in part from a rejection of the hierarchy in classical music that made performers subservient to the composer and the score, a hierarchy that many experimental composers felt to be unsavory. "When you get right down to it," remarked John Cage, "a composer is simply someone who tells other people what to do. I find this an unattractive way of getting things done. I'd like our activities to be more social-and anarchically so."⁷ Deeply political composers such as Cornelius Cardew shared Cage's aim and construed musical composition and performance as utopian activities that could foster experiments in radical democracy. Cardew thus envisioned his classic "graphic score" Treatise, 1963-1967, as a prompt or occasion for a group of musicians (or even non-musicians) to arrive at a consensus about how to perform the piece and then to follow the rules they had set themselves.

The experimental scores of the 1950s, 1960s, and 1970s, then, were responses to the technological, cultural, and political transformations of the times. After a period of relative dormancy, the 1990s saw a reanimation of notational experiments that coincided with the emergence of new digital art-making technologies and a multi-media aesthetic sensibility. Inexpensive, portable, and ubiquitous computer technology fostered a popularization of electronic music production; and the internet made possible a global exchange of music and musical knowledge that opened a new generation to the history of experimental music. The vitality of video and performance art, and the ready translatability of digital data encouraged artists to ignore the boundaries between media and disciplines. It was no longer unusual for visual artists to incorporate sound into their practices or for audio artists to work with images. The paintings, sound works, and installations of Steve Roden, for example, draw as much inspiration from the canvases of Arthur Dove and Alfred Jensen as they do from the music of Morton Feldman and Brian Eno. Marina Rosenfeld performs improvised music on turntables and produces spellbinding photographs and videos. And Stephen Vitiello collaborates as readily with experimental music pioneer Pauline Oliveros as with painter Julie Mehretu. Not surprisingly, many of these artists have come to substitute the dominant visual formats—video monitors and computer screens—for the ink on paper characteristic of musical scores since the Middle Ages. Michael J. Schumacher's *Grid*, 2007, for example, is an algorithmic visual program displayed on a computer monitor, while Rosenfeld's *White Lines*, 2005, and Christian Marclay's *Screen Play*, 2005, unfold in real time on video screens.

For all these artists, the experimental score serves as a nexus that links music with the other arts and acts as a kind of portable program for the endless production of new sounds, actions, forms, and communities. Rather than exemplifying the much-hyped notion of *synaesthesia*—the merging of sensory modalities or artistic media—these scores affirm the aesthetic value of *metaphor* in its original sense—the joy in unpredictable leaps and translations, in this case between sight and sound. As such, these experimental notations draw attention to the musical score as a species of graphic art and affirm a future that, while conditioned by the past and present, nevertheless remains fundamentally open.

Notes

- 1 Earle Brown, *Folio (1952–1953) and 4 Systems (1954)* (New York: Associated Music Publishers, 1961).
- 2 For a concise presentation of this history, see Chris Cutler, "Necessity and Choice in Musical Forms," *File Under Popular: Theoretical and Critical Writings on Music* (New York: Autonomedia, 1985), pp. 20–38. See also Jacques Attali, *Noise: The Political Economy of Music*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1985).
- 3 John Cage, "Future of Music: Credo," *Silence: Lectures and Writings by John Cage* (Hanover, NH: Wesleyan University Press, 1961), p. 4, reprinted in this volume.
- 4 See Edgard Varèse, "The Liberation of Sound," reprinted in this volume.
- 5 Earle Brown, liner notes to *Earle Brown: Music for Piano(s) 1951–1995*, David Arden, pianist, New Albion NA082.
- 6 Anthony Braxton, quoted in Graham Lock, *Forces in Motion: Anthony Braxton and the Meta-Reality of Creative Music* (London: Quartet, 1988), p. 240.

- 7 John Cage, *A Year from Monday* (Hanover, NH: Wesleyan University Press, 1968), pp. ix–x.
- From the catalog to "Perspectives 163: Every Sound You Can Imagine," curated by Christoph Cox, Contemporary Arts Museum Houston, October 3–December 2, 2008. Used by permission of the author.

Transformations and Developments of a Radical Aesthetic

Earle Brown

Along with Morton Feldman and Christian Wolff, Earle Brown was a prominent member of the "New York School," a group of composers centered around John Cage in New York City during the 1950s, and loosely affiliated with the "New York School" visual artists (Mark Rothko, Jackson Pollock, Philip Guston, Alexander Calder, David Smith, and others). Brown's Folio and Four Systems (1952–54) contain some of the earliest, most abstract, and most radical "graphic scores" (see Chapter 30). Trained in both the classical and jazz traditions, Brown aimed to revive the lost tradition of improvisation among classical musicians. His graphic scores also reflect Brown's close connection to the visual arts. As he explains here, Brown particularly admired the work of Alexander Calder, whose floating mobiles slowly drift, presenting ever-new aspects. Much of Brown's career was dedicated to producing this "open," "mobile form" in music. In this retrospective essay, Brown presents and explains his aesthetic philosophy.

Aesthetic bio

[...] The earliest, and still the predominant influences on my conceptual attitude toward art, were the works of Alexander Calder and Jackson Pollock, which I remember first seeing around 1948 or 1949: the integral but unpredictable "floating" variations of a mobile, and the contextual "rightness" of the results of Pollock's directness and spontaneity in relation to the materials and his particular image of the work—as a total space (of time).

Aspects of these two kinds of work have been integral to my own work since 1950. In Calder, the construction of units and their placement in a flexible situation that subjects the original relationships to constant and virtually unpredictable, but inherent, change (the movement of the units as well as the movement of the viewer) led me to construct units of rhythmic groups (with assigned intensities but "open" timbre possibilities subject to an independent timbral-density plan), modify them according to [...] "generative" techniques, and assemble them rather arbitrarily—accepting the fact that all possible assemblages were inherently possible and valid [...]

In highly experimental works from 1952 and 1953, collected and published as *Folio and Four Systems* (subtitled "experiments in notation and performance process"), the Alexander Calder-inspired "mobility" finally found a practical (for *me*) notational expression. The scores were in different invented notations of a highly ambiguous graphic nature, subject to a number of different—but all inherently valid—realizations.

I felt that the realizable concepts of physical and conceptual "mobility" in relation to the graphic input by *me* was a practical and creatively ambiguous stimulus to performer involvement and sonic creativity. This is not an abandonment of composer responsibility but the musical result inherent in a provoked, multicreative, "synergistic" interaction of the composer's concept, the graphic score, the performer's realization, and the audience. Not one of them is independent of the others; there exists, rather, a truly collaborative, creative *synergy* ("Synergy" is the subtitle of *November 1952*, from *Folio*).

The notation used for *Music for Cello and Piano* (1954–55) is developed from the graphic experiments of *Folio*. It is highly composed and notationally explicit, but is written in what I call a "time notation" because of its lack of dependence on any rational metric system, and its reliance upon the performers' actions, relative to their "time sense" of the visually ambiguous graphic relationships. The notation intentionally encourages varying realizations of the given material—between the instruments in any one performance, and from performance to performance—while at the same time presenting the performers with an unequivocal basic graphic situation. It is now usually called "proportional" notation.

There are two very different notations used in *Hodograph I*. The first is the "time notation" of *Music for Cello and Piano*, called "explicit" in the preface to the work (explicit insofar as frequency, intensity, timbre, modes of attack, and *relative* duration are given). The second notation is called "implicit," in that it *implies* the amount and character of activity—all of the above characteristics of the sound—by means of line drawings. There are three fifteen-second "implicit" areas in the score, which sporadically interrupt the "explicit" areas. The use of line drawings in my work goes back to my attempts in 1950 and 1951 to produce pieces in which

decisions as to the validity and rational function of details, such as pitch and vertical correspondences (in general, the editorial aspects of composing), were minimized as much as possible, and qualities of spontaneity and immediacy were considered to be the most direct and essential aspects of the work. It was an attempt to realize graphically the essence of the piece, the initial intuitive conception, before it was molded to conform to technical and aesthetic concepts of structure, form, continuity, art, beauty, and other acquired habits and prejudices of taste and training. These pieces (for piano and string quartet) are in standard notation and are to be performed as is usual, but were written in an extremely rapid, direct, and intuitive manner: the entire piece would be sketched within a few moments (relative frequencies, intensities, durations, and contours) and then notated, or "punctuated," as music. It was an attempt to bring the time needed to compose the piece closer to the time needed to perform the piece. Similar graphic "generalizations" are the first stages in most of my works. In Hodograph I the "implicit" areas are sketched by me in much the same way (different in every area in every printed score) but are "punctuated" and realized in sound by the performers. The juxtaposition of the two notations produces a result that is a spontaneous correlation between the performers and their individual responses, and the varying degrees of ambiguity in the notations.

My interest in notational ambiguities, mobile scores, spontaneity in the and performance processes, "objectively" compositional acquired structure, and the use of what has been called the "inarticulate, transitive" sounds of instruments, grows out of a larger interest in hearing the tentative and unforeseeable situations that may occur in a relatively unconditioned event involving sounds in an implicit context. A totally unconditioned event is probably not possible: one's first impulse and first actions inevitably condition the work to some extent, but the conditioning of subsequent compositional actions can, to varying degrees, inhibit or release the work as an entity. What interests me is to find the degree of conditioning (of conception, of notation, and of realization) that will balance the work between the points of control and noncontrol. At that point, the work, the performer, and I will most clearly exist-both as entities and identities.

A meeting with John Cage in 1951, in Denver, was of considerable importance to me. It was my first contact with anyone else who was

consciously working in what I felt to be the "poetic atmosphere" of the Calder and Pollock work. Cage at this time was composing *Music of Changes*, and using chance as a technique for constructing the work. This was a striking confirmation to me that the arts in general were beginning to consciously deal with the given materials and, to varying degrees, liberate them from the inherited "functional" concepts of control ... the affirmative act of "relinquishing the initiative to the words themselves," as Mallarmé suggested ... the experience of the results being an affirmative act of appreciation, and not dependent upon logical context. It is a vague, general realization by artists such as Joyce, Gertrude Stein, and many painters and poets, that no two people experience or understand the same artistic information in the same way. "Multi-ordinal" creation, understanding, and appreciation are indigenous to the human mind. Artists began to approach ambiguity and abstraction in reaction to this realization.

Although I am in complete sympathy with the utilization of so-called "chance"—as in some painting, dance, and music—I am personally much more inclined to utilize procedures in which spontaneous and immediate involvement spontaneously condition and uncondition the result [...]

Notebook excerpts

~Chaos is a state of *seeming* unrelatedness \dots Actually, there is no such thing as chaos except as a saturation point of comprehensibility, which is somewhere between here and infinity \dots and always sliding about between $[\dots]$

~This (proportional) notation and how it can go together with time is sufficiently and excitingly mysterious to me. I have considerable difficulty in imagining the sound when seeing the piece of paper. This in itself is a delightful place to be [...]

~There is no such thing as irrationality or incongruity in music, other than the mathematical or associational ... only associational if one is listening historically. There is nothing rational in music because there is nothing to be known about any sound except to hear it ... which has become difficult because of the arbitrary assignment of theories to what is natively meaningless. To work with the meaninglessness is to work with meaning in its true light of infinity. Apart from the general prevailing indolence, the difficulty people experience in experiencing this music is directed expectancy ... which is, to a degree, natural. ~I have always found that the most enlivening thing about art, or anything else, is its mystery and its being beyond my particular experiential conditioning and, therefore, understanding. There is, of course, no such thing as complete understanding but there comes to be a familiarity and acceptance of something that one spends time with, which might as well be called understanding. When this occurs, the mystery and the real poetic life go out of it ... not out of the work but out of my response to it and what is left is the form, the technique, and a poetry that is no longer vital. There is a great deal of admirable form, technique, and nonvital poetry that I can admire as such, intellectually, but find completely unrewarding poetically.

~With *Folio* I intentionally extended the compositional aspect and the performance process as far out of normal realms as I could ... just short of producing nothing at all. Within the same year I wrote works having extremes of finite control and extremes of infinite ambiguity, knowing full well that what I was looking for lay somewhere in between. (I wrote a note to myself at that time, which was to the effect that truth lies at a point somewhere on the arc stretched between two extremes of a paradox, and that point is always fluctuating ... as I was.)

Instructions for *Twenty-five pages*

The twenty-five pages may be played in any sequence; each page may be performed either side up; events within each two-line system may be read as in either treble or bass clef; the total duration of the piece is between 8'20" and 25", based on probable but not compulsory extremities of 5" and 15" per two-line system. A time structure in terms of seconds per two-line system may be preset by the performer, obtained from the composer, or arrived at spontaneously during the performance. The indicated note durations are precise relative to each other and to the eventual time value assigned to each line system.

"Impossible" hand spreads may be broken, arpeggio-fashion, and played as rapidly as possible, from top to bottom, bottom to top, from the center outward or from the outward extremes to the center.

Indicated tones that are below the keyboard range may be considered as, in fact, unplayable, and omitted if that particular event is played as being in the bass clef. Another arrangement of the pages may find these notes again within the range of the keyboard. It will be seen that the basic "mobile" elements of the piece (page sequence and inversion, clef disposition and time) admit of a considerable number of different presentations of this material. All of these possibilities are valid within the total concept of the work, provided that once a selection from the range of possibilities has been made, it be executed with devotion and accuracy in regard to the durations, attacks, and intensities. The variable factors are to be dealt with to any degree of simplicity or complexity interesting to the performer.

The piece may be played by any number of pianos up to 25.

The general movement

The general movement, in all the arts, is toward the presentation of an "actual" event rather than a remembered or "representational" event. The materials become progressively more freed from subservience to the "history" of their usage and less dependent upon the inherited semantic function (a function based on the commonly understood and accepted habits of the past). The presentation of an "actual" event attempts to bring the "audience" and the work together in/at the same "time"—to close the gap between art (reflection) and life (*being* ... in the moment and not somewhere else).

This development has made a lot of people very nervous because of their experience of not being able to control or foresee or accept the *non*-control and the *not*-foreseen as it happens to them every day (it is understandably nerve-wracking in daily life if you have an inflexible attitude and a certainty as to the functional and useful purpose of your activities as they (should) march convincingly toward your goal). A certain type of artist has accepted such goal-oriented functionalism, and it is an honorable endeavor but it is based on an acceptance of the idea that we can know something and know how to make someone else know it. This kind of knowing that anybody can have just by deciding to.... There is variety in what various people decide upon knowing and it is sometimes interesting but never profound. "Do you know do you know or do you know because I tell you so?" (Gertrude Stein); "because I" or you or somebody else "tell(s) you so" is never enough.

The "freeing of the materials" has come about because of (some) artists realizing that the material *is* free and that any definition or condition that is imposed upon it is only an imaginary and momentarily effective illusion.

Much of art is based on such illusory thinking, and this is perfectly proper to art of the past or present that is illustrative of exterior "reality" and based upon a currently acceptable vocabulary of "expressive," inherited concepts of "reality," and conceivable relationships within observable limits. This is a functional, useful, consciously communicable, "common denominator" approach to art, and may actually be the true, or at least the original, description of "art"—the involvement of an imaginative artisan wishing to produce an object that would function usefully and/or poetically as a "finely wrought" example of skill, taste, intellect, and imagination.

The more recent developments in art find the artist no longer content with the inherited vocabulary nor with his ability to acquire skill in the manipulation of his "craft." There is a desire to remake or review the entire world of possibilities, from its primary components and qualities ... to discover what is or might be possible rather than to condition the possibilities of discovery by imposing rational causality directives, as the artist understands them. This dissatisfaction with second-hand experience, the desire for "freedom from the known," is neither negativistic nor escapist but is, on the contrary, a commitment to the feeling (intuitive) that everything is meaningful and valuable (infinitely) if one is sufficiently unqualified by Pavlovian response patterns to experience the *now* of it!

Calder piece

[...] Those who are familiar with my work are aware that the original impulse and influence that led me to create "open form" musical works (which, in 1952, I called "mobile compositions") came from observing and reflecting on the aesthetic nature and lifelike qualities of the mobiles of Alexander Calder [...]

In Paris (in 1963) I began the work [*Calder Piece*] for the Quartet with the idea that it would be "conducted" by a mobile in the center of the space, with the four percussionists placed equidistantly, in four corners, around it; the varying configurations of the elements of the mobile being "read" by the performers, and the evolving "open form" of each performance being a function of the movements of the mobile, and subject to the scoring and "choreography" of the performers' movements. It is a very intricate "feedback" condition between the mobile, the score, and the performers.

The practicality of this whole thing was of course dependent upon the

hope that Calder would find this collaboration interesting and create a mobile for it [...] Sandy was immediately intrigued and excited by the idea, and [...] everything was happily agreed to [...]

The final scoring of the piece had to wait for the mobile to be finished because various aspects of the score and performance were directly based on the number and color of the elements and their physical placement in the structure of the mobile (however, it turned out to be "Calder Red," which called for some hasty rethinking on my part). It was not until 1966 that everything came together and the work was finished. Sandy named the mobile "Chef d'Orchestre."

Calder Piece was first performed at the Théâtre de l'Atelier in Paris early in 1967. In addition to the mobile functioning as a "conductor," the scoring calls for the musicians to actually use it as a featured percussion instrument. One is not conditioned to tolerate the striking of a Work of Art, and the sounds of breath-holding could be heard in the audience when the musicians first approached and played on the mobile. (It just occurred to me that striking a conductor is not very traditional, either.) [...]

Further thoughts on Calder

In recognizing the bottle drier as a beautiful "work" (author unknown), and accepting it as Art, Duchamp began a tremendously important aesthetic transformation—not destroying Art but adding profoundly to the expansion of the Art mentality, as Calder did. The acceptance of diverse elements, created by the artist, situated in a spatial relationship, subject to unforeseeable but necessarily relevant and integral variations of that original relationship (a condition of "mobility"), is a profound realization that a "work of art" must not necessarily be static, but through the artist's foresight and acceptance of lifelikeness in the initial conception of the work, all unforeseeable transformations of the relationships in that unique "mobile" construction are valid. This is an enormous revelation … it brings the heretofore static visual art experience into a vital relationship to the "time arts" … theatre, music.

Calder establishes a general density of motion for each mobile, then he leaves it on its own.

The objects inhabit a halfway station

between the servility of a statue and the independence of nature.

-Jean-Paul Sartre

Brown establishes a general density of potential for each composition, then he leaves it on its own.

The sonic elements inhabit a halfway station between the servility of form and the independence of nature.

-E. B. (excusez-moi, J.-P.)

* From Current Musicology 67/68 (2002). Used by permission of the Earle Brown Music Foundation.

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The Game Pieces

John Zorn

Since the early 1970s, composer and saxophonist John Zorn has been the ringleader of New York's "downtown" music scene. He has led a range of groups (among them Naked City, Masada, Painkiller, Spy vs. Spy, and News for Lulu) and has composed chamber music, film soundtracks, and electronic music. Zorn's music is relentlessly genre-crossing and referential, combining (often in a single piece) elements of free jazz, punk rock, cartoon music, cool jazz, klezmer, heavy metal, and avant-garde composition. He runs the record label Tzadik (an important outlet for improvised music, experimental music, and avant-garde composition), edits Arcana (a series of books compiling writings by experimental musicians), and founded The Stone (one of New York City's main venues for vanguard music). Here, Zorn introduces his famous "game pieces," which consciously draw upon the "open" techniques of John Cage, Earle Brown, Karlheinz Stockhausen, Cornelius Cardew and others to shape the performances of improvising musicians. After an initial introduction, Zorn discusses this compositional practice with Christoph Cox.

From 1974 until about 1990, a large part of my compositional time was spent devising music for improvisers, what I now call "game pieces."¹ Tying together loose strings left dangling by composers such as Earle Brown, Cornelius Cardew, John Cage, and Stockhausen, I began to work out complex systems harnessing improvisers in flexible compositional formats. Working on a blackboard, ideas would come slowly, often staying on the board for months before all the various elements seemed balanced and complete. I tried to make every piece a world in itself, and often they took over a year to write. These pieces have somehow lasted, taking on a life of their own and they are now used in schools, improvisation workshops, and are performed monthly from Tokyo to Berlin, San Francisco to Sydney. They have become my most often played compositions, but there continues to be a mystery about them, an enigma.

Many people have wondered why I have deliberately chosen not to publish (or even write down) the rules to these pieces, preferring to explain them myself in rehearsal as part of an oral tradition. The reasons are many. There is a lot more to these pieces than just the rules. For one thing, the choosing of players has always been a crucial part of the performance process and the art of choosing a band and being a good band leader is not something you can impart on paper in a written preface to the score. Although these pieces were written in the abstract and can be done essentially by anyone, they were not written in a vacuum. They were originally created to harness the personal languages of a new school of improvisers working together in the East Side of Lower Manhattan. Players that I worked with closely and often.

To do this music properly is to do it with a community of like-minded musicians and an understanding of tactics, personal dynamics, instrumentation, aesthetics and group chemistry. It's about cooperation, interaction, checks and balances, tension and release and many more elusive, ineffable things both musical and social. First and foremost it's about playing good music. I have no problem with people doing this music (after all, music is meant to be played), as long as they realize the difference between amateur/outlaw versions (without my presence) and the more "authorized" versions I organize myself. These pieces can go where anyone wants to take them, and since they live on in the underground as part of an oral/aural tradition, this becomes one of the dangers as well as part of the fun. Nevertheless there can be no such thing as a definitive version and I'm sometimes pleasantly surprised by tapes of renegade versions I receive in the mail [...]

How do you situate your game pieces in relation to the tradition of "open works" pioneered in the 1950s by John Cage, Earle Brown, Karlheinz Stockhausen and others?

The exciting thing about that music was its flexibility in terms of performance. It could be different every time. One of the problems that both Earle Brown and John Cage came up against was a certain friction and resistance from classical players to work in those kinds of open contexts. Cage perversely thrived on that friction between what *he* wanted and what *they* didn't want to do. There was a drama about it. And he could kind of sit there and laugh about it in some Zen-like fashion. I don't think Earle had that same kind of sense of humor. I think he was a little more tormented by it.

He also had a background in jazz...

... which Cage clearly did not. For many years, Cage was very resistant to improvisation. It's interesting that the word "improvisation" was very dirty in the classical music world of the 1960s. It was almost as if it was an insult to the composer if someone used the word "improvisation." I can understand why composers at that time felt compelled to justify their work with intellectual systems and words such as "aleatoric," "intuitive," and "indeterminate." They were trying to justify to the critical community that this was not "improvised music"—music that the performers were making up as they went along—but music that was truly envisioned by a musical mind and then passed down to the performers.

My particular thrust in writing the game pieces—as with all of my music—is to engage, inspire, and enthrall a group of musicians into doing music that *they* are excited about, so that that excitement is passed on to the audience. It's crucial that there's a close relationship and a dialogue between performer and composer. For me, this is the most crucial relation in music-making. And I think that's why Stockhausen, Kagel, Cage, Partch and eventually even Reich and Glass formed their own ensembles-steady musicians who continued to work with their music, and who understood what they wanted. There's a lot more to music than what's on the page, in any music of any kind. What's on the page is just a sketch. You get as close as you can. But you *want* to leave things open to performers in any music, or you end up with something that's just so dictatorial. Music that's overmarked is often more than daunting to the performer. It becomes impossible. You don't want a machine to be playing this stuff. It's got to be human. You want to give the option for the musicians on the stage to be able to express their creativity in some kind of way, whether it's in fingering or phrasing or dynamics or whatever. I feel very strongly that there is an interaction between what's on the page and the musician that's playing it, and that there should be a level of creativity involved.

When Brown wrote his open compositions, he was trying to get classical musicians to improvise, to contribute to the shaping of the piece. You, however, are writing for a group of skilled improvisers

Exactly. When Stockhausen and Cage created their own units, they were initiating a very eloquent dialogue between composer and performer. I took the whole process one step further, in terms of "the open work," in

that, when I write music, I write music for performers, for a community of players of which I, too, am a member.

Do you write music for specific performers?

Well, not specific players in the way that Duke Ellington wrote for Johnny Hodges. I write for specific *kinds* of musicians that have specific *kinds* of skills. It's a community. But the critical thing is really the interaction between what's on the page and the musicians who are playing it. The page has got to inspire the musician. They've got to look at the page and say: "Wow, this is amazing. This is fucking difficult. But I can do it, and it's worth the time it takes to learn it." What you get on the stage, then, is not just someone reading music but a *drama*. You get a *human* drama. You get *life itself*, which is what the ultimate musical experience is: it's life. Musicians relating to each other, through music.

In my case, the first musicians that I became involved with were musicians that very much loved to improvise. They were musicians that were excited by the work of Stockhausen and Cage and Earle Brown. They were also excited by the work of Albert Ayler, Anthony Braxton, Leo Smith, and Ornette Coleman. They were excited by the work of film soundtrack composers like Bernard Hermann and Jerry Goldsmith. They were also excited by World Music from Bali, Africa, and Japan ... It was the recording explosion. We were the generation that benefited from that. And we looked for like-minded musicians to work with.

When I picked up the saxophone, I was not trying to put myself into a "jazz" context but into a context where I could work down and dirty with other musicians, workshopping, improvising, talking about ideas—*that* was what the "downtown" scene was all about. The old-fashioned concept of the ivory tower composer coming in with a book of compositions and then passing the tablets down from Mount Sinai did not work in that world. I knew that. I had no right to bring my compositions in unless I understood what was going on and could devise something that could not be a result of pure improvisation, something that could only happen in a context that I had created ... something new, something different, and, of course, something that they would want to play. That meant it had to be both challenging and fun. If it was too simple, the players would get bored. If it was also important to me to get improvisers to focus on making each moment something special. In a sense, these early lessons in

composing for improvisers defined my entire compositional style. I always write from the perspective of a player. I want to excite the performer and have that excitement passed on to the listener, and I want each moment of each piece I write to be something special.

How do the game pieces instantiate and foster these ideals?

The game pieces came about from being an improviser and working with improvisers. I learned very early that it is not very exciting for an improviser to be told what to play, especially when what you can make up yourself is more interesting than what's been written for you to play. I wanted to find something to harness the personal languages that the improvisers had developed on their own, languages that were so idiosyncratic as to be almost unnotateable (to write it down would be to ruin it). The answer for me was to deal with *form*, not with *content*, with *relationships*, not with *sound*. Instructions in these early game pieces do not have musicians on the stage relating to *each other*. The improvisers on the stage were *themselves* the sound.

I worked it out slowly. At first, each new piece focused on different areas of improvisation that I thought were critical. The Lacrosse piece from 1976 is about concentrating ideas in short statements (sound events), as a way of stopping people from just closing their eyes and blowing, going on and on with the same idea. With the piece Pool (1979), a prompter was introduced who initiated radical changes of information by cued downbeats. Track and Field (1981) added open game systems: trading, duos, etc. This kind of "game" idea was also used by Cardew and Pauline Oliveros. But for them a single idea would constitute the whole piece, a kind of Fluxus event that would say "look at any player in the group and play a duo with them." That might be the whole piece. I took that kind of idea and incorporated it into a larger context where it was just one of maybe 30 ideas that could be used at any time, cued by members of the group. There was always a critical moment in rehearsal, about half way through, where the performers began to crack up, laughing partly in exhilaration, partly in exasperation over rules that were right on the edge of impossibility. It was at these moments that I knew the piece was going to be a success. I tried to create a context where anything could happen at any moment, and everybody had equal control. It was the players themselves who were making the decisions. If there was something you

wanted to have happen, you could make it happen. And so the pieces slowly evolved into complex on-and-off systems, dealing only with *when* musicians play and *with whom*. Musicians relating to musicians.

These sorts of ideas were also used by Stockhausen, for example, in Plus-Minus (1963) or Kurzwellen (1968). Instructions such as "play higher than the sound you're hearing on the radio, play lower than the sound, imitate the sound" were very open in a sense, but still related to sound, and were still tied to a timeline. Even in Earle Brown's music you were presented with a timeline. There would be a series of events that could happen in any order, but, within each event, it was all written. There always seemed to be information that needed to be completed for the piece to be finished. Similarly, my early game pieces often included long lists of player permutations. Klarina (1974) is a complex list of all the possible combinations of three players who perform on three different instruments each. Archery (1979) included a series of all the possible solo, duo, and trio combinations for 12 players, which ended up being 200-some odd combinations; and you had to complete them all to finish the piece! Eventually I saw this as a bit restrictive, and I eliminated the timeline, so that the players could end the piece at any time. What remained were scores that did not refer to sound or time-two parameters traditionally inseparable from the art of music—but were a complex set of rules that, in a sense, turned players on and off like toggle switches to such a complicated degree that it didn't really matter what the content was. The music could go just about anywhere. The piece was still itself. Game pieces can sound like anything and last any length depending on the players and the moment, but they always somehow retain their own identity, the way baseball differs from croquet.

Over the years, the systems became more flexible, more varied. Post-*Cobra* (1984) game pieces began to give options to the players in terms of determining content, through the use of modifiers, which specified different parameters of sound. Each of these twists and wrinkles were devised through practicum. By seeing how players responded to various cues and situations in performance, I could come up with new ideas and situations that were unique and exciting to play. Although elements of the game pieces repeat from piece to piece, they were always contextualized and recontextualized in new ways within each piece. Each piece is a different world, and indeed, it is a mistake to play *Cobra* like it was *Archery*, or *Ruan Lingyu* (1987) like it was *Xu Feng* (1985). In these later compositions, players are asked to relate more and more to sound in spontaneously constructing pieces. Abstract parameters like high, low, loud or quiet (in *Xu Feng*) were later joined (in *Bezique* [1989]) by specific genres like, blues, soundtrack, mood, classical, and jazz as moments that could be called upon by any player at any time, orchestrated spontaneously and cued at the prompter's downbeat. It is interesting to see the progression. In *Bezique*, each player in the group has a chance to completely organize an ordering of sound events—to "compose" a piece themselves. When each player has completed their successive piece, the performance is over. We have come full circle here, with a triumphant return to both the timeline and the world of sound. Perhaps it is fitting that *Bezique*, which consists almost entirely of sound modifiers, is one of my last explorations of the game piece medium, as in it, improvisers have themselves become composers.

Notes

- [Baseball (1976), Lacrosse (1976), Dominoes (1977), Curling (1977), Golf (1977), Hockey (1978), Cricket (1978), Fencing (1978), Pool (1979), Archery (1979), Tennis (1979), Track and Field (1980), Jai Alai (1980), Goi (1981), Croquet (1981), Locus Solus (1982), Sebastopol (1983), Rugby (1983), Cobra (1984), Xu Feng (1985), Hu Die (1986), Ruan Lingyu (1987), Hwang Chin-ee (1988), Bezique (1989), Que Tran (1990)—Eds.]
- * The first portion of this chapter appeared as liner notes to John Zorn, *Cobra*, Tzadik TZ 7335. The interview that follows was conducted for this volume by Christoph Cox.

33

Introduction to Catalog of Works

Anthony Braxton

Composer, reed player, and musical philosopher Anthony Braxton came to prominence in the 1960s as a key member of the Association for the Advancement of Creative Musicians (AACM), a collective of Chicago musicians dedicated to African-American avant-garde music. Though influenced equally by jazz improvisers such as John Coltrane, Paul Desmond, and Lennie Tristano and by the compositional methods of Webern, Cage, and Stockhausen, Braxton identifies neither as a jazz musician nor as a classical composer. Instead, he advocates a "tri-centric" musical philosophy that rejects dichotomies (e.g., improvisation/composition) and embraces multiplicity. To foster this musical attitude, he has constructed various musical systems, several of which (Ghost Trance Music, Diamond Curtain Wall Music, Echo Echo Mirror House) involve graphic notation and drawings. Since the late 1960s, Braxton's composition titles have consisted of abstract diagrams and number-letter combinations, reflecting his joint interests in graphic composition and esoteric spiritual traditions. Each of Braxton's compositions (which now number nearly 400) provides a set of open structures and parameters for collective improvisation. In the mid-1980s, he began "collaging" his compositions, embedding one composition in another and calling upon performers to play different compositions simultaneously—a technique pioneered by Cage. In one of Braxton's most recent musical systems, Echo Echo Mirror House, musicians employ iPods to collage past recordings of Braxton compositions with their live playing. In this essay, Braxton presents his conception of musical collage and simultaneity, and the holistic worldview from which it springs.

The body of "musics" that make up this Catalog of Works represent the "best I could do" when confronted with the incredible gifts of beauty that the Masters have given us in the phenomenon we call music. I perceive this effort as an evolving MULTI-LOGIC sound universe that demonstrates sonic unification on three primary planes of perception dynamics—abstract realization, concrete realization and intuitive realization. All of these matters are part of the wonderful world of sound

wonder and beauty—I am so grateful for music and the "act of thinking about music/feeling." Life on earth would be impossible without music— our species could not exist without love and compassion. All of these matters are related.

The construction of this body of works has been my main preoccupation since 1967 and as such it is my responsibility to present this material as correctly as possible—THAT IS: it is important for the reader to understand the overcontext that gives this material its "perceived meaning" (LIFE). This is necessary because all of these works are part of one organic sound world state-and all of these efforts seek to affirm my life experiences: that being, what I have learned and experienced in my actual (REAL) life—as perceived from my value systems—rather than from imposed social and/or political values. This difference is important and must be taken into account or real penetration (insight) into this material could be "complex" (smile). As such, I would like to establish a general material about this for future musicologists overview and musician/interpreters so that any person interested in my work will have some idea of my values and "way of being." My comments in these notes will apply to every composition in this catalog-and will encompass all additional entries I hope to add. Indeed, I am really commenting on the aesthetic tenet axiums of my music system/platform (life).

The most important feature of the body of material that must first be understood is that this information represents the vibrational fluid and atomic structural ingredients of one dynamic sound state (intention). That is, I have approached this material with respect to my needs as an instrumentalist as well as composer. With this effort I have tried to erect a "perception context" that respects and allows for both disciplines (improvisational/fluid musics and notated/stable musics) to exist and evolve—as unified and independent realities (with its own secrets and particulars). I have designed this material as an affirmation of "SOUND" AND MUSIC SCIENCE—as a response to the great African, European, and Asian men and women who have clarified the profound "beauty" of that which we call music. There are no words to adequately express my gratitude to the heavens for the fact of "reception and definition." Music is profoundly interwoven into the total experience of existence.

There are four fundamental postulates that must be understood about this material if my objectives are to be respected (or understood), that being:

- I. All compositions in my music system connect together
- II. All instrumental parts in my group of musics are autonomous
- **III.** All tempos in this music state are relative (negotiable)

IV. All volume dynamics in this sound world are relative

Let me clarify:

- A. a) All compositions in my music system can be executed at the same time/moment. That is, this material in its entirety can be performed together as one state of being—at the same time (in whole or in part—in any combination). This option is the aesthetic conceptual/vibrational/fulfillment of my music.
 - b) Shorter works can also be positioned into larger works—into any section of a given "host" composition.
 - c) Isolated parts from a given structure can be positioned into other structures—or one structure—as many times as desired.
 - d) Any section (part) of any structure can be taken and used repeatedly by itself or with another structure—or structures.
- B. a) All instrumental parts in these groups of compositions are changeable—
 that is, any instrumental part can be used by any instrument—or instruments. Or any section from a given structure can be spliced out and integrated into another structure. What this means is that the harmonic reality of a given structure has vertical, linear, and correspondence realities (logics) that transcend any one plane of definition. All notated pitches in this music state involve only the primary imprint reality of a given form—as viewed from its origin/identity instrumentation. Every part can also be utilized (or "adopted") by any instrument or instrumentation. In other words, every solo piece can be an orchestra piece—in any order or sequence. Every orchestral instrumental part can be taken away from its "identity territory" and used by itself or with another piece or pieces.
 - b) A given performer or group of performers can take any part of any composition (or compositions) and use that material as solo or combination material. A given performer can sequence parts of different compositions into one music/type for one musician or for as many musicians as desired. Structural material used in this manner becomes a reservoir of structural and conceptual possibilities—including traditional interpretation.
- **C. a)** All tempos in my music system are relative. That is—the initial "indicated" tempo of a given composition is only a point of definition for the unified imprint

state of that work and is not intended as the only option. What this means is that the "life" of a given structure in this system has limitless possibilities—"settings" or "colors."

- **b)** Every composition in this music world can be executed in any tempo—in the same way that a composition of Duke Ellington's can be played as a ballad or as a fast piece. Primary tempo designations are also included so that the interpreter can have every option available.
- c) Each composition contains open duration spaces where time/space adjustments and parameters can be treated creatively.
- **D.** a) All volume dynamics in this universe of music are relative. What this means is that volume adjustments can be made when two or more given instrumentalists perform (execute) different compositions together.
 - b) Each person can respect his or her physical and vibrational particulars when dealing with the physical demands (and challenges) of the music.
 - c) Performers are encouraged to look for "affinities" and "composite sound states" based on the collective dynamics of the ensemble. All of these matters will affect the music in every way.

The reality of this system seeks to establish fresh concepts about structure (FORM) and participation dynamics. What this means is that architecture and vibrational properties in this sound world are designed to establish 1) an individual reality context (i.e., solo manipulations and strategies); 2) a collective or ensemble reality context (i.e., interactive strategies for large and small ensemble groups); and finally, 3) a correspondence reality context (one that establishes the interconnection logics—"WORLDS"— between structures).

I would also like to make four additional comments about this material to hopefully give insight into those things I would want any person interested in my music system to know about.

My comments are:

- a. Have fun with this material and don't get hung up with any one area.
- **b.** Don't misuse this material to have only "correct" performances without spirit or risk. Don't use my work to "kill" young aspiring students of music (in other words—don't view this material as only a technical or emotional noose that can be used to suppress creativity). If the music is played too correctly it was probably played wrong.
- c. Each performance *must* have something unique. I say take a chance and have

some fun. If the instrumentalist doesn't make a mistake with my materials, I say "Why!? NO mistake—NO work!" If a given structure concept has been understood (on whatever level) then connect it to something else, something different—be creative (that's all I'm writing).

d. Finally, I recommend as few rehearsals as possible so that everyone will be slightly nervous—and of course put in "emergency cues" just in case anything goes wrong. Believe me there will be days when nothing works at all. Also try and keep the music "on the line" to maintain the "spark of invention," and be sure to keep your sense of humor.

Good Luck,

Anthony Braxton Mills College 1988

P.S. (and please don't make the music too "cutesy")

* From Anthony Braxton, *Catalog of Works* (Synthesis Publishing, 1989). Used by permission of the author.

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Notes on Conduction

Lawrence D. "Butch" Morris

Lawrence D. "Butch" Morris came up as trumpet and cornet player in the Los Angeles and Bay Area jazz scenes during the 1960s and early 1970s. In 1976, he moved to New York City and became part of the "loft scene." Witnessing and performing in high-energy free jazz ensembles, Morris began to look for a way to capture key moments in those sessions and to control improvisation more carefully. Slowly he developed a vocabulary of gestures for what he later termed "conduction," a form of conducted improvisation. The first official conduction took place in 1985 at The Kitchen, where a ten-piece ensemble performed Morris' "Current Trends in Racism in Modern America—A Work in Progress," employing no notation and guided solely by Morris' real-time gestures. Over the next twoand-a-half decades, he realized more than 200 conductions involving a wide variety of ensembles (jazz, classical, electro-acoustic, choral, etc.), including conductions with traditional instrumentalists from Japan and Turkey. "This is not jazz, this is not classical—not free," noted Morris, "it is what it is. Everyone can find their home in this music, everyone could interpret it any way they liked (within reason). The one thing that it does have, no matter where it's done, that makes it akin to jazz is combustion and ignition. To me this is the essence of swing."

I grew up in a time when bebop, post-bop and rhythm and blues consumed my musical life. They remain the inspiration for much of what I do. It's the sound, lyricism, heat, and organization of these musics that are fundamental to what I call "Conduction." With the sound, I am a captive of nostalgia, and with the nostalgia come visions; but once in this reflection I no longer hear that music—I hear something else—and I can't always say what that something else is, so I go looking for it. It was here that I found Conduction.

The music of my childhood, although it made me, is not mine—it only lives in my recollection as nourishment for the future of my work, as does all music that I love. And it is this, the nourishment, that is so crucial to the fuel of my questions and answers, my sonic projectory. The act of making spontaneous music, the act of contributing to a specific result, to direct or outline a course, but not control it—is to convey information that is in all ways interpretable. It is cartography for an improvisation, for the improviser—an ensemble music. I bring a structure and form to the ensemble. In this collective imagination there is a collective (and individual) decision-making process.

"Conduction" not only relates to the act of "conducted improvisation," it is also the electric charge and response from body to body—the immediate transmission of information and result. This is an ancient form of communication that can be used again to further this music (although we see it every day in some form, and if not every day—every spring).

Part of the idea is to develop the mind in such a way that it becomes critical to the construction of something we have yet to hear or see—to something we've felt or thought. It's a survey—we determine boundaries, then let them go. It is a body of ceremony—a ritual, a book of rites.

Acoustic interaction between musician-conduit and audience. Audience, because they are present—they can see, they can feel—everyone receives the information at the same time. Therefore the mind can make decisions on what can or will be sounded. Then the mind can change its self or allow itself to be influenced by another. Risk, not chance.

The challenge of getting somewhere that you are not. The challenge of remembering why you are here—not to subordinate the ensemble, but to make sure all understand the vocabulary so that we can take responsibility for the direction of the music—and to surrender to the music. Surrender (which may be the most difficult thing to do) is the important aspect in the negotiation of a construction. That does not adapt to a structural existence ...??!!

This system was not designed to impose an esthetic, but to allow for the creation of a medium that redefines itself and the spirit of quality—a quality that radiates a unique property—every time.

In other words, constant preparation—preparation for the next, and the next for the next—for something we did not hear and for something we have never heard. The more I prepare, the more I understand the conspiracy of the "laws of the changing winds." And in no way am I instigating a "new music" as concept, but seeking individual and collective growth as a means to produce or substantiate a need unknown.

Music is the language I am dealing with, and "Conduction" as a vocabulary for the production of the interpretive language of music. Music as constant invention. I don't see this as a prefabricated form of "world

music," but as a cultural dialogue, at its height. No matter who the participants are.

We must surrender to be possessed, if by no one else other than ourselves—primal perfection. The limitations are only set by who wants, and who doesn't want, to go there. But who wants to go to a world that isn't? Or to constantly create a place or a music with "no tense"? This music should always have the possibility and choice of a direction environmental orchestration, extreme flexibility, at the discretion of the organ. Again, the collective decision—a constant reevaluation of the moment.

Looking for the flexibility in notation is another reason I've come in this direction. How intimate with the moment can we be or become? How is it possible to write a piece of music, travel five thousand miles and perform it in an environment that might reject it even before it's been heard? But then how is it possible to take that same music five thousand miles and let the environment help to influence its direction—to make it intimate with the environment, to let the character of the environment find its way into that music?

To do this, there must be a community of camaraderie—there are no secrets, only individual and collective perseverance. Again, a music with no tense, from wherever you hear. A sonic code found only in team play, trust and challenge—focus and construction. The decoding of tongues, to magnify all combustible elements—in that moment of ignition, embody ignition—without its knowledge or consent.

con duc'tion (-duk'sh *u*n), *n*. 1. Act of conducting or conveying, as water through a pipe. 2. *Physics*. Transmission through or by means of a conductor; also conductivity;—distinguished, in the case of heat, from *convection* and *radiation*. 3. *Physiol*. The transmission of excitation through living tissue, esp. in a nerve.

Conduction (conducted Improvisation) is a means by which a conductor may compose, (re)orchestrate, (re)arrange and sculpt with notated and non-notated music.

Using a vocabulary of signs and gestures, many within the general glossary of traditional conducting, the conductor may alter or initiate rhythm, melody, harmony, not to exclude the development of form/structure, both extended and common, and the instantaneous change in articulation, phrasing, and meter. Indefinite repeats of a phrase or

measures may now be at the discretion of the new Composer on the Podium.

Signs such as *memory* may be utilized to recall a particular moment and *Literal Movement* is a gesture used as a real-time graphic notation. Conducting is no longer a mere method for an interpretation but a viable connection to the process of composition, and the process itself. The act of Conduction is a vocabulary for the improvising ensemble.

In the past fifty years, the international community of improvisers has grown at such a rate that it has forged its own in defining its present future. The geographic exchange of musics (not category) has enriched this community and holds it steadfast in its mission to be the medium with an appetite for expressing the moment. It is this *Collective Imagination* that is presenting the new challenge to technology and tradition with the hope of helping in the humanitarian need to broaden the language of communication.

Here and now we have the possibility of helping to open new doors of employment to a community that has patiently awaited its turn to pave the way to the *New Tradition*, a product equal to the challenge.

Introduction to the conduction vocabulary

The conduction vocabulary developed from the need (or desire) to interact and/or to create a spontaneous improvisational dialogue with the music, musicians, and environment.

First, and most important, there is no music to look at. There is only the conductor, and the conductor needs your attention 100% of the time. It never fails that someone will look away when the music needs them the most.

Conduction is process and product, ensemble music, teamwork. It is a music of personal histories and individuals. It is not limited to style or category. It is not jazz, blues, pop, classical, free, and so forth, although it may encompass all or none of them. Finally, all are misleading. It is the conductor's responsibility to mold this simultaneous synthesis of sound and organization into one ensemble. Your personality should always be in your music. When you are not playing, you should be thinking of what you would be playing. You must make music all the time, whatever you think music is.

Respond to what (you think) you hear or see or understand. Execution
must be deliberate and decisive.

Conduction is an ensemble music. Its vocabulary is interpretive. The student must pay attention to the language of the body and the baton.

Conduction vocabulary and gestures

Down beat is used after a preparatory command. Usually given with the baton, but may be given with the left hand or body.

Sustain (chord or continuous sound) left hand extended, palm up, followed by *down beat*.

Repeat (three circumstances) 1) If you are not playing—you must create something to repeat; 2) If you are playing something—the conductor would like to hear it again; 3) If someone is playing something, and the conductor would like you to play it—the sign for repeat is given with the left hand to form the letter "U."

All are given with *down beats*.

Mock (or mimic) (similar to repeat #3) You are to mock a player or sound. The conductor will point to the left ear, then to the player or area of sound to be mocked. This is followed by a *down beat*.

Dynamics (loud–soft) Raising the palms up for loud, down for soft. There is immediate response to this gesture, with no *down beat*.

Or, a clenched fist in the chest area for loud, left hand finger to lips for soft, both given with *down beat*.

Memory If a particular section or phrase is to be committed to memory the conductor will point, with left hand to (left) temple and designate a number with left hand (using fingers as the number). When this action (left hand to temple and number) is repeated with a *down beat*, you are to recall that particular area. Whatever you were playing when the number designation was given is what you will return to when it is given with *down beat*.

Hold (don't play) Left palm facing ensemble. This is usually given when the conductor wants to give a preparatory command. This is done to give the ensemble ample time to understand the direction.

Change in tonality (key or tonal center) Left hand thumb up or down, with *down beat*.

Division of ensemble Slicing motion with left hand, to separate or divide the ensemble in parts or sections.

Time (pulse) is given with the baton, tapping rate of desired time. This may be given with a *down beat* or asked for as an immediate response.

Rhythm is given with the baton as if beating a rhythmic figure in mid-air. The left hand marks the beginning of the phrase. A *down beat* is given to begin, generally preceded by a *hold*.

Develop (or go on) is given to indicate when the musician is to develop a phrase, a repeat, or sonic area. This is done by pointing with the right hand to the extreme right (flank), arm extended. This may be done with or without a *down beat*.

Continue in this way Pointing finger of left hand—(two) little circles directed at the musician you wish to continue a developmental process.

Expand is used to develop a phrase or area, then to bring it back. This is done by placing both hands in front of the body (extended arms) together (for the phrase) then separating the hands for the development.

Entry (come in or feature) A wave of the hand, as if to beckon—to improvise. The response is immediate.

Literal movement The sign for this command is to place the baton parallel to the body, in front of the face, after which the baton serves as a tool for mid-air graphics. In *literal movement* (and all graphic information) the lower the baton, the lower the sound on the instrument. The higher the baton, the higher the sound. The *down beat* is the beginning of the gesture.

Panorama (pan or panning) The sign for *pan* is the baton upside-down parallel to the body, the *down beat* is when the baton moves across the ensemble. 1) If you are not playing—when the baton enters your physical (body) field, you play. When the baton is out of your field, you stop. 2) If you are playing when the sign for *panorama* is given—it is the exact opposite of #1. As the baton enters your field, you stop playing. When the

baton departs, you begin.

Melodic movement is a gesture used to suggest melody. This can be done in a variety of ways—I have used it by beating time with the left hand and giving graphic information with the right hand. This is done with a preparatory command, without stopping the movement, giving a *down beat*.

In theory, all gestures are open to interpretation. However, a graphic movement such as ~~~ should not sound like ——

All of the music in this collection was created using this vocabulary, yet this is only a small amount of information for transmission. The improviser must bring a personal skill to the interpretation and the conductor must have a feeling for which direction to take it.

As you can imagine, there are a lot of questions in a conduction workshop or rehearsal. I try to let the ensemble answer its own questions so as not to limit its interpretive response.

From the liner notes to Lawrence D. "Butch" Morris, *Testament: A Conduction Collection* (New World Records, 1995). Used by permission of New World Records.

In 1952, with Morton Feldman, Christian Wolff, Earle Brown, and David Tudor, I had taken steps to make a music that was just sounds, sounds free of judgments about whether they were "musical" or not, sounds free of memory and taste (likes and dislikes), sounds free of fixed relations between two or more of them (musical syntax, or glue, as Henry Cowell called it when he introduced one of our concerts in the 'fifties at the New School). Since the theory of conventional music is a set of laws exclusively concerned with "musical" sounds, having nothing to say about noises, it had been clear from the beginning that what was needed was a music based on noise, on noise's lawlessness. Having made such an anarchic music, we were later able to include its performance even so-called musical sounds. The next steps were social, and they are still being taken. We need first of all a music in which not only are sounds just sounds but in which people are just people, not subject, that is, to laws established by any one of them even if he is "the composer" or "the conductor." Finally (as far as I can see at present), we need a music which no longer prompts talk of audience participation, for in it the division between performers and audience no longer exists: a music made by everyone. — John Cage¹

Formerly, whenever anyone said the music I presented was experimental, I objected. It seemed to me that composers knew what they were doing and that the experiments that had been made had taken place prior to the finished works, just as sketches are made before paintings and rehearsals precede performances [...] Now, on the other hand, times have changed; music has changed; and I no longer object to the word "experimental." I use it in fact to describe all the music that especially interests me and to which I am devoted, whether someone else wrote it or I did. What has happened is that I have become a listener and the music has become something to hear [...] Those involved with the composition of experimental music find ways and means to remove themselves from the activities of the sounds they make [...] And 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 paradox: a purposeful purposelessness or a purposeless play.

— John Cage²

My past experience was not to "meddle" with the material, but use my concentration as a guide to what might transpire. I mentioned this to Stockhausen once when he asked me what my *secret* was. "I don't push the sounds around." Stockhausen mulled this over, and asked: "Not even a little bit?"

- Morton Feldman³

In 1965 I joined a group of four musicians in London who were giving weekly performances of what they termed "AMM Music," a very pure form of improvisation operating without any formal system or limitation. The four original members of AMM came from a jazz background; when I joined in I had no jazz experience whatever, yet there was no language problem. Sessions generally lasted about two hours with no formal breaks or interruptions, although there would sometimes occur extended periods of close to silence [...] Informal "sound" has a power over our emotional responses that formal "music" does not, in that it acts subliminally rather than on a cultural level. This is a possible definition of the area in which AMM is experimental. We are searching for sounds and for the responses that attach to them, rather than thinking them up, preparing them and producing them. The search is conducted in the medium of sound and the musician himself is at the heart of the experiment.

- Cornelius Cardew⁴

If I push one button, a pure tone comes out, but if I dare to push two or three at a time, the sounds react to one another and become somewhat distorted. Things also change a lot depending on how hard I push the buttons. And of course, the speakers and other parts of the sound system change the tones, too. I can only control about half of the sounds, so I can't predict what will happen: it's like an accident.

- Sachiko M on her improvisatory practice with oscillators⁵

I wish to get away from the paradigm of music as language-like, the aesthetics that believe music, or art in general, is a form of communication. My favorite metaphor for explaining what I'm after is a tree in a meadow: the tree is just standing there, it's not a message for you, but looking at it, you may think about a lot of things, feel a lot of things. So in a way I'm trying to do music that exists like a tree. When you associate things with what you hear, visualizing this or that, language gets back into the game and destroys the possibility of perceiving the existence of sound, its "being like this."

— Bernhard Günter⁶

My whole generation was hung up on the 20 to 25 minute piece. It was our clock. We all got to know it, and how to handle it. As soon as you leave the 20–25 minute piece behind, in a one-movement work, different problems arise. Up to one hour you think about form, but after an hour and a half it's scale. Form is easy—just the division of things into parts. But scale is another matter. You have to have control of the piece—it requires a heightened kind of concentration. Before, my pieces were like objects; now, they're like evolving things.

- Morton Feldman⁷

The virtual work is "open" by design. Every actualization reveals a new aspect of the work. Some systems not only manifest a combination of possibilities but encourage the emergence of absolutely unpredictable forms during the process of interaction. Thus creation is no longer limited to the moment of conception or realization; the virtual system provides a machine for generating events.

— Pierre Lévy⁸

After the novel, and subsequently cinema privileged narrative as the key form of cultural expression of the modern age, the computer age introduces its correlate — database. Many new media objects do not tell stories; they don't have beginning or end; in fact, they don't have any development, thematically, formally or otherwise which would organize their elements into a sequence. Instead, they are collections of individual items, where every item has the same significance as any other.

- Lev Manovich9

V. Experimental Musics

Introduction

On May 10, 1979, Alvin Lucier strung an eighty-foot wire under the Rotunda of the US Customs House in New York City. With the help of a sine wave oscillator and an electromagnet, the wire was set in motion and then amplified, filling the space with a rich, raspy drone. "The wire played itself," remarked Lucier. "All changes in volume, timbre, harmonic structure, rhythmic and cyclic patterning, and other sonic phenomena were brought about solely by the actions of the wire itself."¹

Lucier's *Music on a Long Thin Wire* is an exemplary instance of experimental music. While often used to characterize unusual or avantgarde music of any sort, the phrase "experimental music" refers more specifically to a particular genre of vanguard music initially developed in Britain and the United States during the 1960s. John Cage succinctly characterized experimental music as a musical action "the outcome of which is not foreseen."² More generally, the experimental "composer" (a term that experimental music puts under strain) designs a set of initial conditions (technical, sonic, conceptual, verbal, social, etc.) and then leaves them to unfold more or less on their own. In Morton Feldman's phrase, the experimental composer/performer tries "not to 'meddle' with the material," not "to push the sounds around."³ Experimental music, then, invites us into a world of evolving sounds rather than one that is constructed (composed) for us in advance.

Many indeterminate compositions ("graphic scores" in particular) probably fit Cage's description of experimental music. Yet the two practices have different socio-musical origins and represent distinctly different aesthetics. Indeterminacy emerged from the 1950s classical avant garde, and represents a move away from the highly structured musical world of serialism. By contrast, experimental music has its origins in 1960s counterculture, and emerges as much from conceptual and performance art as from the then current compositional practices. It is fundamentally interested in the issue of process: in the procedures for generating sound and in the life of sounds once they have come into the

world. For many experimental composers/musicians, this emphasis on process is an attempt to counteract the reification of sound and music, the tendency within modernity to transform unfolding processes into discrete products, to render becoming as being.⁴ In the same way, experimental composers/musicians tend to be interested in the materiality of sound rather than its musical meaning. And they tend to be less interested in virtuoso performance—experimental pieces are sometimes designed for amateur or non-musicians—than in fostering careful listening.

Umberto Eco (see Chapter 28) conceived indeterminacy as a cultural analog to the scientific shift from a closed, Newtonian physics to an open, quantum physics. Along the same lines, one might say that experimental music figures the shift from the classical physical worldview of the seventeenth and eighteenth centuries (which also gave rise to the classical musical work) to the biological, evolutionary, and even cybernetic worldviews of the nineteenth, twentieth, and twenty-first centuries.⁵ Brian Eno (see Chapter 37) and David Toop (see Chapter 39) note that a piece of experimental music tends to operate like an evolutionary process. It begins with a specific set of sonic characteristics and organizational structures that are then delivered over to random, chance, or algorithmic mutations and/or environmental effects that cause the original parameters to drift. This process is usually open-ended, without any necessary stopping point. If the traditional composer is akin to an omnipotent God, who structures and controls all aspects of a musical performance, the experimental composer is in the position of the ordinary human being, who may initiate events but is powerless to control their destiny. No longer purely a maker, the experimental composer becomes equally an observer.

Along with electronic music, experimental music has had a great impact on music outside the classical domain. Eno himself played a significant role, here. An admirer of Cage and a sometime member of the Scratch Orchestra, Eno, along with King Crimson guitarist Robert Fripp, began, in the early 1970s, to experiment with electronic systems that drastically altered the rock material fed into them.⁶ In 1975, Eno founded the Obscure record label (a subsidiary of British pop giant Island Records), which introduced rock audiences to the works of many experimental composers, among them Cage, Gavin Bryars, and Christopher Hobbs. Since then, the influence of the early experimentalists and their procedures can be discovered in fringe pop, rock, punk, hiphop, and electronica. The influence of new software and the ramifying rhizome of the internet have also provided new resources for process composition (see Toop, Chapter 39). Turntablism and remix culture are engaged in a process of ongoing recomposition that transforms recordings from finished products to sonic material that is perpetually in-process. Like the biological, electronic, and cybernetic processes it affirms, then, experimental music itself continues to ramify in the world, reappearing in ever-new manifestations.

Notes

- 1 Alvin Lucier, liner notes to *Music on a Long Thin Wire*, Lovely Music LCD 1011.
- 2 See Chapter 29, above, and the epigraph to Michael Nyman, "Towards (a Definition of) Experimental Music," Chapter 35, below.
- 3 Morton Feldman, quoted in Paul Griffiths, *Modern Music and After: Directions Since 1945* (Oxford: Oxford University Press, 1995), 303. In this respect, wind chimes and Aeolian harps might be considered precursors to experimental musical practices.
- 4 See the classic discussion of this tendency and reification in general in Georg Lukacs, "Reification and the Consciousness of Proletariat," *History and Class Consciousness*, trans. Rodney Livingstone (Cambridge, MA: MIT Press, 1971), pp. 83–222.
- On this shift in the sciences, see, for example Ernst Mayr, *One Long Argument: Charles Darwin and the Genesis of Modern Evolutionary Thought* (Cambridge, MA: Harvard University Press, 1991), Chapters 4–5.
- 6 Hear, for example, Fripp and Eno's *No Pussyfooting*, Editions EG EEGCD2.

Towards (a Definition of) Experimental Music

Michael Nyman

A successful composer of minimalist music and film scores, Michael Nyman began his career in the early 1960s as a musicologist specializing in baroque music. A few years later, he became a music critic for The Spectator where, in a 1968 article, he was the first to use the term "minimalism" to describe a musical style. Nyman's work as a critic brought him into contact with the "experimental" music scenes that had sprung up in England and the United States during the 1960s. In 1974, writing in the midst of this musical revolution, Nyman published his genredefining study Experimental Music: Cage and Beyond. Following its publication, Nyman himself became a prolific composer, writing minimalist music inflected with elements of medieval, Renaissance, baroque, and classical music. Nyman scored eleven films for the British film director Peter Greenaway and wrote the soundtrack for Jane Campion's Academy-Award winning film The Piano. In the following piece, drawn from the opening chapter of Experimental Music, Nyman catalogs the defining features of "experimental music."

Objections are sometimes made by composers to the use of the term *experimental* as descriptive of their works, for it is claimed that any experiments that are made precede the steps that are finally taken with determination, and that this determination is knowing, having, in fact, a particular, if unconventional, ordering of the elements used in view. These objections are clearly justifiable, but only where, as among contemporary evidences in serial music, it remains a question of making a thing upon which attention is focused. Where, on the other hand, attention moves towards the observation and audition of many things at once, including those that are environmental—becomes, that is, inclusive rather than exclusive—no question of making, in the sense of forming understandable structures, can arise (one is a tourist), and here the word "experimental" is apt, providing it is understood not as descriptive of an act to be later judged in terms of success and failure, but simply as of an act the outcome of which is unknown. What has been determined?

John Cage (1955)

[...] I shall make an attempt to isolate and identify what experimental

music is [...] Since, as the Chinese proverb has it, "One showing is worth a hundred sayings," I propose to take a practical instance—Cage's 4'33" dating from the same inauguration period of experimental music as the [...] statements quoted above, and use it as a point of reference. I have selected the so-called silent piece not because it is notorious (and misunderstood) but simply because it is the most empty of its kind and therefore for my purposes the most full of possibilities. It is alsocertainly for Cage—a work that has outlived its usefulness, having been overtaken by the revolution it helped to bring about. ("I no longer need the silent piece," Cage said in an interview in 1966.) I shall build the discussion around Cage's questioning of the traditional unities of composing, performing and listening: "Composing's one thing, performing's another, listening's a third. What can they have to do with one another?" In normal circumstances it might seem puzzling to make this separation, but even at such an early point in the history of experimental music 4'33" demonstrates very clearly what composition, realization and audition may or may not have to do with one another [...]

Composing

Notation

The published score of 4'33'' bears the numbers I, II, III, each marked "TACET" and each given a duration in minutes and seconds which together add up to four minutes thirty-three seconds. A secondary part of the notation tells the performer that the piece may be done on any instrument, for any length of time. Since "tacet" is the notation which informs a player that he should play nothing during a movement, the performer of 4'33'' is asked to make no sounds in the three timed sections.

As notation, then, 4'33" is early evidence of the radical shift in the methods and functions of notation that experimental music has brought about. A score may no longer "represent" sounds by means of the specialized symbols we call musical notation, symbols which are read by the performer who does his best to "reproduce" as accurately as possible the sounds the composer initially "heard" and then stored. Edgard Varèse once drew attention to some of the disadvantages of the mechanics of traditional notation: with music "played by a human being you have to impose a musical thought through notation, then, usually much later, the player has to prepare himself in various ways to produce what will—one

hopes—emerge as that sound." 4'33" is one of the first in a long line of compositions by Cage and others in which something other than a "musical thought" (by which Varèse meant a pattern of sounds) is imposed through notation. Cornelius Cardew wrote in 1963: "A composer who hears sounds will try to find a notation for sounds. One who has ideas will find one that expresses his ideas, leaving their interpretation free, in confidence that his ideas have been accurately and concisely notated."

Processes

Experimental composers are by and large not concerned with prescribing a defined *time-object* whose materials, structuring and relationships are calculated and arranged in advance, but are more excited by the prospect of outlining a *situation* in which sounds may occur, a *process* of generating action (sounding or otherwise), a *field* delineated by certain compositional "rules". The composer may, for instance, present the performer with the means of making calculations to determine the nature, timing or spacing of sounds. He may call on the performer to make split-second decisions in the moment of performance. He may indicate the temporal areas in which a number of sounds may be placed. Sometimes a composer will specify situations to be arranged or encountered before sounds may be made or heard; at other times he may indicate the number and general quality of the sounds and allow the performers to proceed through them at their own pace. Or he may invent, or ask the performer to invent, particular instruments or electronic systems.

Experimental composers have evolved a vast number of processes to bring about "acts the outcome of which are unknown" (Cage). The extent to which they are unknown (and to whom) is variable and depends on the specific process in question. Processes may range from a minimum of organization to a minimum of arbitrariness, proposing different relationships between chance and choice, presenting different kinds of options and obligations [...]

1. Chance determination processes

These were first used by Cage who still favours them—the *I Ching* (the ancient Chinese Book of Oracles) used to answer questions about the articulation of his material (*Music of Changes*, 1951, *Mureau*, 1971); observation of the imperfections on paper (*Music for Piano*, 1952–6); the random overlaying of shapes printed on perspex and readings taken to

make various determinations (*Variations I-III* and *VI*, 1958-67); a star map (*Atlas Eclipticalis*,1961-2) and the computer (*HPSCHD*, 1969). Other composers have also used this type of chance process: random number tables or the telephone directory are to be used in La Monte Young's *Poem* (1960), and in Christopher Hobbs' *Voicepiece* (1968) random techniques are used to produce a programme of vocal action for each individual performer. George Brecht uses shuffled cards in *Card Piece For Voices* (1959) as does Cage in *Theatre Piece* (1960). The importance of Cage's chance methods of the early 1950s, according to Dick Higgins, lay in the placing of the "material at one remove from the composer by allowing it to be determined by a system he determined. And the real innovation lies in the emphasis on the creation of a system" (or process).

2. People processes

These are processes which allow the performers to move through given or suggested material, each at his own speed. Morton Feldman was certainly the first to use this procedure in *Piece for Four Pianos* (1957); Cardew uses it in all seven paragraphs of *The Great Learning* (1968–71). It could of course be used to establish the determinations of chance processes. One particular form of this process, where each person reads the same notation, has been described by Michael Parsons:

The idea of one and the same activity being done simultaneously by a number of people, so that everyone does it slightly differently, "unity" becoming "multiplicity", gives one a very economical form of notation—it is only necessary to specify one procedure and the variety comes from the way everyone does it differently. This is an example of making use of "hidden resources" in the sense of natural individual differences (rather than talents or abilities) which is completely neglected in classical concert music, though not in folk music.

Differences of ability account for the (possible) eventuality of players getting lost in Frederic Rzewski's *Les Moutons de Panurge* (1969) (once you're lost you're encouraged to stay lost) and the (probable) deviations from the written letter of the classics by the members of the Portsmouth Sinfonia.

3. Contextual processes

These are concerned with actions dependent on unpredictable conditions

and on variables which arise from within the musical continuity. The selection of new pitches in *The Great Learning* Paragraph 7 is an example of this process, originated by Christian Wolff whose music presents a comprehensive repertoire of contextual systems. One of the "movements" of *Burdocks* (1970), for instance, is for an orchestra made up of at least fifteen players, each of whom chooses one to three sounds, fairly quiet. Using one of these each time, you have to play as simultaneously as possible with the next sound of the player nearest to you; then with the next sound of the next nearest player; then with the next nearest after him, and so forth until you have played with all the other players (in your orchestra, or if so determined beforehand, with all players present), ending with the player farthest away from you [...]

4. Repetition processes

These use extended repetition as the sole means of generating movement —as, for example, in John White's *Machines*, in the "gradual process music" of Steve Reich, Terry Riley's *Keyboard Studies*, or a piece like Hugh Shrapnel's *Cantation I* (1970). Riley's *In C* (1967) and Paragraph 2 of Cardew's *The Great Learning* use repetition within a "people" process (or vice versa). In repetition processes the "unforeseen" may arise (*pace* Feldman) through many different factors, even though the process may, from the point of view of structure, be totally foreseen.

5. Electronic processes

[...] A straightforward example [of an electronic process] is David Behrman's *Runthrough* (1970). This asks only for a particular electronic set-up consisting of generators and modulators with dials and switches and a photocell distributor which three or four people use for improvisation. Behrman writes that "because there is neither a score nor directions, any sound which results from any combination of the switch and light positioning remains part of the 'piece'. (Whatever you do with a surfboard in the surf remains a part of surfboarding.)" [...]

Identity

The identity of a composition is of paramount importance to [avant-garde composers such as] Boulez and Stockhausen, as to all composers of the post-Renaissance tradition. But identity takes on a very different significance for the more open experimental work, where indeterminacy in

performance guarantees that two versions of the same piece will have virtually no perceptible musical "facts" in common. With a score like Cardew's *Treatise* (1963–66) aural recognizability is both impossible and irrelevant since the (non-musical) graphic symbols it contains have no meanings attached to them but "are to be interpreted in the context of their role in the whole". The performer may choose to realize for example, as a circle, some sort of circular sound, movement or gesture; but it is more likely that he will interpret it in a "non-representational" way by a melody, or silence, or counting, or turning off the lights, or tuning in to a radio signal, or whatever. Each performer is invited by the absence of rules to make personal correlations of sight to sound. These will naturally change from one performance to another, whose time scale will be totally different. What price identity here with a score which is in no way a compendium or reduction of all possible realizations? [...]

Difficulties also arise when one tries to explain the most open processes. A description of a particular performance may tell you little of its musical concepts, and a description of the score may tell you too much about possible interpretations to be of any use. With Cage's *Cartridge Music*, Behrman's *Runthrough* or Lucier's *Vespers* the difficulties are less obvious because the type of sound in any one version will be recognizably similar to that of another (though a lot of other aspects will be different). But separate performances of Cage's *Fontana Mix* (1958) or of Cardew's *Treatise* may exhibit no family likenesses. Cage's own tape collage versions (available on record ironically) are only *versions*, momentary isolations or interruptions of an unrestricted process; they in no way constitute the identity of the process called *Fontana Mix* [...]

Time

The attitude towards time expressed by 4'33'' had its origins in the rhythmic structures that Cage worked with in the 1930s and 1940s and it became the basis of all Cage's music which involves the measurement (exact or approximate) of time. This attitude was of such fundamental importance to experimental music that the composer Robert Ashley could state with certainty (in 1961):

Cage's influence on contemporary music, on "musicians" is such that the entire metaphor of music could change to such an extent that—time being uppermost as a definition of music—the ultimate result would be a music that wouldn't necessarily

involve anything but the presence of people ... It seems to me that the most radical redefinition of music that I could think of would be one that defines "music" without reference to sound.

Time may initially be nothing more than a frame to be filled. "Form is the length of programmed time" declared Christian Wolff [...] Needless to say this has nothing to do with partial or incomplete performances: processes are by definition always in motion and can be equally well expressed in two minutes or twenty-four hours. "Beginnings and ends are not points on a line but limits of a piece's material ... which may be touched at any time during the piece. The boundaries of the piece are expressed, not at moments of time which mark a succession, but as margins of a spatial projection of the total sound structure." (Christian Wolff) [...]

One can distinguish a number of methods of releasing time in experimental music. A time frame may be chosen at random and then filled with sounds. Or temporal determinations may be made by some method or other and then measured according to any time units whatsoever, from the shortest possible to the longest possible. For Cage's Atlas Eclipticalis or La Monte Young's Poem (to name but two) "the duration may be anything from no time to any time". The work may last the duration of a natural event or process—the time it takes birthday cake candles to burn out (George Brecht's Candle Piece for Radios) or the time it takes for swung microphones to come to rest (Steve Reich's Pendulum *Music*). Or the duration may be determined simply by the time it takes to work through the given material. In some pieces (such as Reich's Phase Patterns, Gavin Bryars' Jesus' Blood Never Failed Me Yet or Christopher Hobbs' The Remorseless Lamb) the working-through may be similar to that of traditional music but in Paragraphs 2, 6 or 7 of The Great Learning, or in Riley's In C, where each performer moves through at his own speed, the duration of the piece is dependent on the inner workings of the process [...]

As an example of how a "working-through" notation is experienced as time there is the story that Dick Higgins tells of a performance of a piece by George Brecht given by Cage's class at the New School for Social Research around 1958. Each performer had to do two different things once only, and Cage suggested that they should do them in the dark so that they could not tell, visually, when the piece was over. "The result was extraordinary," says Higgins, "both for its own sake and for the extraordinary intensity that appeared in waves, as we wondered whether the piece was over or not, what the next thing to happen would be." Afterwards the performers were asked how long they thought they had been in the dark; guesses ranged from four to twenty-four minutes: the actual duration had been nine minutes. Perhaps this kind of experiential time was what was in Feldman's mind when he spoke of working with "Time in its unstructured existence ... how Time exists before we put our paws on it ... our minds, our imagination, into it."

Performing

Experimental music thus engages the performer at many stages before, above and beyond those at which he is active in traditional Western music. It involves his intelligence, his initiative, his opinions and prejudices, his experience, his taste and his sensibility in a way that no other form of music does, and his contribution to the musical collaboration which the composer initiates is obviously indispensable. For while it may be possible to view some experimental scores only as concepts, they are, self-evidently (specific or general), directives for (specific or general) action. Experimental music has, for the performer, effected the reverse of Duchamp's revolution in the visual arts. Duchamp once said that "the point was to forget *with my hand* … I wanted to put painting once again at the service of my mind." The *head* has always been the guiding principle of Western music, and experimental music has, to produce and experience sounds physiologically.

Tasks

The freedom of action that experimental scores give may be to some extent an illusion [...] People tend to think that since, within the limits set by the composer, anything may happen, the resulting music will therefore be unconsidered, haphazard or careless. The attitude that experimental music breeds amongst its best performers/composers/listeners is not what Cage called "carelessness as to the result" but involvement and responsibility of a kind rarely encountered in other music [...]

The game element

The tasks which the co-ordination processes of Christian Wolff set the

player are of a different order. *For 1, 2, or 3 People* (1964) contains four symbols which mean: (1) play after a previous sound has begun, hold till it stops; (2) start anytime, hold until another sound starts, finish with it; (3) start at the same time (or as soon as you are aware of it) as the next sound, but stop before it does; (4) start anytime, hold until another sound starts, continue holding anytime after that sound has stopped. The fact that notations like these give the players no advance warning led David Behrman to write:

The player's situation might be compared to that of a ping-pong player awaiting his opponent's fast serve: he knows what is coming (the serve) and knows what he must do when it comes (return it); but the details of how and when these take place are determined only at the moment of their occurrence.

Dick Higgins coined the term "Games of Art" in connection with certain forms of experimental music, and Professor Morse Peckham has written:

The role of the game player is to present his opponent, who may be himself, as in solitaire or fishing, with an unpredicted situation which will force him to behave in a particular way; while the player faced with such a situation has as his role the task of rearranging the situation so that the tables are turned. Playing a game involves continuous risk-running. The rules place limits on what may be done, but more importantly, they provide guides to improvisation and innovation. Behaviour is aimed at following rules in predictable situations and interpreting rules in unpredicted ones. Hence, an important ingredient of game playing consists of arguments about how the rules should be interpreted.

Rules and their (subjective) interpretation

Peckham was writing about games in general, but what he has to say is very relevant to the mainly solitaire-type games of experimental music. The composer gives the performer freedoms, which may take him further than the composer may have envisaged: "I think composition is a serious occupation and the onus is on the performer to show the composer some of the implications and consequences of what he has written, even if from time to time it may make him (the composer of course) look ridiculous. What he writes and what you read are two different things." (John Tilbury, 1969) [...]

Just as the interpretation of the rules may be taken out of the composer's hands and become the private concern of the performer, so may the rules

themselves. Some pieces intentionally make explicit the subjectivity which is at the root of a large number of experimental scores. Giuseppe Chiari's instructions for his *Lavoro* (1965) provide a simple example: "All round the performer are many different things placed in the most complete disorder. He arranges them in the proper order. He follows his own idea of what their proper order is" [...]

The instrument as total configuration

[... In experimental music] the use of a musical instrument need not be limited by the boundaries erected by tradition. Experimental music exploits an instrument not simply as a means of making sounds in the accepted fashion, but as a total configuration—the difference between "playing the piano" and the "piano as sound source".

In the past, piano music viewed the keyboard-hammer-string mechanism from the vantage-point of the keyboard alone. (There have been exceptions, of course—Chopin's view of the art of pedalling as a "sort of breathing" and Debussy's desire to "forget that the piano has hammers".) Experimental composers have extended the functions of the basic mechanism. They have brought about alteration of timbre by inserting objects between the strings (Cage's prepared piano) and by applying various electronic treatments of which the simplest is amplification. The piano becomes more than ever before a keyboard-operated percussion instrument. Cage devised the prepared piano as a one-man percussion band and Steve Reich describes his *Phase Patterns* as "literally drumming on the keyboard" [...]

Once you move to the exterior of the piano you find a number of wooden and metal surfaces which can be "played". Again it was Cage who pioneered this with the accompaniment to *The Wonderful Widow of Eighteen Springs* (1942) which is performed by the percussive action of the fingertips and knuckles on the closed keyboard lid. When you have realized that the piano does have an outside then a series of extensions of the concept "piano" become possible. The instrument can be seen as just a large brown, mainly wooden object, on legs with wheels, of a particular shape, having curious mechanical innards and serving as a musical instrument. The inner mechanism may be completely disregarded (Does it then cease to be a piano?—any complex object has a number of uses, most of them only partial) so that the piano can be treated as an object with surfaces to be hit or painted, have things thrown at, left on, hidden in, moved about or fed with hay [as in La Monte Young's *Piano Piece for David Tudor No. 1* (1960)]. (Needless to say it is in no sense a definition of experimental music that pianos should be used in this way—Feldman's keyboard writing, for instance, has always been every bit as "sensitive" and "musical" as Debussy's or Webern's.)

Cardew's *Memories of You* (1964), for piano solo, sums up this new approach to the piano. Its notation consists of a series of immature grand piano outlines on or off which tiny circles are placed. Each circle gives the location of a sound relative to a grand piano: the sound begins and/or ends at that point. Different kinds of circle indicate whether the sounds are to be made at floor level, above floor level or both. It is not specified whether the sounds are to be made on or with the piano, or with other instruments, or whether the sounds should be "musical" or made on or with the environment. Thus the piano becomes a kind of "umbrella" covering a range of sounding activities whose only direct connection with the piano may be the fact that they take place with reference to the "piano space".

Music as silence, action, observations—and sounds

[In experimental music] the performer is not obliged to begin from the traditional starting point of causing sounds to be made and heard by means of a musical instrument. For when [the performer of 4'33''] does not need to make sounds to give a musical performance; when Cage declares "Let the notations refer to what is to be done, not to what is heard, or to be heard" [...]; when Ashley refers to time, not sounds, as the ruling metaphor of music; and when the slow-motion procedure of [Takehisa] Kosugi's Anima 7 could be applied to any action—then we realize that in experimental music sounds no longer have a pre-emptive priority over notsounds. Seeing and hearing no longer need to be considered separately, or be combined into "music theatre" as an art-form separate from, say, instrumental music (as it tends to be with the avant garde). Theatre is all around us, says Cage, and it has always hung around music-if only you let your attention be "distracted" from the sounds: Cage prefers the sight of the horn player emptying out the spit from his instrument to the sounds the orchestra is making; you may prefer to watch Bernstein with the volume control turned down to zero.

Who are the performers?

Understandably, in view of the kind of tasks set, the extraordinary range of

often demanding musical and para-musical skills called upon, experimental music has developed its own breed of performers and tightly knit performing groups-Tudor, Rzewski, Tilbury, Cage, Cardew, [Howard] Skempton, Feldman (even), the Sonic Arts Union and the Scratch Orchestra, to whom experimental music is more than just a "kind of music" to be performed; rather, a permanent creativity, a way of perceiving the world. Significantly Tilbury and (in the earlier part of his career) Tudor in this list are strictly *performers only*; all the others are composers who took up performance—perhaps to protect their scores from the misunderstandings their very openness may encourage, or because they were attracted by the freedoms they allowed, or simply because the most direct way of realizing their performance-proposals was to realize them themselves. And in the same way, some performers, seeing how little work the act of composition may involve, have in turn become composers. The work of Rzewski and the Scratch Orchestra in the late 1960s went a long way towards channelling and releasing the creativity everybody has within them.

Listening

The third component of Cage's compositional "trinity", listening, implies the presence of someone involved in seeing and hearing. But need this be "the audience" as we have come to consider it? For experimental music emphasizes an unprecedented fluidity of composer/performer/listener roles, as it breaks away from the standard sender/carrier/receiver information structure of other forms of Western music.

In experimental music the perceiver's role is more and more appropriated by the performer—not only in scores like Toshi Ichiyanagi's *Sapporo* (1962) which has a sign which tells the player to listen to what other players are doing, or in music like Christian Wolff's which needs a high degree of listening and concentration. Dick Higgins' account of the Brecht performance in the dark at the New School showed that the task (of performing two actions) had become less important for the individual than the perceptual and experiential situation that was brought about. (This does of course leave room for perceiving to be done by any "audience" that may happen to be present.) And if the performer's participation is passive, involving observation rather than action, the work is not invalidated or changed. For Cage at least experimental music is not concerned with "communication" as other music is considered to be. He once said: "We are naïve enough to believe that words are the most efficient form of communication." On another occasion he is reported to have said: "Distinguish between that 'old' music you speak of which has to do with *conceptions* and their *communication*, and this new music, which has to do with *perception* and the arousing of it in us. You don't have to fear from this new music that something is bad about your liking your own music."

A task may have a far greater value for the performer than it has for the audience. Certain tasks may seem hermetically sealed to the listener, self-evident games whose rules are not publicly available, mysterious rites with professionally guarded secrets. For the performer the tasks may be self-absorbing, or of only private significance, so that the question of "projection" is not part of his concern [...]

The tasks of experimental music do not generally depend on, and are not markedly changed by, any response from an audience, although the atmosphere in which these tasks are accomplished may be completely changed by audience response. Experimental music has, if nothing else, at least the virtue of persistence which keeps it going throughout any uncalled-for reactions it quite often provokes. Hostile listeners quite often consider that their protest sounds are just as good as those of the performers; John Tilbury pointed out the difference on one such occasion: that whereas the audience's sounds were uncontrolled, instinctive gutreactions, the performer knew exactly what he was doing, producing his sounds with consideration and control.

What then is the function of the audience in experimental music? Does "listening's a third" in fact leave nothing for the listener to do? Quite the contrary the listener, too, has a far more creative and productive role than he had before. This follows from Cage's rejection of the notion of entertainment as "being done to":

Most people think that when they hear a piece of music, they're not doing anything but that something is being done to them. Now this is not true, and we must arrange our music, we must arrange our art, we must arrange everything, I believe, so that people realize that they themselves are doing it, and not that something is being done to them.

Cage is not giving a mandate for audience participation: he is aiming at the fullest possible engagement of the listener and the testing of his perceptual faculties [...]

Focus

[...] Cage's crucial decentralization of musical and physical space brings music more into line with painting: "Observe that the enjoyment of a modern painting carries one's attention not to a centre of interest but all over the canvas and not following any particular path. Each point on the canvas may be used as a beginning, continuing, or ending of one's observation of it." So that if the listener does not have anything done to him, since the composer has not arranged things so that everything is done for him, the responsibility for how he hears or sees is placed firmly on the functioning of his own perception. The listener should be possessed ideally of an open, free-flowing mind, capable of assimilating in its own way a type of music that does not present a set of finalized, calculated, prefocused, projected musical relationships and meanings. The listener may supply his own meanings if that is what he wants; or he may leave himself open to taking in any eventuality, bearing in mind George Brecht's proviso that any "act of imagination or perception is in itself an arrangement, so there is no avoiding anyone making arrangements". Since the listener may not be provided with the structural signposts (of various shapes and sizes, pointing in various directions) that he is given in other music, everyone has, according to Cage, the opportunity of "structuring the experience differently from anybody else's in the audience. So the less we structure the occasion and the more it is like unstructured daily life, the greater will be the stimulus to the structuring faculty of each person in the audience. 'If we have done nothing then he will have everything to do.' " (My italics)

The musical consequences

[...] Cage:

I would assume that relations would exist between sounds as they would exist between people and that these relationships are more complex than any I would be able to prescribe. So by simply dropping that responsibility of making relationships I don't lose the relationship. I keep the situation in what you might call a natural complexity that can be observed in one way or another.

[...] And this is the effect that processes have in experimental music: they are the most direct and straightforward means of simply setting sounds in motion; they are impersonal and external and so they do not have the effect of organizing sounds and integrating them, of creating relationships of harmony as the controlling faculty of the human mind does. If a composer sets up a process which allows each player to move through the material at his own speed, for example, it is impossible for him to draw things together into some kind of calculated image, a particular effect or pattern of logical connections. Rise and fall, loud and soft, may occur but they occur spontaneously, so that the old (and new) "music of climax" is no longer the prevailing model. For all things are now equal and no one thing is given any priority over any other thing.

Merce Cunningham summed up the implications of this situation where priorities no longer exist, where every item is of equal value, as early as 1952:

Now I can't see that crisis any longer means a climax, unless we are willing to grant that every breath of wind has a climax (which I am), but then that obliterates climax being a surfeit of such. And since our lives, both by nature and by the newspapers, are so full of crisis that one is no longer aware of it, then it is clear that life goes on regardless, and further that each thing can be and is separate from each and every other, viz: the continuity of the newspaper headlines. Climax is for those who are swept by New Year's Eve.

One of the automatic consequences, so it appears, of the musical processes employed by experimental composers, is the effect of flattening out, de-focusing the musical perspective. This flatness may be brought about in a situation ranging from uniformity and minimum change-for example, the music of Steve Reich or John White, which consists of a constant or near-constant band of sound from which inessentials have been removed, to one of maximum change and multiplicity-for instance in Cage or the Scratch Orchestra where no attempt is made to harmonize or make coherent any number of hermetic and self-contained "compartments". (Cage said in 1961: "We know two ways to unfocus attention: symmetry is one of them; the other is the over-all where each small part is a sample of what you find elsewhere. In either case, there is at least the possibility of looking anywhere, not just where someone arranged you should.")

Form thus becomes an assemblage, growth an accumulation of things that have piled-up in the time-space of the piece. (Non- or omnidirectional) *succession* is the ruling procedure as against the (directional) *progression* of other forms of post-Renaissance art music. What the painter Brian O'Doherty wrote of Feldman's music can be seen to apply to the music of other experimental composers: "Sounds do not progress, but merely heap up and accumulate in the same place (like Jasper Johns' numbers). This blurs and obliterates the past, and obliterating it, removes the possibility of a future."

"What is, or seems to be, new in this music?" [asked Christian Wolff in 1958]. One finds a concern for a kind of objectivity, almost anonymity sound come into its own. The "music" is a resultant existing simply in the sounds we hear, given no impulse by expressions of self or personality. It is indifferent in motive, originating in no psychology nor in dramatic intentions, nor in literary or pictorial purposes. For at least some of these composers, then, the final intention is to be free of artistry and taste. But this need not make their work "abstract", for nothing, in the end, is denied. It is simply that personal expression, drama, psychology, and the like are not part of the composer's initial calculation: they are at best gratuitous."

From Michael Nyman, *Experimental Music: Cage and Beyond* (Cambridge: Cambridge University Press, 1999). Used by permission of the author and Nigel Barr Ltd.

Introduction to Themes & Variations

John Cage

The tradition of "experimental music" extends back to Erik Satie, Charles Ives, Edgard Varèse, Henry Cowell, and Harry Partch. Yet John Cage (see also Chapters 5 and 29) is undoubtedly the father of contemporary experimental music. It was Cage who defined experimental music not simply as music containing novel elements but as music that initiates sonic processes the outcomes of which are not known in advance. Cage's ideas and compositional practices remain revolutionary today and are constantly revisited by experimental composers and improvisers. In the following piece (the introduction to a 1982 collection of "mesostic" writings titled Themes & Variations), Cage sums up his aesthetic philosophy and worldview in a series of poetic aphorisms.

Nonintention (the acceptance of silence) leading to nature; renunciation of control; let sounds be sounds.

Each activity is centered in itself, i.e. composition, performance, and listening are different activities.

(Music is) instantaneous and unpredictable; nothing is accomplished by writing, hearing, or playing a piece of music; our ears are now in excellent condition.

A need for poetry.

Joyce: "Comedy is the greatest of arts because the joy of comedy is freest from desire and loathing."

Affirmation of life.

Purposeful purposelessness.

Art = imitation of nature in her manner of operation.

Coexistence of dissimilars; multiplicity; plurality of centers; "Split the stick, and there is Jesus."

Anonymity or selflessness of work (i.e. not self-expression).

A work should include its environment, is always experimental (unknown in advance).

Fluent, pregnant, related, obscure (nature of sound).

Empty mind.

No ideas of order.

No beginning, middle, or end (process, not object).

Unimpededness and interpenetration; no cause and effect.

Indeterminacy.

Opposites = parts of oneness.

To thicken the plot (Ramakrishna); his answer to the question: Why, if God is good, is there evil in the world?

Adventure (newness) necessary to creative action.

If the mind is disciplined (body too), the heart turns quickly from fear towards love (Eckhart).

Anything can follow anything else (providing nothing is taken as the basis).

Influence derives from one's own work (not from outside it).

Chance operations are a useful means; moksha.

Being led by a person, not a book; artha.

Love.

Right and wrong.

Non-measured time.

Process instead of object.

America has a climate for experimentation.

World is one world.

History is the story of original actions.

Move from zero.

All audible phenomena = material for music.

Impossibility of errorless work.

Spring, Summer, Fall, Winter (Creation, Preservation, Destruction, Quiescence).

Possibility of helping by doing nothing.

Music is not music until it is heard.

Music and dance together (and then other togethers).

Men are men; mountains are mountains before studying Zen. While studying Zen, things become confused. After studying Zen, men are men; mountains are mountains. What is the difference between before and after? No difference. Just the feet are a little off the ground (Suzuki).

If structure, rhythmic structure.

Boredom plus attention = becoming interested.

Principle underlying all of the solutions = question we ask.

Activity, not communication.

The nine permanent emotions (the heroic, the mirthful, the wondrous, the erotic; tranquility; sorrow, fear, anger, the odious).

The practicality of changing society derives from the possibility of changing the mind.

The giver of gifts (returning to the village having experienced nomindedness).

Studying being interrupted.

Nothing-in-between.

Object is fact not symbol (no ideas).

Poetry is having nothing to say and saying it; we possess nothing.

Uncertainty of future.

Noises (underdog); changing music and society.

Not working = knowing. Working = not knowing.

Distrust of effectiveness of education.

HCE

It is, is cause for joy.

Earth has no escape from Heaven (Eckhart).

Mobility, immobility.

Highest purpose = no purpose. Vision = no vision. (In accord with nature.)

We are the oldest at having our airway of knowing nowness (Gertrude Stein).

Fluency in and out.

No split between spirit and matter.

Importance of being perplexed. Unpredictability.

Not being interrupted by shadows (by environment).

Theatre is closer to life than art or music.

Devotion.

Enlightened = not enlightened. Learning = learning we're not learning.

Breaking rules.

No use for value judgments.

We are all going in different directions.

Importance of no rules.

Going to extremes (Yuji Takahashi).

Absence of boredom.

Anarchy.

Meaninglessness as ultimate meaning.

Mind can change.

To do more rather than less.

To sober and quiet the mind thus making it susceptible to divine influences.

The means of thinking are exterior to the mind.

Art is criminal action.

Love = leaving space around loved one.

Utilities, not politics (intelligence; problem solving). Anarchy in a place that works.

Not just self- but social-realization.

Unemployment (cf. artists).

Giving up ownership, substituting use.

Whole society (including, e.g. the mad: they speak the truth).

Religious attitude (George Herbert Mead); world consciousness.

More with less.

Music is permanent; only listening is intermittent (Thoreau).

Invention.

Not things, but minds.

Dealing with 1, not 2.

To make a garden empty-minded.

Music = no music.

Inclusive, not exclusive: aperiodic; no vision, etc.

Objective within; going in all directions.

Demilitarization of language (no government).

A music that needs no rehearsal.

Feet on the ground.

To set all well afloat (Thoreau: Yes and No are lies. The only true answer will set all well afloat.).

Art's self-alteration.

Impossibility of repeated actions; loss of memory. To reach these two's a goal (Duchamp).

Complexity of nature; giving up simplicity of soul, vision, etc.

Constellation of ideas (five as a minimum).

Problems of music (vision) only solved when silence (non-vision) is taken as the basis. Giving unto others what they wish to be given, not what you would wish to be given (alteration of the Golden Rule).

Use all solutions; do everything!

Inactivity (the camera).

Goal is not to have a goal.

From John Cage, *Themes & Variations* (Barrytown, NY: Station Hill Press, 1982).
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Generating and Organizing Variety in the Arts

Brian Eno

In the late 1960s and throughout the 1970s, as his successful career in pop music was getting underway, Brian Eno (see also Chapters 13 and 22) was immersed in the British "experimental music" scene. He performed in Cornelius Cardew's Scratch Orchestra and Gavin Bryars' Portsmouth Sinfonia – experimental orchestras that welcomed amateur musicians. In 1975, Eno founded Obscure Records, a label dedicated to the dissemination of experimental music by composers such as Bryars, Christopher Hobbs, David Toop, Max Eastley, John Adams, Michael Nyman, Harold Budd, and others. In its first year, Obscure issued Eno's own experimental work, Discreet Music, which explored his interest in selfgenerating and self-regulating systems. In the following essay, written in 1976, Eno draws on cybernetic theory and evolutionary biology to contrast experimental composition and performance with its classical antecedents.

A musical score is a statement about organization; it is a set of devices for organizing behavior toward producing sounds. That this observation was not so evident in classical composition indicates that organization was not then an important focus of compositional attention. Instead, the organizational unit (be it the orchestra or the string quartet or the relationship of a man to a piano) remained fairly static for two centuries while compositional attention was directed at using these given units to generate specific results by supplying them with specific instructions.

In order to give more point to the examination of experimental music that follows, I should like to detail some of the aspects and implications of the paradigm of classical organization—the orchestra. A traditional orchestra is a ranked pyramidal hierarchy of the same kind as the armies that existed contemporary to it. The hierarchy of rank is in this pattern: conductor, leader of the orchestra; section principals; section subprincipals, and, finally, rank-and-file members. Occasionally a soloist will join the upper echelons of this system; and it is implied, of course, that the composer with his intentions and aspirations has absolute, albeit temporary, control over the whole structure and its behavior. This ranking, as does military ranking, reflects varying degrees of responsibility; conversely, it reflects varying degrees of constraint on behavior. Ranking has another effect: like perspective in painting, it creates "focus" and "point of view." A listener is given the impression that there are a foreground and a background to the music and cannot fail to notice that most of the "high-responsibility" events take place in the foreground, to which the background is an ambience or counterpoint.¹ This is to say that the number of perceptual positions available to the listener is likely to be limited. The third observation I should like to make about the ranking system in the orchestra is this: it predicates the use of trained musicians. A trained musician is, at the minimum, one who will produce a predictable sound given a specific instruction. His training teaches him to be capable of operating precisely like all the other members of his rank. It trains him, in fact, to subdue some of his own natural variety and thus to increase his reliability (predictability).

I shall be using the term *variety* frequently in this essay and I should like to attempt some definition of it now. It is a term taken from cybernetics (the science of organization) and it was originated by W. R. Ashby.² The variety of a system is the total range of its outputs, its total range of behavior. All organic systems are probabilistic: they exhibit variety, and an organism's flexibility (its adaptability) is a function of the amount of variety that it can generate. Evolutionary adaptation is a result of the interaction of this probabilistic process with the demands of the environment. By producing a range of outputs evolution copes with a *range* of possible futures. The environment in this case is a *variety-reducer* because it "selects" certain strains by allowing them to survive and reproduce, and filters out others. But, just as it is evident that an organism will (by its material nature) and must (for its survival) generate variety, it is also true that this variety must not be unlimited. That is to say, we require for successful evolution the transmission of *identity* as well as the transmission of *mutation*. Or conversely, in a transmission of evolutionary information, what is important is not only that you get it right but also that you get it slightly wrong, and that the deviations or mutations that are useful can be encouraged and reinforced.

My contention is that a primary focus of experimental music has been toward its own organization, and toward its own capacity to produce and control variety, and to assimilate "natural variety"—the "interference value" of the environment. Experimental music, unlike classical (or avantgarde) music, does not typically offer instructions toward highly specific results, and hence does not normally specify wholly repeatable configurations of sound. It is this lack of interest in the *precise* nature of the piece that has led to the (I think) misleading description of this kind of music as *indeterminate*. I hope to show that an experimental composition aims to set in motion a system or organism that will generate unique (that is, not necessarily repeatable) outputs, but that, at the same time, seeks to limit the range of these outputs. This is a tendency toward a "class of goals" rather than a particular goal, and it is distinct from the "goalless behavior" (indeterminacy) idea that gained currency in the 1960s.

I should like to deal at length with a particular piece of experimental music that exemplifies this shift in orientation. The piece is Paragraph 7 of *The Great Learning*³ by Cornelius Cardew, and I have chosen this not only because it is a compendium of organizational techniques but also because it is available on record.⁴ [...] I should point out that implicit in the score is the idea that it may be performed by *any* group of people (whether or not trained to sing). The version available on record is performed by a mixed group of musicians and art students, and my experience of the piece is based on four performances of it in which I have taken part.

Cardew's score is very simple. It is written for any group of performers (it does not require trained singers). There is a piece of text (from Confucius) which is divided into 24 separate short phrases, each of one to three words in length. Beside each phrase is a number, which specifies the number of repetitions for that line, and then another number telling you how many times that line should be sung loudly. The singing is mostly soft.

All singers use exactly the same set of instructions. They are asked to sing each line of the text the given number of times, each time for the length of a breath, and on one note. The singers start together at a signal, and each singer chooses a note for the first line randomly, staying on it until the completion of the repetitions of the line.

The singer then moves on to the next line, choosing a new note. The choice of this note is the important thing. The score says: "Choose a note that you can hear being sung by a colleague. If there is no note, or only the note you have just been singing, or only notes that you are unable to sing, choose your note for the next line freely. Do not sing the same note on two consecutive lines. Each singer progresses through the text at his own speed."

A cursory examination of the score will probably create the impression that the piece would differ radically from one performance to another, because the score appears to supply very few *precise* (that is, quantifiable) constraints on the nature of each performer's behavior, and because the performers themselves (being of variable ability) are not "reliable" in the sense that a group of trained musicians might be. The fact that this does not happen is of considerable interest, because it suggests that *somehow a set of controls that are not stipulated in the score arise in performance* and that these "automatic" controls are the real determinants of the nature of the piece.

In order to indicate that this proposition is not illusory, I now offer a description of how the piece might develop if *only* the scored instructions affected its outcome. I hope that by doing this I shall be able to isolate a difference between this hypothetical performance and a real performance of the piece and that this difference will offer clues as to the nature of the "automatic" controls.

Hypothetical performance. The piece begins with a rich sustained discord ("choose any note for your first note"). As the point at which singers move onto their next line and next note is governed by individual breath lengths ("sing each line for the length of a breath"), it is probable that they will be changing notes at different times. Their choice of note is affected by three instructions: "do not sing the same note on two consecutive lines," "sing a note that you can hear," and, if for some reason neither of these instructions can be observed, "choose your next note freely." Now, let's propose that there are twenty singers, and that by some chance they have all chosen different first notes. Presumably one of them reaches the end of his first line before any other singer. As he cannot repeat his own previous note, he has an absolute maximum of nineteen notes to choose from for his "next note." He chooses one, and reduces the "stock" of notes available to nineteen. The next singer to change has a choice of eighteen notes. By a continuation of this procedure, one would expect a gradual reduction of different notes in the piece until such time as there were too few notes available for the piece to continue without the arbitrary introduction of new notes in accordance with the third of the three pitch instructions. With a larger number of singers this process of reduction might well last throughout the piece. So, in this hypothetical performance, the overall shape of the piece would consist of a large stock of random notes thinning down to a small, even, occasionally replenished

stock of equally random notes (as they are either what is left of the initial stock or the random additions to it).

Real performance. The piece begins with the same rich discord and rapidly (that is, before the end of the first line is reached) thins itself down to a complex but not notably dissonant chord. Soon after this, it "settles" at a particular level of variety that is much higher than that in the hypothetical performance and that tends to revolve more or less harmonically around a drone note. This level of variety is fairly closely maintained throughout the rest of the piece. It is rare that performers need to resort to the "choose your next note freely" instruction, and, except in the case of small numbers of singers, this instruction appears to be redundant.⁵ This is because new notes are always being introduced into the piece regardless of any intention on the part of individual performers to do so. And this observation points up the presence of a set of "accidents" that are at work to replenish the stock of notes in the piece. The first of these has to do with the "unreliability" of a mixed group of singers. At one extreme it is quite feasible that a tone-deaf singer would hear a note and, following the primary pitch instruction to "sing any note that you can hear," would, "match" it with a new note. Another singer might unconsciously transpose a note into an octave in which it is easier for him to sing, or might sing a note that is harmonically a close relative (a third or a fifth) to it. A purely external physical event will also tend to introduce new notes: the phenomenon of beat frequency. A *beat frequency* is a new note formed when two notes close to each other in pitch are sounded. It is mathematically and not harmonically related to them. These are three of the ways by which new material is introduced.

Apart from the "variety-reducing" clauses in the score ("sing a note that you can hear," "do not sing the same note on two consecutive lines"), some others arise in performance. One of these has to do with the acoustic nature of the room in which the performance is taking place. If it is a large room (and most rooms that can accommodate performances on the scale on which this piece normally occurs are large), then it is likely to have a *resonant frequency*. This is defined as the pitch at which an enclosure resonates, and what it means in practice is this: a note sounded at a given amplitude in a room whose resonant frequency corresponds to the frequency of the note will *sound louder* than any other note at the same amplitude. Given a situation, then, where a number of notes are being sounded at fairly even amplitude, whichever one corresponds to the
resonant frequency of the room will sound louder than any of the others. In Paragraph 7 this fact creates a statistical probability that the piece will drift toward being centered on an environmentally determined note. This may be the drone note to which I alluded earlier.

Another important variety reducer is preference ("taste"). Because performers are often in a position to choose between a fairly wide selection of notes, their own cultural histories and predilections will be an important factor in which "strains" of the stock they choose to reinforce (and, by implication, which they choose to filter out). This has another aspect; it is extremely difficult unless you are tone deaf (or a trained singer) to maintain a note that is very discordant with its surroundings. You generally adjust the note almost involuntarily so that it forms some harmonic relationship to its surroundings. This helps explain why the first dissonant chord rapidly thins out.

In summary, then, the generation, distribution, and control of notes within this piece are governed by the following: one specific instruction ("do not sing the same note on two consecutive lines"), one general instruction ("sing any note that you can hear"), two physiological factors (tone-deafness and transposition), two physical factors (beat frequencies and resonant frequency), and the cultural factor of "preference." Of course, there are other parameters of the piece (particularly amplitude) that are similarly controlled and submit to the same techniques of analysis, and the "breathing" aspects of the piece might well give rise to its most important characteristic—its meditative calm and tranquillity. But what I have mentioned above should be sufficient to indicate that something quite different from classical compositional technique is taking place: the composer, instead of ignoring or subduing the variety generated in performance, has constructed the piece so that this variety is really the substance of the music.

Perhaps the most concise description of this kind of composition, which characterizes much experimental music, is offered in a statement made by the cybernetician Stafford Beer. He writes: "Instead of trying to specify it in full detail, you specify it only somewhat. You then ride on the dynamics of the system in the direction you want to go."⁶ In the case of the Cardew piece, the "dynamics of the system" is its interaction with the environmental, physiological, and cultural climate surrounding its performance.

The English composer Michael Parsons provides another view on this

kind of composition:

The idea of one and the same activity being done simultaneously by a number of people, so that everyone does it slightly differently, "unity" becoming "multiplicity," gives one a very economical form of notation—it is only necessary to specify one procedure and the variety comes from the way everyone does it differently. This is an example of making use of "hidden resources" in the sense of natural individual differences (rather than talents or abilities) which is completely neglected in classical concert music, though not in folk music.⁷

This movement toward using natural variety as a compositional device is exemplified in a piece by Michael Nyman called *1-100* (Obscure 6). In this piece, four pianists each play the same sequence of one hundred chords descending slowly down the keyboard. A player is instructed to move on to his next chord only when he can no longer hear his last. As this judgment is dependent on a number of variables (how loud the chord was played, how good the hearing of the player is, what the piano is like, the point at which you decide that the chord is no longer audible), the four players rapidly fall out of sync with one another. What happens after this is that unique and delicate clusters of up to four different chords are formed, or rapid sequences of chords are followed by long silences. This is an elegant use of the compositional technique that Parsons has specified, not least because it, like the Cardew piece, is extremely beautiful to listen to a factor that seems to carry little critical weight at present.

Composition of this kind tends to create a perceptual shift in a listener as major as (and concomitant with) the compositional shift. It is interesting that on recordings, these two pieces both have "fade" endings (the Cardew piece also has a fade beginning), as this implies not that the piece has finished but that it is *continuing out of earshot*. It is only rock music that has really utilized the compositional value of the fade-out: these pieces use it as a convenience in the sense that both were too long for a side of a record. But a fade-out is quite in keeping with the general quality of the pieces and indicates an important characteristic that they share with other experimental music: that the music is a section from a hypothetical continuum and that it is not especially directional: it does not exhibit strong "progress" from one point (position, theme, statement, argument) to a resolution. To test the validity of this assumption, imagine a fade-out ending halfway through Beethoven's Ninth Symphony. Much of the energy of classical music arises from its movement from one musical idea to another—the theme and variation idea—and this movement is directional in the sense that the history and probable futures of the piece have a bearing on the perception of what one is hearing at the present.

Experimental music, however, has become concerned with the simultaneous permutation of a limited number of elements at a moment in time as well as the relations between a number of points in time. I think also that it has tended to reduce the time-spans over which compositional ideas are developed; and this has led to the use of cyclic forms such as that in Gavin Bryars' *Jesus' Blood Never Failed Me Yet.* (It is interesting that this piece, Paragraph 7, and *1-100* are all based on "found material"; and in each case the focus of the composer's attention is toward *reorganizing* given material. There is a special compositional liberty in this situation.)

I do not wish to subscribe to the view that the history of art is a series of dramatic revolutions where one idea overthrows another. I have made some distinctions between classical and experimental compositional techniques, and between the perceptual modes that each encourages in a listener, but I do not wish to propose that the development from one to the other is a simple upward progression. I have ascribed characteristics to these two musics as though they were mutually exclusive, when virtually any example will show that aspects of *each* orientation exist in any piece. What I am arguing for is a view of musical development as a process of generating new hybrids. To give an example: one might propose a "scale of orientations" where, on the right hand, one placed the label "Tending to subdue variety in performance" and, on the left, "Tending to encourage variety in performance." It would be very difficult to find pieces that occupied the extreme polarities of this scale, and yet it is not difficult to locate distinct pieces at points along the scale. A classical sonata, if only by virtue of the shortcomings of musical notation, allows some variety in performance.⁸ On the other (left) hand, the most random of *random music* (whatever that term meant) is constrained in its range by all sorts of factors down to the straightforward laws of physics. So we might place the Cardew piece toward the left, but not as far left as, say, a free-jazz improvisation. A scale of this kind does not tell us much about the music that we place on it, but its function is to remind us to think in terms of hybrids rather than discontinuities.

Given the above reservation about polarizing musical ideas into opposing camps, I should now like to describe two organizational structures. My point is not that classical music is one and contemporary music the other, but that each is a group of hybrids tending toward one of the two structures. At one extreme, then, is this type of organization: a rigidly ranked, skill-oriented structure moving sequentially through an environment assumed to be passive (static) toward a resolution already defined and specified. This type of organization regards the environment (and its variety) as a set of emergencies and seeks to neutralize or disregard this variety. An observer is encouraged (both by his knowledge of the ranking system and by the differing degrees of freedom accorded to the various parts of the organization) to direct his attention at the upper echelons of the ranks. He is given an impression of a hierarchy of value. The organization has the feel of a well-functioning machine: it operates accurately and predictably for one class of tasks but it is not adaptive. It is not self-stabilizing and does not easily assimilate change or novel environmental conditions. Furthermore, it requires a particular type of instruction in order to operate. In cybernetics this kind of instruction is known as an algorithm. Stafford Beer's definition of the term is "a comprehensive set of instructions for reaching a known goal;" so the prescription "turn left at the lights and walk twenty yards" is an algorithm, as is the prescription "play a C-sharp for a quaver followed by an E for a semiquaver."⁹ It must be evident that such specific strategies can be devised only when a precise concept of form (or identity, or goal, or direction) already exists, and when it is taken for granted that this concept is static and singular.

Proposing an organizational structure opposite to the one described above is valueless because we would probably not accord it the name *organization:* whatever the term does connote, it must include some idea of constraint and some idea of identity. So what I shall now describe is the type of organization that typifies certain organic systems and whose most important characteristics hinge on this fact: that changing environments require adaptive organisms. Now, the relationship between an organism and its environment is a sophisticated and complex one, and this is not the place to deal with it. Suffice it to say, however, that an adaptive organism is one that contains built-in mechanisms for monitoring (and adjusting) its own behavior in relation to the alterations in its surroundings. This type of organism must be capable of operating from a different type of instruction, as the real coordinates of the surroundings are either too complex to specify, or are changing so unpredictably that no particular strategy (or specific plan for a particular future) is useful. The kind of instruction that is necessary here is known as an *heuristic*, and is defined as "a set of instructions for searching out an unknown goal by exploration, which continuously or repeatedly evaluates progress according to some known criterion."¹⁰ To use Beer's example: if you wish to tell someone how to reach the top of a mountain that is shrouded in mist, the heuristic "keep going up" will get him there. An organism operating in this way must have something more than a centralized control structure. It must have a responsive network of subsystems capable of autonomous behavior, and it must regard the irregularities of the environment as a set of opportunities around which it will shape and adjust its own identity.

What I have tried to suggest in this essay is a technique for discussing contemporary music in terms of its functioning. I have concentrated primarily on one piece of music because I wanted to show this technique at work on one specific problem and because I feel that the technique can thereafter quite easily be generalized to deal with other activities. I do not wish to limit the scope of this approach to music, although because music is a social art that therefore generates some explicit organizational information, it lends itself readily to such analysis. I have in the past discussed not only the fine arts but also, for example, the evolution of contemporary sporting practices and the transition from traditional to modern military tactics by asking the same kinds of questions directed at the organizational level of the activities. It does not surprise me that, at the systems level, these apparently disparate evolutions are very accurate analogues for each other.

In this book *Man's Rage for Chaos* Morse Peckham writes: "Art is the exposure to the tensions and problems of the false world such that man may endure exposing himself to the tensions and problems of the real world."¹¹ As the variety of the environment magnifies in both time and space and as the structures that were thought to describe the operation of the world become progressively more unworkable, other concepts of organization must become current. These concepts will base themselves on the assumption of change rather than stasis and on the assumption of probability rather than certainty. I believe that contemporary art is giving us the feel for this outlook.

Notes

1 This ranking is most highly developed in classical Indian music, where the

tamboura plays a drone role for the sitar. I think it no coincidence that Indian society reflected the same sharp definition of roles in its caste system.

- 2 W. Ross Ashby, *An Introduction to Cybernetics* (1956; reprint ed., London: University Paperbacks, 1964).
- 3 Each paragraph corresponds to one in the Confucian classic of the same title.
- 4 [Released on CD as Cornelius Cardew and the Scratch Orchestra, *The Great Learning*, Organ of Corti 21—Eds.]
- 5 A number of the score instructions seem redundant; all of those concerning the leader, for example, make almost no difference to the music.
- 6 Stafford Beer, *Brain of the Firm: The Managerial Cybernetics of Organization* (London: Allen Lane, 1972), 69.
- 7 Michael Parsons, quoted in Michael Nyman, *Experimental Music: Cage and Beyond* (see Chapter 35, above).
- 8 It is interesting to observe that the sound of a string orchestra results from minute variations of tuning, vibrato, and timbre. This is why electronic simulations of strings have not been notably successful.
- 9 Beer, Brain of the Firm, 305.
- 10 Beer, Brain of the Firm, 306.
- 11 Morse Peckham, *Man's Rage for Chaos* (New York: Schocken Books, 1967), 314.
- * From *Studio International* (Nov./Dec. 1976). Used by permission of the author.

A Scratch Orchestra: Draft Constitution

Cornelius Cardew

Cornelius Cardew was a central figure in British vanguard music during the 1960s and 1970s. From 1958 to 1960, he worked as an assistant to Karlheinz Stockhausen and György Ligeti at the newly established Studio for Electronic Music in Cologne. While in Cologne, Cardew witnessed a set of concerts by John *Cage and David Tudor that deeply affected him, leading him to view the European* avant-garde tradition as elitist and moribund. (Cardew later wrote a polemical book titled Stockhausen Serves Imperialism.) He abandoned serial composition and turned to indeterminate and experimental approaches. In 1965, Cardew joined the free improvising collective AMM, for which he wrote his massive graphic score Treatise (1963–1967). In 1969, Cardew founded the Scratch Orchestra, a large, experimental musical ensemble composed of musicians and non-musicians. A few vears later, he came to see even the Scratch Orchestra as too musically insular and elitist. He began composing in a romantic, populist folk style and later joined the political rock band People's Liberation Music. Cardew's life was cut short in 1981 when he was killed by a hit-and-run driver. In the following piece, he defines the term "Scratch Orchestra" and describes its experimental procedures.

Definition: A Scratch Orchestra is a large number of enthusiasts pooling their resources (not primarily material resources) and assembling for action (music-making, performance, edification).

Note: The word music and its derivatives are here not understood to refer exclusively to sound and related phenomena (hearing, etc.). What they do refer to is flexible and depends entirely on the members of the Scratch Orchestra.

The Scratch Orchestra intends to function in the public sphere, and this function will be expressed in the form of—for lack of a better word—concerts. In rotation (starting with the youngest) each member will have the option of designing a concert. If the option is taken up, all details of that concert are in the hands of that person or his delegates; if the option is waived the details of the concert will be determined by random methods, or by voting (a vote determines which of these two). The material of these

concerts may be drawn, in part or wholly, from the basic repertory categories outlined below.

1. Scratch music

Each member of the orchestra provides himself with a notebook (or Scratchbook) in which he notates a number of accompaniments, performable continuously for indefinite periods. The number of accompaniments in each book should be equal to or greater than the current number of members of the orchestra. An accompaniment is defined as music that allows a solo (in the event of one occurring) to be appreciated as such. The notation may be accomplished using any means -verbal, graphic, musical, collage, etc.-and should be regarded as a period of training: never notate more than one accompaniment in a day. If many ideas arise on one day they may all be incorporated in one accompaniment. The last accompaniment in the list has the status of a solo and if used should only be used as such. On the addition of further items, what was previously a solo is relegated to the status of an accompaniment, so that at any time each player has only one solo and that his most recent. The sole differentiation between a solo and an accompaniment is in the mode of playing.

The performance of this music can be entitled *Scratch Overture*, *Scratch Interlude* or *Scratch Finale* depending on its position in the concert.

2. Popular classics

Only such works as are familiar to several members are eligible for this category. Particles of the selected works will be gathered in Appendix 1. A particle could be: a page of score, a page or more of the part for one instrument or voice, a page of an arrangement, a thematic analysis, a gramophone record, etc.

The technique of performance is as follows: a qualified member plays the given particle, while the remaining players join in as best they can, playing along, contributing whatever they can recall of the work in question, filling the gaps of memory with improvised variational material.

As is appropriate to the classics, avoid losing touch with the reading player (who may terminate the piece at his discretion), and strive to act concertedly rather than independently. These works should be programmed under their original titles.

3. Improvisation rites

A selection of the rites in *Nature Study Notes* will be available in Appendix 2. Members should constantly bear in mind the possibility of contributing new rites. An improvisation rite is not a musical composition; it does not attempt to influence the music that will be played; at most it may establish a community of feeling, or a communal starting-point, through ritual. Any suggested rite will be given a trial run and thereafter left to look after itself. Successful rites may well take on aspects of folklore, acquire nicknames, etc.

Free improvisation may also be indulged in from time to time.

4. Compositions

Appendix 3 will contain a list of compositions performable by the orchestra. Any composition submitted by a Member of the orchestra will be given a trial run in which all terms of the composition will be adhered to as closely as possible. Unless emphatically rejected, such compositions will probably remain as compositions in Appendix 3. If such a composition is repeatedly acclaimed it may qualify for inclusion in the Popular Classics, where it would be represented by a particle only, and adherence to the original terms of the composition would be waived.

5. Research project

A fifth repertory category may be evolved through the Research Project, an activity obligatory for all the members of the Scratch Orchestra, to ensure its cultural expansion.

The research project. The universe is regarded from the viewpoint of travel. This means that an infinite number of research vectors are regarded as hypothetically travellable. Travels may be undertaken in many dimensions, e.g. temporal, spatial, intellectual, spiritual, emotional. I imagine any vector will be found to impinge on all these dimensions at some point or other. For instance, if your research vector is the *Tiger*, you could be involved in time (since the tiger represents an evolving species), space (a trip to the zoo), intellect (the tiger's biology), spirit (the symbolic values acquired by the tiger) and emotion (your subjective relation to the

animal).

The above is an intellectual structure, so for a start let's make the research vector a word or group of words rather than an object or an impression etc. A record of research is kept in the Scratchbook and this record may be made available to all.

From time to time a journey will be proposed (Journey to Mars, Journey to the Court of Wu Ti, Journey to the Unconscious, Journey to West Ham, etc.). A discussion will suffice to provide a rough itinerary (e.g. embarkation at Cape Kennedy, type of vehicle to be used, number of hours in space, choice of a landing site, return to earth or not, etc.).

Members whose vectors are relevant to this journey can pursue the relevance and consider the musical application of their research; members whose vectors are irrelevant (research on rocket fuels won't help with a journey to the Court of Wu Ti) can put themselves at the disposal of the others for the musical realization of their research.

A date can be fixed for the journey, which will take the form of a performance.

Conduct of research. Research should be through direct experience rather than academic; neglect no channels. The aim is: by direct contact, imagination, identification and study to get as close as possible to the object of your research. Avoid the mechanical accumulation of data; be constantly awake to the possibility of inventing new research techniques. The record in the Scratchbook should be a record of your activity rather than an accumulation of data. That means: the results of your research are in you, not in the book.

the sun (like Mao Tse-Tung). Sought an astrological link

ExampleResearchResearch recordvector29.vi. Looked up astronomical data in EB & made notes to the
accpt of dustmotes (symbol of EB) and sunbeams1-28.viii. Holiday in the Bahamas to expose myself to the sun
29.vii. Saw 'the sun' as a collection of six letters and wrote out
the 720 combinations of them.1.viii. Got interested in sun's m. or f. gender in different
languages, and thence to historical personages regarded as

between them

Astrology 3.viii. Had my horoscope case by Mme Jonesky of Gee's court. etc.

(Note that several vectors can run together)

(The facing page should be left blank for notes on eventual musical realizations)

Spare time activity for orchestra members: each member should work on the construction of a unique mechanical, musical, electronic or other instrument.

APPENDICES

Appendix 1 Popular classics

Beethoven, Pastoral Symphony
Mozart Eine Kleine Nachtmusik
Rachmananinov, Second Piano Concerto
J. S. Bach, Sheep may safely graze
Cage, Piano Concert
Brahms, Requiem
Schoenberg, Pierrot Lunaire
etc.

(Blank pages for additions)

Appendix 2 *Improvisation rites from the book 'Nature Study Notes'* (two examples must suffice)

1. Initiation of the pulse

Continuation of the pulse

Deviation by means of accentuation, decoration, contradiction

— HOWARD SKEMPTON

14. All seated loosely in a circle, each player shall write or draw on each of the ten fingernails of the player on his left.

No action or sound is to be made by a player after his fingernails have received this writing or drawing, other than music.

Closing rite: each player shall erase the marks from the fingernails of another player. Your participation in the music ceases when the marks have been erased from your fingernails. (Groups of two or more late-comers may use the same rite to join in an improvisation that is already in progress.)

(Blank pages for additions)

- RICHARD REASON

Appendix 3 *List* of *compositions* La Monte Young, *Poem* Von Biel, *World II* Terry Riley, *In C* Christopher Hobbs, *Voicepiece* Stockhausen, *Aus den Sieben Tagen* Wolff, *Play* Cage, *Variations V1* etc. (Blank pages for additions)

Appendix 4 *Special projects and supplementary material* (Blank pages)

[...]

From *Scratch Music*, ed. Cornelius Cardew (London: Latimer New Dimensions, 1972). Used by permission of Horace Cardew, <u>www.dannydarkrecords.co.uk</u>

The Generation Game: Experimental Music and Digital Culture

David Toop

David Toop (see also Chapter 61) is among the most innovative and wide-ranging writers on contemporary music. His pioneering book on hiphop, Rap Attack, first appeared in 1984. A decade later, Toop published Ocean of Sound (1995), a poetic survey of contemporary musical life from Debussy through ambient, techno, and drum 'n' bass. Since then, Toop has written books on a wide range of marginal musics, most recently a two-volume history of free improvisation. Toop has also been an important presence on the British experimental and improvised music scene. With sound artist Max Eastley, he recorded New and Rediscovered Musical Instruments for Brian Eno's Obscure label in 1975. He has released a number of solo albums and collaborated with an extraordinary variety of musicians, among them John Zorn, Evan Parker, Derek Bailey, Scanner, Flying Lizards, Prince Far-I, Miya Masaoka, and others. In 2001, Toop curated Sonic Boom, the UK's largest-ever exhibition of sound art; in 2002, he curated the double-CD set Not Necessarily English Music: A Collection of Experimental Music from Great Britain, 1960–1977. In this chapter, Toop reveals how that the Internet and digital technology have contributed to a renewal of experimental musical activity.

In 1986, Jae-eun Choi, a Korean artist and film maker, initiated a series of experiments that she calls the World Underground Project. She buried sheets of Japanese paper in the soil of 11 locations around the world. The first pieces were excavated from the site in Kyong-Ju, Korea, after four years. Others, including those buried at sites in Kenya, France and Italy, were still underground in 1998. Japanese paper begins with a strong character, before a single mark is made on, or into its surface. The absorbency and texture encourages accident and generates unpredictability. Those sheets that were excavated had been transformed by the years of their interment into gorgeous maps of organic growth [...]

Now think about Japanese paper in relation to compact discs. Unless the silver disc malfunctions or aborts, the promise of this carrier is to remain true to an original state throughout its so-called life. False optimism, no

doubt, but aside from the occasions when they go drastically wrong, CDs don't exhibit the slight variations in playback sound and gradual deteriorations and fluctuations that characterise vinyl and tape. A CD is more or less a dead thing, or seems that way until it really dies.

At the polar opposite of that inertia is Christian Marclay's *Record Without A Cover*. Marclay's instruction in how to initiate the process of *Record Without A Cover* was embossed on the surface of the vinyl: "Do not store in a protective package." I've had mine since the mid-80s. Two years ago I used to lay it on a pile of 12" singles by the window. Heat absorbent black vinyl, it made an attractively warm bullseye on which our cat would sit and gaze out of the window at birds in the cherry tree. A lot of unmentionable stuff got embedded into the grooves through that particular example of functionality, and when she was out trying to catch those birds, sunshine warped the disc into a picturesque wave. And then there's the dust, collecting on the record, as a record of my ambivalent attitude to order.

Just from a simple instruction, a supposedly 'final' artefact is transformed into an ongoing musical piece that the initiator cannot control. Like an awful lot of music enthusiasts, in my own house I'm vanishing into a vast housing estate of miniature tower blocks built from CDs. The more oppressive this static, one-sided arrangement seems to become, the more I'm interested in the idea of a music that can generate itself over time, giving itself up to the user in the way that Jae-eun Choi's Japanese paper surrenders to a colony of micro-organisms under the earth [...]

An email from Richard Ross, programmer for Markus Popp's Oval Process, asks me a question: "I was wondering what constituted generative music, and were computers necessary? I came to the conclusion," he writes from California, "that if you dispensed with computers as a component of it, then things like windchimes and Aeolian harps might arguably fall into that camp. Other possibilities might be Cage's *Imaginary Landscape No. 4* as a live performance. If generative music is music created on the fly, by some kind of rule-based system, then these things follow very loose sort of rules, but rules none the less."

In issue five of *Musics* magazine, published in 1976, sound sculptor Max Eastley wrote a short history of Aeolian harps, including the story of St. Dunstan, who narrowly avoided incineration at the stake in the Middle Ages for the suspiciously demonic crime of making a harp that played by itself. Eastley also related the interesting case of Ichabod Angus Mackenzie, a sculptor and musician who produced 53 wind sound sculptures in 1934. "During an interview he was asked if it disturbed him to leave his instruments performing alone without a human audience," Eastley wrote. "He replied, 'That's up to humans. They're never without an audience.'"

This raises some of the core issues challenged by twentieth-century music, and twentieth-century thought in general: the relationship of the composer to the audience, for example, or the use of chance and accident in the creation of music; the construction of feedback systems or selfgenerating and adaptive mechanisms that shape sound; the exertion or abdication of control of a musical result; the modelling of music based on ecosystems and similar complex environments and the setting in motion of events that question the definition of music as a cultural production distinguished from noise or unorganised sound by human agency and intentionality.

In the twenty-first century, such ideas have been expanded dramatically by the evolution of the Internet, itself a self-propagating Web lacking any central control. *Sound Drifting* was a large scale generative sound installation curated by Colin Fallows and Heidi Grundmann for the Ars Electronica 99 festival. A web of sub-projects, sourced from six different countries, could be heard simultaneously and continuously, either onsite in Linz, Austria, online as a virtual installation and on air via Austrian National Radio [...]

"More recently," the introduction to *Sound Drifting* explained, "there has been a growing interest in generative systems by artists working with the Internet, especially using sound, but increasingly with the appropriation of games software, search engines and so forth. Some of this work is highly critical of the ubiquity and unseemly power of generative systems in modern decision making. But the most conspicuous cultural use of generative systems has been in the field of music—which means that the word 'generative,' when used in relation to sound, usually causes people to think of music. However, although some music drifted in, *Sound Drifting* was not about 'music'—nor was it conceived as a concert hall, showcase or gallery space for the works of individual artists. *Sound Drifting* was about networking, communication and collaboration; about control-sharing between artists, users and machines; about letting go of one's own art and making ecological use of existing things; about listening to the world without adding to it; about the different concepts of duration

and evolving processes at work in the material and immaterial realities of which we are part; about the aesthetics of different but connectable sounds, images, texts appearing on line—on air—on site as fugitive interfaces to a complex, invisible and not yet properly understood system of data processing."

In March [2001], Brian Eno gave a lecture at the ICA in London, linking his ideas on generative music with the model of John Conway's Game of Life. Conway, a Cambridge mathematician, invented Life as a cellular automaton, a game regulated by three logical rules: (1) Every counter with two or three neighboring counters survives to the next generation (i.e., the next move). (2) Every counter with zero or one neighbors 'dies' (of loneliness), and every counter with four or more neighbors dies (of overcrowding). (3) Every empty cell with exactly three neighboring occupied cells gives birth to a new counter. "With these simple rules of birth, survival and death," Paul Davies wrote in *God and the New Physics*, "Conway and his colleagues have discovered the most astonishing richness and variety in the evolution of certain counter configurations." In other words, out of a set of very basic conditions, or limitations, surprising events will emerge.

A week after his lecture, sitting in a patch of sunlight outside his studio, speaking on his mobile, Brian Eno talks about connections between that proposition, developed from ideas investigated by mathematicians such as John Von Neumann and Stanislas Ulam, and the compositions that first sparked his interest in generative music. "I think the Steve Reich pieces and Terry Riley's *In C*," he says. "I would call those the predecessors of this. I would say anything where the composer doesn't specify a thing from the top down. What I think is different about generative music is that instead of giving a set of detailed instructions about how to make something, what you do instead is give a set of conditions by which something will come into existence."

The Steve Reich pieces he refers to are the early voice works for tape— *It's Gonna Rain* and *Come Out*—both of which explore the strange accretion of phenomena that occurs when two identical tape loops play in synch but then run progressively out of phase due to slight variations in motor speed in the tape machines. "I thought the economy of them was so stunning," says Eno. "There's so little there. The complexity of the piece appears from nowhere. You think, my God, it's so elegant to make something like that. Of course, I was hearing this at the time when 24track recording had appeared and people were making huge, vast, heavy, soggy pieces of music with no economy whatsoever. Suddenly to hear this Reich piece, which I thought was the most beautiful listening experience, and to realise that it was made from just a few molecules of sound. That really impressed me" [...]

A day after our first chat about this subject (though in retrospect, all our conversations over the years seem to have been about this subject), Eno comes back to me with an aphorism: "Generative music is like trying to create a seed, as opposed to classical composition which is like trying to engineer a tree." Gardening and engineering are key metaphors. "I think one of the changes of our consciousness of how things come into being, of how things are made and how they work," he says, "is the change from an engineering paradigm, which is to say a design paradigm, to a biological paradigm, which is an evolutionary one. In lots and lots of areas now, people say, How do you create the conditions at the bottom to allow the growth of the things you want to happen? So a lot of the generative music thing is much more like gardening. When you make a garden, of course you choose some of the things you put in, and of course you have some degree of control over what the thing will be like, but you never know precisely. That's the wonderful thing about gardening. It responds to conditions during its growth and it changes and it's different every year [...]

In the late 1960s and early 1970s, collaborative group music was one of the most powerful available tools for experimenting with new models of society, forms through which individual expression might thrive within collective organisations [...] During the period in the late 1960s when he shifted his group, Spontaneous Music Ensemble, away from the compositional models of Ornette Coleman, Eric Dolphy arid George Russell into uncharted territory, [John] Stevens began to formulate pieces that could help musicians who were new to this way of playing (and that included just about everybody back then). Click Piece, for example, was a simple instruction to play the shortest sound possible on your instrument The difficulty of this varied from instrument to instrument, player to player, and quite a considerable amount of concentration was needed to pare each sound down to its smallest event and keep it there. As a player, you became aware of the way in which a group sound was emerging only after some time had elapsed. The paradox lay in the way that a complex group interaction, quite ravishing to listen to on occasions, could emerge

from individual self-absorption. The piece seemed to develop with a mind of its own and almost as a by-product, the basic lessons of improvisation how to listen and how to respond—could be learned through a careful enactment of the instructions.

Evan Parker remembers the way in which his duo with John Stevens pushed this atomistic way of playing to a limit. "The moments of interaction got shorter and shorter," he says. "You couldn't go any further than that." So a method that stimulated considerable variety in a large group comprising players of mixed ability and experience, quickly became an unproductive limitation for a duo of two well-matched, skilful and confident musicians.

I put it to Parker that Brian Eno's gardening analogy might be applied to his solo playing for soprano saxophone along with many of the theories of webs, swarms and emergent phenomena found in books such as Kevin Kelly's Out Of Control: The New Biology Of Machines. "We all are delighted if we can find some way of talking about something that is very difficult to talk about," he admits. "Fractal maths and chaos theory are very useful for talking about the solo playing, though of course the number of calculations involved to arrive at a fractal diagram or drawing is probably a magnitude of millions different from the number of calculations involved in me playing a solo. But in the sense that the whole design is built up from one calculation, the output of which becomes the input for the next calculation, there is in some way a connection with the way I work in the solo thing. I set up loops of stuff and then observe the loop and listen closely to the loop and say, ah, now I'll emphasise that note, or now I'll bring out that difference tone, or I'll try and put something underneath it in relation to that or on top. Gradually the centre of attention in the loop shifts somewhere else. The loop suddenly is a different loop. It's something that's still bearing fruit for me. I'm not saying that's exclusively the method I'm using in solo playing but it's the core method."

This sets up a complex feedback system between the saxophone and independently functioning regions of his own distributed consciousness, enabled by Parker's circular breathing and his knowledge of the overtones available through advanced fingering techniques. "Absolutely," he agrees. "It's the key notion of the twentieth century. I'm not an expert on cybernetics but bringing an ability to generalise about feedback is a twentieth-century phenomenon. Before that there were specific applications but I don't think there was a general awareness of how many control systems can be analysed in terms of the feedback between inputs and outputs. Its certainly high on my list of analytical tools."

In 1966 and 1967, Pauline Oliveros produced two tape pieces—*Alien Bog* and *Beautiful Soop*—using Don Buchla's "Buchia Box" 100 Series synthesizer and her own tape delay system. Working at the Tape Music Center at Mills College in Oakland, she had been influenced by the sounds of frogs living in the pond outside her window at Mills. Tape delay systems were means of creating unpredictable variety in music. Terry Riley's system, the time lag accumulator, was a technological equivalent of the feedback system later developed by Evan Parker and one of the inspirations behind Brian Eno's use of tape loops.

For Eno, the system that allowed him to create *Discreet Music* was fine, except it was limited to the length of a vinyl LP. "All of those phase systems?" he says, "they're theoretically endless, generating new stuff as they go, new combinations. I always wanted that kind of music—not only *Discreet Music* but the things that followed it like *Music For Airports*—to be endless pieces. I saw them more like paintings, just things that stayed in place, than compositions, things that had a structure to them. I was always looking for creating not a recording of the results of the generative process, but creating a generating machine itself." This led to his use of Tim Cole's Koan software, a program he had hunted for in research centres in Stanford and Palo Alto but failed to find.

The desire to make a music that exists in a state of being, theoretically without beginning or end, is paralleled by Evan Parker's interest in relatively long forms and their relationship to improvising. "What happens when you work with the longest elements?" asks Parker. "Maybe you're not improvising anymore. You're just remembering." That dialectic, at the core of his music, contributes to the subjective impression in the listener that something is alive and growing, like a timelapse photograph of plant growth, one of the creatures grown in the "garden of unearthly delights" by William Latham's computational breeding program or the volatile communities generated by Conway's Game Of Life.

The observation of nature, either through bioacoustic study, environmental sound recording or ecology, has led some musicians to the creation of emergent systems based on non-human source material. Mamoru Fujieda, for example, wired up plants using a Plantron interface devised by botanist Yuji Dogane. The data collected by electrodes recording changes to the surface electric potential of the plant leaves was converted to MIDI and then transformed into melodic patterns using MAX, the graphical music programming environment developed by Miller Puckette and other authors at IRCAM in 1986.

While Fujieda translates plant activity firmly into the human sphere, Michael Prime's work is more of an intuitive mapping of the interface between humans and non-human species. As in Fujieda's Pattern of Plants, Prime, a member of London Improv group Morphogenesis, uses a bioactivity translator. This controls oscillators which are used as sound sources. His L-fields, a work for hallucinogenic plants, is named after studies in voltage potential made in the 1930s and 1940s by a Yale scientist, Dr Harold S Burr. According to Prime, speaking in an interview with Francois Couture of Québec radio: "He had several local trees connected to voltage meters for a period of years, and discovered that their voltage potentials varied not only with periods of light and dark, but also with the cycles of the moon, magnetic storms and sunspots. The fields of humans varied not just with these natural rhythms, but also according to mental state, health, presence of cancer, etc. He finally postulated that these fields were not just a pattern produced by living organisms, but were also the morphogenetic blueprint that controlled their development?"

Prime describes his use of a bioactivity translator as occupying "a kind of hinterland between composition, improvisation and process/generative music." One of his inspirations is the musical use of human brainwaves explored by Alvin Lucier, Richard Teltelbaum and David Rosenboom in the late 1960s, another version of generative music that relates to speculations made by Evan Parker about the role of left brain/right brain activity during his solo performances. In a sense, Prime simply plugs into biological activity and during the period in which he is plugged in, the unpredictable and inevitably mysterious signals given off by plants both create and are folded into Prime's soundscape. The intricacy and alien beauty of bioacoustic feedback systems such as the hunting relationship between bats and moths—the bat tracking moths with ultrasonic pulses, the moths using evasive flying measures whenever they hear ultrasound can suggest new ways of "growing" music.

Pieces like "Chaos & The Emergent Mind Of The Pond," created by sound recordist and composer David Dunn in 1990, are illustrations of the way in which "shaped" soundscapes can become a category of found art that links to generative work of all kinds.

In his book, Why Do Whales And Children Sing?, Dunn quotes the

anthropologist and musician Steven Feld, whose research and recording among the Kaluli people of Papua New Guinea and the rainforest in which they live has drawn new maps of the relationship between favoured sound patterns, aesthetic preferences and social relations. "Steven Feld describes the New Guinea rainforest as a world of coordinated alarm clocks," writes Dunn, "an intersection of millions of simultaneous cycles all refusing to ever start or stop at the same point." In books such as *Music Grooves*, coauthored with Charles Keil, Feld has written extensively about valued sonic qualities among the Kaluli, including "... interaction of patterned and random sounds; playful accelerations, lengthenings and shortenings; and the fission and fusion of sound shapes and phrases into what electroacoustic composer Edgard Varèse called the 'shingling' of sound layers across pitch space."

Feld's observation of simultaneous cycles working out of phase, or the Kaluli love of "in-sync, out-of-phase patterning" recalls Brian Eno's enthusiasm for *In C, It's Gonna Rain* and Paragraph Seven of *The Great Learning*. One of the most enthralling examples of this phenomenon can be heard when large groups of frogs are calling, each frog responding to another, calls sometimes falling in perfect synchronisation, moving in and out of phase, then falling suddenly silent for reasons a human can't divine. David Dunn has extrapolated from his recordings of this emergent mind to develop a series of real-time multi-channel electroacoustic performances and installations for live computers.

"They explore the global behaviour of hyper-chaotic analogue circuits modelled in the digital domain," he tells me, via email from New Mexico. "These circuits exhibit an immense range of sonic behaviour, all generated from the equivalent of three sinewave oscillators linked together in a feedback path that exhibits two of the essential traits of a chaotic system: non-linearity and high sensitivity to initial conditions. The emergent complexity results from the dynamical attributes of cross-coupled chaotic states interacting in a multidimensional phase space [...]"

"My main question on generative music is: can we trust machines to create for us?" asks David Rothenberg, musician and author of *Hand's End: Technology and the Limits of Nature*. The life's work of John Cage could be interpreted as that question almost in reverse: can we trust humans to create music? Through the influence of books as much as anything else—the oracular hexagrams of the *I Ching*, James Joyce's *Finnegans Wake* and the writings of Gertrude Stein—Cage arrived at *The*

Music of Changes in 1951, a composition he described in *Musicage*, his conversations with Joan Retallack, as "where the process of composing was changed from making choices to asking questions."

Although Cage's ghost is present almost anywhere we care to look, his philosophy of nonintentionality has become a resource, rather than a way of life, for many musicians currently working with electronic media. As a member of the thinktank (also including architect Paul Shepheard, landscape architect Georgina Livingston, digital sound artist Joel Ryan and Brian Eno) that offered guidance to Jem Finer in his development of the Longplayer project, I remember a phase during which Finer considered using a segment of Cage's prepared piano music as the source material to feed through SuperCollider, the real time sound synthesis program developed by James McCartney. The intention of Longplayer was to generate a piece of music that would last for 1,000 years, using SuperCollider's capacity to loop small segments of music and gradually move the start point of the loop, with each new loop applying the same process to itself to create a nest of loops, all working within the differing boundaries of its parent loop to create constant evolution. Fascinating, but though informed by Cage, perhaps not a particularly Cageian way to compose [...]

Issues of intentionality, linearity and the model of active composer and passive listener are being challenged by software and software users yet held in place by the dominant carrier of music, the compact disc. "Our minds have become nodes in the expanding space of the Internet," wrote Kim Cascone for the liner notes to *Selected Random Works*, released on Ritornell, "connecting freely with other nodes in a rhizomatic manner. Comparing this fluidic, smooth space with the linear space of the audio compact disc, we find that a linear model of time has been imposed onto an inherently non-linear medium."

Live streaming, installations, MIDI files and the release of authored software, rather than finished product, offer ways around this contradiction, though the effect at the moment can feel and sound like the aimless exploration of a huge choice of possibilities, something like the experiments of the 1960s when the excitements of process and change could obscure the imperatives of making music that was worth a second listen [...]

There is a significant difference between software programs such as Logic Audio or Cubase, basically emulations of the recording studio, and more open applications such as MAX/MSP, Cloud Generator developed by Curtis Roads and John Alexander, or interesting curiosities such as Akira Rabelais' Argeïphontes Lyre (elliptically explained to me by Rabelais by means of a lengthy chunk of Greek mythology). Composers who have devoted a lifetime to compositional methods that go beyond the customary means of committing sound to tape, its equivalents or emulations, are increasingly important in this shifting field: Iannis Xenakis, for example, for his theory of stochastic processes, derived from mathematician Jacques Bernouilli's "law of large numbers" or the cybernetic and entropic compositions of Roland Kayn [...]

For Markus Popp of Oval, one of the most important factors in his recent trajectory is the presentation of his Oval Process software, developed with Richard Ross, as an interactive installation object. "That is this tangible interface," he says, speaking from his studio in Berlin, "declaring the interface public domain and just handing it over to the audience or whoever is present at the given time of the exhibition or wherever the unit is on display. This is one aspect of it, and the other aspect, which might even be considered the stronger statement is, of course, the available audio content which is on my CD, which is a quite vigorous statement against the typical productivity work flow in music."

He describes his [...] recent CDs—*ovalprocess* (2000) and [...] *Commers* (2001)—as the tangible front end of an attempt to introduce an alternative rhetoric to the production of electronic music. At the same time, Oval Process is a statement to encourage non-expert audiences [...]

Like Japanese paper buried underground, the final organisation of the music is relinquished by its maker, though the elements remain intact. Popp seems to interpret the current situation in music as a moment for making statements that jump out of established historical frameworks, for when people are confronted by music designed to grow and evolve beyond the composer's intentions or even understanding, the old science fiction anxieties still recur [...]

^{*} From David Toop, "The Generation Game," *The Wire* 207 (May 2001). Used by permission of the author.

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The New Discipline

Jennifer Walshe

Irish composer, improviser, and artist Jennifer Walshe has developed a wildly varied body of work. She has written instrumental music for chamber ensembles and symphony orchestras; composed music theater works and operas, including one (XXX LIVE NUDE GIRLS!!!, 2003) in which the main characters are Barbie dolls; and formed duos with violinist Tony Conrad and vocalist Tomomi Adachi. Many of Walshe's compositions feature her extended vocal technique, which alternates between virtuoso classical voice, pop singing, whispers, shrieks, and growls. Personae and fiction are central to her work. In 2007, Walshe invented the Irish avant-garde collective Grúpat, creating compositions, installations, graphic scores, films, photography, and fashion for each of its eleven members. She continued this work in Historical Documents of the Irish Avant-Garde, engaging collaborators to produce compositions, scores, and ephemera attributed to fictional composers, writers, and artists. In The Total Mountain (2014), Walshe adopts various personae to sing a collection of Twitter feeds and screen grabs sourced from the internet. All these projects forms part of what Walshe calls "The New Discipline," music in which the physical, visual, and theatrical are as important as the sonic. Such projects reflect the influence of YouTube, Vimeo, and social media, and the importance of social movements focused on identity and embodiment.

Theater provides the unique experience of watching the body in real time, inside a story ... there is reality occurring in front of viewing eyes, and the combustible mix of reality with what is being presented on stage is enticing and electric.

— Richard Maxwell, *Theater for Beginners*

I was born with an ectomorphic body, all skin and bones. However, after being inspired by a passage from the diaries of the Pop artist Mr. Andy Warhol —a passage where he expresses his sorrow after learning in his middle-fifties that if he had exercised, he could have had a body (imagine not having a body!)—I was galvanized into action.... Hence, I now have a body.

— Douglas Coupland, *Generation X*

"The New Discipline" is a term I've adopted recently. The term functions as a way for me to connect compositions which have a wide range of disparate interests but all share the common concern of being rooted in the physical, theatrical and visual, as well as musical; pieces which often invoke the extra-musical, which activate the non-cochlear. In performance, these are works in which the ear, the eye and the brain are expected to be active and engaged. Works in which we understand that there are people on the stage, and that these people are/have bodies.

Examples of composers working in this way include: Object Collection, James Saunders, Matthew Shlomowitz, Neele Hülcker, François Sarhan, Jessie Marino, Steven Takasugi, Natacha Diels, myself.

The New Discipline is a way of working, both in terms of composing and preparing pieces for performance. It isn't a style, though pieces may share similar aesthetic concerns. Composers working in this way draw on dance, theatre, film, video, visual art, installation, literature, stand-up comedy. In the rehearsal room the composer functions as a director or choreographer, perhaps most completely as an auteur. The composer doesn't have aspirations to start a theatre group-they simply need to bring the tools of the director or choreographer to bear on compositional problems, on problems of musical performance. This is the discipline-the rigour of finding, learning and developing new compositional and performative tools. How to locate a psychological/physiological node which produces a very specific sound; how to notate tiny head movements alongside complex bow manoeuvers; how to train your body so that you can run 10 circuits of the performance space before the piece begins; how to make and maintain sexualised eve contact with audience members whilst manipulating electronics; how to dissolve the concept of a single author and work collectively; how to dissolve the normal concept of what a composition is.

And always, always, working against the clock, because the disciplines which are drawn from have the luxury of development and rehearsal periods far longer than those commonly found in new music. Then again, the New Discipline relishes the absence of that luxury, of the opportunity to move fast and break things. In this way, it is a *practice* more than anything else. And the concomitant: the New Discipline is located in the fact of composers being interested and willing to perform, to get their hands dirty, to do it themselves, do it immediately.

The New Discipline thrives on the inheritance of Dada, Fluxus,

Situationism etc. but doesn't allow itself to be written off merely as Dada, Fluxus, Situationism, etc. It's a music being written when Dada, Fluxus, Situationism etc. have aged well and are universally respected. It takes these styles for granted, both lovingly and cheekily, in the same way it takes harmony and the electric guitar for granted. As starting points. As places to begin working.

New Discipline works can easily be designated, even well-meaningly ghettoised, as "music theatre". While Kagel and others are clear ancestors, too much has happened since the 1970s for that term to work here. MTV, the Internet, Beyoncé ripping off Anne Teresa De Keersmaeker, Stewart Lee, Girls, style blogs and yoga classes at Darmstadt, Mykki Blanco, the availability of cheap cameras and projectors, the supremacy of YouTube documentations over performances. Maybe what is at stake for the New Discipline is the fact that these pieces, these modes of thinking about the world, these compositional techniques—they are not "music theatre", they are music. Or from a different perspective, maybe what is at stake is the idea that all music is music theatre. Perhaps we are finally willing to accept that the bodies playing the music are part of the music, that they're and they inform they're valid our listening present. whether subconsciously or consciously. That it's not too late for us to have bodies.

From the program for the Borealis 2016 experimental music festival, Bergen, Norway. Used by permission of the author.

RE-INVENT: Experimental Music in China

Yan Jun

Poet, musician, curator, and critic Yan Jun has been a central figure in China's experimental music community since the 1990s. As a student in Lanzhou, he began writing about the city's underground rock and metal scene. In 1998, he produced the zine Sub Jam, a compilation of underground Chinese rock criticism, and the following year co-edited Beijing New Sound, documenting the rock scene in China's capital. After moving to Beijing in 1999, he relaunched Sub Jam as a record label, publishing house, and arts organization to promote the experimental arts. Shifting away from rock in the early 2000s, he began making and promoting a variety of experimental musics (electronic music, noise, free improvisation) and started a sub-label, Kwanyin, to release the work of this experimental music community. In the years that followed, Yan ran weekly experimental music nights at a Beijing club, curated a monthly series at the Ullens Center for Contemporary Art, and hosted the online radio program "Radio Enemy." Retreating from these more public ventures, he began focusing on his own art practice, performing in private living rooms in Beijing, Shanghai, and other cities, where small audiences were treated to feedback compositions, amplified body music, and noise hypnosis. In this essay, Yan offers a capsule history of experimental music in China and discusses the meaning of the word "experimental" in the Chinese context.

In 1996, the pioneering experimental musician Wang Fan decided to move from Lanzhou to Beijing in the hope of finding artists with the same ideas and goals as himself, or at least musicians who were able to share his ideas and understand and perform his works. In Lanzhou, he only encountered musicians playing blues or thrash metal. The most radical acts on the music scene were bands covering Radiohead songs, and only one person knew the name of the American underground musician John Zorn. However, it turned out that Beijing was not overrun with the "weird" people he was looking for either. Wang Fan spent the following year alone in a friend's suburban apartment. There he created music with an acoustic guitar with loose strings, Coca-Cola cans, a television set, and a household tape recorder. At that time he did not know of any other people who made music like this, so he invented his own way of playing. Both solitude and a sense of the mystical were necessary elements for the creation of his 40minute long avant-shamanistic work *Dharma's Crossing*, which was regarded as the first experimental music work in China.

To speak of "experimentation" in China means to discuss it literally: Every single person in the entire country experiments daily and tries out new things. This is particularly true of the last decade. In pre-Olympic Beijing, any street, building, restaurant, store, company, or regulation could be transformed or even disappear at any given moment. The Nike advertising slogan "Everything Is Possible" reflects the spirit of these times.

During the previous century, ongoing revolution and conflict in China brought with it a continuous process of transformation, innovation, and experimentation. Following the civil war, the Cultural Revolution and radical economic restructures and reforms—e.g. the land reform, the language reform, the so-called "reform and open policy"—were implemented on a societal scale under the banner of "advancing with the times," substantially influencing the livelihood and thus the individual psychology and community culture of the Chinese people.

Contemporary culture is pervaded by the spirit to try out new and radical things; however, "experimentation" has an undertone of the politically correct. Despite the prevalence of conservative forces at work in China, it is plainly clear that the rapid rate of change taking place in the country reflects a desire and a vision for a new world.

The word "avant-garde" (*qian wei*), among others, has become very fashionable. For example, a range of things, such as clothing, language, interior decoration, mobile phone design, etc., can be described as "avant-garde." But only a few people care that avant-garde arts and avant-garde music are terms that have a 100-year old tradition. In Chinese, "avant-garde" is only ever used as an adjective; it is never a noun. All Chinese avant-garde musicians work in the field of experimental and free improvisation music. All ten of the musicians with whom I attended a symposium on free improvised guitarist Derek Bailey and understood that the Western definition of "free improvisation" refers to a strictly defined school (or new schools such as "European improvised music" in the 1990s). However, the Chinese interpret the words "free" and "improvisation" in a literal sense and create freely and without restrictions.

It is a spiritual process and has nothing to do with Western tradition.

In 1993 in Beijing, Zuoxiao Zuzhou (originally from Nanjing) formed the band NO, one of the earliest underground rock bands in China. He developed a technique of playing in which he held the strings on his instrument with iron clips, while singing in a twisted high voice. This chaotic, discordant, and explosive style was later defined by critics as "No Wave." Wang Fan was also a member of the underground rock 'n' roll scene. In fact, a lot of people were a part of this scene; anyone who was not in the underground rock scene or listening to rock music from a *dakou* CD,¹ watching pirated VCD movies, getting drunk, or reading the works of the Beat Generation during the 1990s, probably belonged to the boring, materialistic part of society—a "grown-up" world with no dreams and imagination whatsoever. All the earliest experimental, noise, electronica, and free improvisation musicians originated from this scene. It was a dejected, rebellious scene searching for a radical and very loud mode of expression.

By the end of the twentieth century, increasing numbers became dissatisfied with rock 'n' roll. Some had heard of Keiji Haino, Boredoms, and Painkiller; many had heard of Sonic Youth and Prodigy; only a few people were familiar with the names Albert Ayler and Karlheinz Stockhausen. But this did not stop them from "inventing" what they needed. Li Jianhong from Hangzhou, the Noise Association of Lanzhou (loose form instrumental-noise-rock), Zhou Pei a.k.a. Ronez from Guilin (amateur electronica/avant-pop), Huanqing from Chengdu (performing art that combines rock 'n' roll with a lack of harmonic structure) and Zhou Risheng (trying all means of noise and music as art) from Datong, all began to experiment in a similar way. Wang Fan, however, was still the most original and radical. He was the first to start creating pure noise and sine-wave music without knowing that other people had been doing this for a long time. He often came to me to discuss what to call the new sound he had just invented. In 2002, when Li Jianhong (whose influences included Sonic Youth and Keiji Haino) created noise with a collection of electric saws, machines, and pedals, he was shocked by the result and that it was possible to create music in this way!

Electronic music (in Chinese: *Dian Zi Yue*) is another branch of underground rock. In 1997, Feng Jiangzhou (who, when he was leading the underground rock band The Fly, was influenced by Alec Empire) started to experiment with hardcore techno. The result was a kind of rock

music that was noisier and more original than either electronic music or electronica. Even techno and house entered onto China's mainstream music scene as a revolutionary force in 1996. One has to keep in mind that China had no rock until 1986 and no punk until 1996. Electronic music already existed, but no one knew how to use analogue synthesizers; techno music also existed, but there were no clubs for it.

In order to clarify the terminology used: Dian Zi Yue refers to nonacademic, popular, independent, and experimental electronic music. However, Dian Zi Yin Yue-which on most occasions is more serious and formal than Dian Zi Yue-refers to academically styled electro-acoustic music.² Its origins date back to 1984, and it was first taught in 1986. In the closed authoritarian system that prevailed in China, electro-acoustic music was studied for purely academic reasons and for the purpose of proving that the Chinese were not trailing behind the Western world; it had the dual function of exploring traditional values and singing nationalistic praise. Even today, only a very small number of people have the opportunity to study in this field. In recent years, in addition to the main music academies, a large number of universities have initiated digital and media art courses, but unfortunately there are very few practitioners who can teach digital sound processing, algorithmic composition, or even very basic software for music editing. That means you have to be really passionate if you want to learn and make music on your own.

Ji Mu (aka Jiang Zhuyun), another artist from Hangzhou, started making noise in 2002. Because he was so young, he worked at home instead of entering the music scene. At the time, Ji Mu thought he was the only person doing this in China. Ji Mu is now regarded as one of the "Second Generation": a group of young musicians with almost no band experience, who use software to create their work. He graduated from the Chinese Academy of Arts in 2007. His slightly older contemporaries—Wang Changcun from Daqing, Xu Cheng (Torturing Nurse) from Shanghai, Jin Shan and Chen Wei from Hangzhou, Yang Tao from Lanzhou (who was briefly involved with punk music), Zhong Minjie from Guangzhou, and Lin Zhiying from Shenzhen-are referred to as the "Download Generation." They downloaded MP3s, cracked software and adult movies, along with a range of other information from the Internet, which was once so difficult to access. Because of a lack of interest in musical instruments, they quickly became the true pioneers of pure sound and the first genuine sound artists in China.³

Between 2002 and 2004, the number of people using broadband in China increased by over 10 million. The Internet, however, had already had a huge impact on many people's lives prior to this great transformation. In 1998, Taiwanese-born Dajuin Yao, a music critic, *musique concrète* composer, and sound artist, who at the time was living in Berkeley, California, founded an Internet radio at sinologic.com that greatly influenced new Chinese music. It was here that the "Second Generation" began to get in touch with various genres of non-conventional music. If it can be said that the "*dakou* Generation" created music intuitively and on a spiritual level because they lacked a systematic knowledge of Western music, then it can also be said that Dajuin Yao was responsible for introducing a broader musical experience based on rationality and aesthetics. A scene, which could only exist on the Internet, was silently born; the new possibilities provided by software enabled the younger generation of untrained autodidacts to master a new world.

In 2003, Dajuin Yao curated *Sounding Beijing, International Electronic Music Festival.* This festival brought top international artists and new skills to China for the first time, and simultaneously put young Chinese artists on the international scene. More importantly, however, it gave noise credibility in Beijing's young cultural scene. In the same year, Li Jianhong held the first *2pi Festival* in Hangzhou, which focused on noise-rock, avant-rock and noise. This festival found a way to revive the dying underground rock scene—with more noise and bolder experimentation. Torturing Nurse, the acclaimed noise band from Shanghai, had not yet been formed; at that point in time, its main member, Junky, was the drummer of Junkyard, the most popular Japanese-style no wave band at *2pi*. He has performed at *2pi* every year since its conception but has never played the drums again. Instead, he now creates pure harsh noise and holds a monthly performance called *NOIShanghai* in Shanghai.

By 2005, the term "generation" could no longer be used as a criterion for classification. Zhang Anding (a.k.a. Zafka), who had previously played post-rock, had started experimenting with sound (art) and sociology methods. One of his later electroacoustic compositions was based on field recordings he collected in the game 2nd Life. The new minimalist ambient band FM3 invented their Buddha Machine, which by 2010 had sold 100,000 copies. Former songwriter and self-taught programmers 8GG had expanded their practice to include different artistic forms, such as video, sound, media art, interactive art and Internet art, since they first appeared at Sounding Beijing. The Guqin player Wu Na also arrived on the new music scene collaborating with rock 'n' roll, free improvisation, and jazz musicians, but mainly her own "improvisation" on that very symbolic and elegant instrument. (Three thousand years ago, Guqin playing was primarily improvised; but nowadays it sounds revolutionary if one plays it without a score.) A free weekly event Waterland Kwanvin was initiated in Beijing; it brought together a group of key figures from the cultural scene and established the trend of hosting social events based around noise. Another festival, Mini Midi, was also founded in Beijing. This festival, which takes place annually on a small stage at the biggest rock festival in China (Midi Music Festival), embraces various kinds of sound ranging from indie electronica, to post-rock and laptop noise, and emphasizes the relationship of avant-garde, experimental, and improvised music to rock music in China. The one piece of bad news was that China had lost its only free jazz musician Li Tiegiao (a former rocker who has no connection with jazz scene at all) when he moved to Norway.

At this time, China started to see an increasing number of independent labels, websites and small-scale events, as well as a growing number of international journalists and artists. Live shows were occasionally performed in several of the major cities (mostly Beijing), and new artists, once they appeared on the scene, were exchanging ideas. Sound artists released a collection of field recording works and several artists were making installations and visual works. Further down the track, the municipal government of Shanghai established Shanghai eArts 2007, which was developed in cooperation with many major international academic partners including Ars Electronica. Despite the fact that the upstart contemporary art scene of China had, until now, shown little interest in sound art and media art, both the government and capital investors were keen to come on board. The government has since established a fund to support the "creative cultural industry," which is a first, as it has never before supported either the contemporary arts or youth culture (in a commercial and official manner). In 2008, China seems to be bursting with new energy before the capital swallows its last wild seeds.

In comparison to Hong Kong and Taiwan, which share the same language and history but have a different relationship with the wider culture, this "cultural explosion" in China seems to be of greater significance. In the early nineties, when Li Chin Sung (Dickson Dee) entered the international music scene, independent music in Hong Kong experienced a brief boom. It was at this time that Li Chin Sung began to create industrial noise and experimental collage; and in 1995 he released albums on John Zorn's Tzadik label. As the manager of a label himself, he was the first one to release an album for Otomo Yoshihide. In recent years, he has become an active laptop performer and is the only full-time artist in Hong Kong. In comparison, Hong Kong artists, for example Sin:Ned, a former music critic, and Alok, the executive producer of Lona Records, typically create electronic and electroacoustic music in a rather low-key manner in their free time. On the other hand, the nineties noise/avant-garde artist Xper.Xr. who explored great parody in his work, has left Hong Kong altogether for London. Experimental electronic musicians who are more commonly known as pop musicians, such as Simon Ho, co-founder of Oriental Electronic Orchestra and ex-member of the indie-rock band Midnight Flight, rarely perform in public. The potential for Hong Kong's underground culture seems to be limited, but the amateur scene is thriving there more than anywhere else.

Taiwan also entered the international noise scene in the 1990s. The noise activities of Zero and Sound, initiated with the student movement that was part of a larger social movement, were the most radical expressions of the concept of noise to date. NOISE, a music fanzine about the underground noise movement and founded by Fujui Wang, also released about a hundred albums and compilations featuring musicians from Japan and America. In the mid-nineties, the crazy, grassroots, radical noise scene had reached a climax, whereas experimental music, avantgarde music and improvisation had not yet advanced very far. It was about that time that DINO, a "Second Generation" noise musician, abandoned his rock band The Clippers to focus on hardware noise and no-input feedback. In recent years, Taiwan has changed its terminology: the term "noise" has been replaced by "sound art"—the once rebellious connotation has been replaced by associations of an elite culture. The government, universities, and contemporary arts in general have had a simultaneous influence on the scene; on a socio-political level, all references to noise have been erased by the cultural policies of the government. Artists working in the contemporary arts have also started to explore the possibilities of sound; in fact, most of the young sound artists in Taiwan have come from the visual arts. Finally, bands such as Goodbye Nao! and others have been instrumental in developing the experimental music scene in Taiwan with their own eclectic style-a unique blend of post-rock and

John Cage.

The story of RE-INVENT is complex. Westerners deconstruct their own traditions in order to redefine them, whereas the Chinese simultaneously attempt to understand the Western tradition and to rediscover their own. While Westerners believe that the Chinese are re-inventing sounds that already exist, the Chinese believe that they are simply re-inventing themselves.

Afterword (2016)

Culture, the economy, politics, and everything in China changed rapidly after 2008, when this article was first published. My understanding has also changed. In retrospect, I apologize for the impression I gave in this text that I knew better than others. I don't. And nobody does. The conclusion about "Western and Eastern" was also too easy and not borne out in the details.

There was a time before 2008 when the underground rock scene still mixed with the newly emerging free-will music (a term that's better than "free improvised" or "experimental" because the point was not the music but the will of being). But now it's rather clear that most of the rock influence has dissolved. In recent years, I don't see most of those old friends in this field. No more angry rockers on their own stage or at midnight jam sessions with noisers.

The rock-oriented culture has changed as well. A kind of low-key rock scene started with Beijing's D-22 Bar (2006–12) and its successor XP Club (2012–2015), which hosted a Tuesday evening called "Zoomin' Night." This name derives from the rather cold and literary rock band PK14; and many young musicians from this new rock scene started their experiments there. Today most radical musicians in Beijing are splitting their careers between rock bands and experimental composition, improvisation, and concept music: Zhu Wenbo, who organized Zoomin' Night, is a self-taught clarinet player; Soviet Pop, a super slow electronics/analogue synthesizer duo; Yan Yulong, a self-taught violin player and a composer who never heard of Glenn Gould and was not interested in Cage … Their rock is cold on stage and their experiments are often anti-virtuoso and non-climactic, requiring close attention from audiences rather than trying to provoke them. One exception who is not in

a rock band is Ake, a young woman who joined this scene two or three years ago after buying a broken violin (her first musical instrument) from a recycling station for 5 RMB. She cannot play anything to stimulate people...

I would say that the total situation pushes artists to react with it. Strong voices in free jazz-oriented music and harsh noise are growing here and there. But not everybody is as macho, smart, and savvy as those artbusiness stars. Some artists cultivate unclarity and noncommercialization. Compared with the overwhelmingly sexy and poetic expression of commercial and political languages, such groups of low-key musicians try less to be environmentalist than to remain in the polluted air. Kind of loser's music, I'd say. But losers who are content with small sounds that last a lifetime. Many of them are repeating what Cage, Alvin Lucier, Fluxus, and today's conceptual improvised musicians did but with no knowledge of them. In this sense, it's not repeating any previous art but reacting to its own reality, right?

Another unique phenomenon is what I've called "hippie noise." After 2008, the noise rock group Mafeisan turned their style toward hyperactive noise performance. In suburban Beijing, they have established a community called "Raying Temple" (the name deriving from a demon's fake temple in the novel Journey to the West). After the city demolished the building they ran as a venue, the group embarked on a nomadic van tour. Some of them are Buddhists, but Indian New Age philosophies and Nietzsche's Dionysus are also welcome. They produce extreme harsh noise and shamanistic group improvisation in the name of the universe, the void, and love. Today's popular radical theories, including left-wing ones, may be too difficult to be understood by most people; but love and instinct are not. Might I say that they are trying to cure the contemporary world by refusing to use the tools provided by it? I think of this as the truth that people refuse to know/use the original meaning of terms in a society of information overload. A subconscious language reaction that's the same as noise?

I have more questions than conclusions now.⁴

Notes

1 During the 1990s, most Western music CDs and cassettes available on the mainland were *dakou* (which could be translated as "saw-gash," though the official

American term is "cut-out"). Large Western (American) music distributors gashed surplus stock with an electric saw to render it "destroyed" for legal reasons. These damaged CDs and cassettes were then sold as plastic garbage to recycling companies in Asia. Many of the CDs, however, landed on the Chinese market. Due to increased piracy and the advent of MP3 technology, the number of *dakou* has gradually declined since 2000. The Chinese government, however, still imposes strict controls on the import of audio and video products.

- 2 For more information on the concepts of electronic music ("Dian Zi Yin Yue" and "Dian Zi Yue") in Mainland China, see my essay "More Nonsense: A Brief History of Chinese Electronic Music" in *In Music* 1–4 (2008).
- 3 For more information on the early development of sound art in mainland China, see my essay "Background: Sound Art in China" in *Avant-Garde Today*, 14. This essay has also been released on CD by *KwanYin Records*.
- 4 On China's noise music and its social background after 1989, see my essay "The Imperial Absentee," printed as liner notes to *Noise as New Politics* (De Player, 2014) and at http://www.yanjun.org/archives/1338.
- From the liner notes to An Anthology of Chinese Experimental Music, 1992–2008, Sub Rosa, SR265 (2009). Afterword written for this volume. Used by permission of the author.
Notation is to improvisation as the portrait is to the living model.

— Ferruccio Busoni¹

(a) Western "classical" music demands a solution to most of the technical problems of making music *before* the music can be performed. Whereas—although most improvised musics demand a high level of technical competence—the elaboration of a theme, on a chord sequence or the direct response of musical dialogue, demands the application of "problem-solving" techniques *within* the actual performance. (b) In improvised music there is a creative and inter-active dialogical relationship between performers, whereas a composed work acts as a medium between the various instrumental components. The relationship between musicians loses its social significance; lessened by the agency of an external element, e.g. the composition.

— Eddie Prévost²

Music was born free, and to win freedom is its destiny.

— Ferrucio Busoni³

I'm attracted to improvisation because of something I value. That is a freshness, a certain quality that can only be obtained by improvisation, something you cannot possibly get by writing. It is something to do with the "edge." Always being on the brink of the unknown and being prepared for the leap. And when you go out there you have all your years of preparation and all your sensibilities and your prepared means, but it is a leap into the unknown.

— Steve Lacy⁴

That's the great thing about improvisation. Or *playing*—"improvisation" has got that heavy sound to it. Playing is really subversive of virtually everything. So you clamp it down, like the industry's clamped down on it. I mean they don't want improvisation, naturally. You can't make money out of this shit where you don't know what's going to happen from one minute to another. So, the process has been, of course, to nail it all down. But then the subversiveness gets into the technology, so even a guy doing a mix, you can't nail him down. There are guys improvising remixing a record. And that's where the life is in music. It always

seems like it's the vein, the conduit for life in the music. That appetite seems to me to be always to do with changing things, which is often to do with fucking things up.

— Derek Bailey⁵

Free Improvisation is almost by definition outsider music, opposed to capitalist business-as-usual. Improvisers want to explore the possibilities of the instant—in this space, using these instruments, with this audience (or lack of it) [....] Free Improvisation doesn't guarantee any particular sound or mood, it produces a question mark rather than a commodity.

- Ben Watson⁶

It's like, everybody wanted to use freedom as a context to *freak out*, and that was not what I was talking about. One of the problems of collective improvisation, as far as I'm concerned, is that people who use anarchy or collective improvisation will interpret that to mean "Now I can kill you"; and I'm saying, wait a minute! [...I]f you look back at the last twenty years, what has freedom meant? For a great many people, so-called freedom music is more limiting than bebop, because in bebop you can play a ballad or change the tempo or key. So-called freedom has not helped us as a family, as a collective, to understand responsibility better [...] So the notion of freedom that was being perpetrated in the sixties might not have been the healthiest notion [...] I'm not opposed to the *state* of freedom [...] But fixed and open variables, with the fixed variables functioning from fundamental value systems—that's what freedom means to me.

— Anthony Braxton⁷

I have turned more and more toward precise musical notation to insure that the improvisor is consciously and psychically tuned in to the overall structure of a piece. On first glance this approach would seem to inhibit the improvisor. This is a valid criticism, but I believe that this inhibition is now a real necessity when one perceives that "free" or "open" improvisation has become a cliché, a musical dead end.

— Anthony Davis⁸

There's no such thing as freedom without some kind of control, at least selfcontrol or self-discipline [...] Coltrane did a lot of experimenting in that direction [...] even though it gave an impression of freedom, it was basically a well thought out and highly disciplined piece of work.

— Elvin Jones⁹

A musical score is written to keep the performer from playing what he already knows and leads him to explore other new ideas and techniques.

— Elliott Carter¹⁰

I'm really honest when I say that, for me a performance, I put the guitar on the table, I get it all working and I go off, do something, and then it's 8 o'clock, it's time to play and I kind of look at the guitar in horror at that point and I really don't have a single idea. I'd go further and say that when my hand descends to play the very first notes of a performance I still don't have any ideas. As the hand or the fingers are just beginning to touch the strings ideas begin to come and then you just take it from whatever happens at that stage.

- Keith Rowe¹¹

The song is an amazing frame for music making, insanely versatile, hence its popular appeal. But for the purposes of listening to improvised music, anticipating a song is actually a hindrance. For the person weaned on song-fare, it's helpful to unlearn those expectations, to prepare a wee bit for something with different fundamentals from the one's we're used to [...] Some folks are put off by what they assume will be the impenetrable complexity of improvised music. It can be complex, no question. But it's not complexity like watching someone work a calculus problem. It's more like watching a flock of birds swoop and dip and soar, wondering how they know to turn without crashing into one another, which one is signaling to the others, and by what means, and how they all land together.

— John Corbett¹²

One persistently egregious myth is that of "abstract music." Too often this phrase means "music not to be understood." In truth, what is there not to understand about a series of sounds? Or what's to understand, for that matter? [...] I submit that abstraction is a myth, attributable to a perceived difficulty in recognizing unfamiliar sounds in a stream of unpredictable sounds, even though they are in the process of becoming familiar simply by having been played and heard.

- Davey Williams¹³

My improvisations are based on shifting many or singular sounds around in contrasting, delightful, agonising, abrupt, slow, hilarious, too fast, fat—to name but a few—combinations. Overall working sensually while perverting perception; sound in all its physicality; running with the surprises is therefore of the essence. Usually, the performance space and myself are the only players of course, so [performing with the electronic orchestra] MIMEO is a glorious treat, as I'm

allowed to take one sonic role/layer/job at a time, find a hole or make one, colour it pink or translucent, divert the whole mass down another road, slab, be part of an organism that makes a piece of music, rather than a single source.

— Kaffe Matthews¹⁴

1

VI. Improvised Musics

Introduction

The scene is a small pub on a busy London street in August, 1992.¹ Taped to the outside window is a handwritten sign announcing a duo performance by guitarist Derek Bailey and percussionist John Stevens. Inside the pub, Bailey walks in, sits down, and strums his guitar for a moment. It's not clear just when the performance begins. Stevens is still adjusting his kit; but Bailey seems to have crossed over from tuning up to performing. Although he's playing a traditional hollow-body electric guitar, Bailey calmly draws from the instrument an array of unexpected sounds: atonal chords, scraped lines, ringing feedback, and a scattering of harmonics. When Stevens finally joins in, his fluttering hands deliver tumbling metallic textures, a meterless assortment of clattering bells, rapid rolls, and punctuating thuds. There's clearly no overarching plan here. Rather, the performance is guided purely by the moment-to-moment interaction of the two musicians. Forty-five minutes later, the performance ends as informally as it began with a nod from the performers and applause from the small but attentive audience.

Bailey was among the founders and premier players of this form of music, developed in Britain and Europe in the mid-1960s and generally termed "free improvisation" or "improvised music." Its American counterpart, inaugurated several years earlier by Ornette Coleman, Cecil Taylor, and Albert Ayler, generally falls under the name "free jazz." Free jazz and improvised music did away with the strict forms of jazz and classical music (tonality, chord changes, formal shape and structure, etc.). They abolished the traditional hierarchy of instrumentation in jazz, classical, rock and pop, allowing any instrument to become an equal partner in improvisation with any other. In short, free jazz and improvised music abandoned virtually every prop or anchor for improvisation in order to spur musicians to play genuinely in the moment, relying solely on their ingenuity and their instantaneous responses to the contributions of fellow performers. This urge toward improvisatory exploration encouraged performers to go beyond the established practices of instrumental

technique to develop "extended" techniques: wind players employ unusual fingerings and ways of blowing that produce microtones, chords, harmonics, and vocal elements such as pops and growls; percussionists strike or rub their instruments in unorthodox places and ways, and often incorporate found objects; string players prepare their instruments with nuts, bolts, and other gadgets to drastically alter their sonic characteristics; etc.

Like composers and performers of experimental music, many practitioners of improvised musics insist on the importance of the transitory moment. They affirm the value of a musical community in opposition to a music *industry* that solely values objects and commodities. For many, the improvised musical performance serves to create—in the midst of existing hierarchical social relations-a utopian space, a democratic of cooperation, coexistence, realm genuinely and intersubjective exchange. Without established musical or social props, everything is held together by these intersubjective relations among performers, lines of connection that are both as strong and as fragile as a spider's web, and, as such, constantly under construction and repair.

Free jazz and improvised music share a number of musical and social imperatives, particularly a striving for "freedom" conceived both musically and politically. Yet the two forms represent relatively distinct strands, distinguished largely by the contexts of their development. Free jazz is inextricably connected to the politics of race in the United States. Its ancestry lies in the history of African-American music, from blues and gospel to swing and bebop. Like these earlier forms, free jazz represents the transformation of a history of oppression into a kind of transcendence and even ecstasy. Historically, free jazz performances are often characterized by extraordinarily high levels of musical energy, the creation of colossal sound masses that bind musicians and audience members together in an awesome experience of collective power. Improvised music, on the other hand, is more distinctly European and modernist in origin, reflecting the dual musical influences of jazz (e.g., John Coltrane, Eric Dolphy, and Albert Ayler) and the classical avant-garde (e.g., Anton Webern, Karlheinz Stockhausen, John Cage), and loosely connected to anarchist and Marxist political theory. In comparison with free jazz, improvised music is often more sober, dispassionate, and informal, guided less by musical expression than by sonic exploration.

Since the 1960s and 1970s, the lineages of free jazz and improvised

music have continued, generating new offshoots. Today the free jazz legacy is carried forward and expanded by musicians and composers such as Matana Roberts, Vijay Iyer, Joshua Abrams, and Mary Halvorson, whose work connects with rock and HipHop. In Britain, Europe, and Japan, an older generation of free improvisers (e.g., Han Bennink, Peter Brötzmann, Evan Parker, Keith Rowe) performs regularly with younger players (e.g., Otomo Yoshihide, Sachiko M, Dieb13, Marcus Schmickler, Taku Unami) often armed with computers, samplers, and turntables instead of saxophones or double basses. Free improvisational strategies are also evident in the "free folk" of Glenn Jones, Jack Rose, and Six Organs of Admittance, and the psychedelic and noise rock of Sunburned Hand of the Man, Wolf Eyes, Hair Police, MV&EE, and Heather Leigh. Though the lines between improvised music, experimental music, electronic music, and other musical forms have blurred, improvising musicians remain distinctly committed to the risks and rewards of live performance premised only on in-the-moment decisions and interactions.

Notes

1 The description here is based on the video *Gig* issued by Derek Bailey's Incus label in 1996.

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Change of the Century

Ornette Coleman

Along with Cecil Taylor and Albert Ayler, Ornette Coleman launched the "free jazz" revolution in the late 1950s and early 1960s. Coleman's first two recordings, Something Else! (1958) and Tomorrow is the Question (1959) made a stir. But it was his arrival in New York in 1959 and the series of records that followed (boldly titled The Shape of Jazz to Come [1959], Change of the Century [1959], This is Our Music [1960], and Free Jazz [1960]) that shook the jazz world. On these records, Coleman and his quartet improvised without preset chord progressions (indeed, without a chordal instrument such as piano or guitar). Free Jazz employed a double quartet that improvised collectively without preset key, melody, chord changes, or meter, producing an abstract sonic experience analogous to the Jackson Pollock painting featured on the album's cover. Though lambasted and ridiculed by the jazz mainstream, Coleman's approach deeply influenced young experimentalists such as the Association for the Advancement of Creative Musicians (AACM), as well as jazz veterans such as John Coltrane, whose 1965 release Ascension took collective improvisation into even wilder territory. In the following essay, from the liner notes to Change of the Century, Coleman gives his own account of his free jazz practice.

Some musicians say, if what I'm doing is right, they should never have gone to school.

I say, there is no single *right* way to play jazz. Some of the comments made about my music make me realize though that modern jazz, once so daring and revolutionary, has become, in many respects, a rather settled and conventional thing. The members of my group and I are now attempting a break-through to a new, freer conception of jazz, one that departs from all that is "standard" and cliché in "modern" jazz.

Perhaps the most important new element in our music is our conception of *free* group improvisation. The idea of group improvisation, in itself, is not at all new; it played a big role in New Orleans' early bands. The big bands of the swing period changed all that. Today, still, the individual is either swallowed up in a group situation, or else he is out front soloing, with none of the other horns doing anything but calmly awaiting their turn for *their* solos. Even in some of the trios and quartets, which permit quite a bit of group improvisation, the final effect is one that is imposed beforehand by the arranger. One knows pretty much what to expect.

When our group plays, before we start out to play, we do not have any idea what the end result will be. Each player is free to contribute what he feels in the music at any given moment. We do not begin with a preconceived notion as to what kind of effect we will achieve. When we record, sometimes I can hardly believe that what I hear when the tape is played back to me is the playing of my group. I am so busy and absorbed when I play that I am not aware of what I'm doing at the time I'm doing it.

I don't tell the members of my group what to do. I want them to play what they hear in the piece for themselves. I let everyone express himself just as he wants to. The musicians have complete freedom, and so, of course, our final results depend entirely on the musicianship, emotional make-up and taste of the individual member. Ours is at all times a group effort and it is only because we have the rapport we do that our music takes on the shape that it does. A strong personality with a star-complex would take away from the effectiveness of our group, no matter how brilliantly he played.

With my music, as is the case with some of my friends who are painters, I often have people come to me and say, "I like it but I don't understand it." Many people apparently don't trust their reactions to art or to music unless there is a verbal *explanation* for it. In music, the only thing that matters is whether you *feel* it or not. You can't intellectualize music; to reduce it analytically often is to reduce it to nothing very important. It is only in terms of emotional response that I can judge whether what we are doing is successful or not. If you are touched in some way, then you are *in* with me. I love to play for people, and how they react affects my playing.

[... I]n a certain sense there really is no start or finish to any of my compositions. There is a continuity of expression, certain continually evolving strands of thought that link all my compositions together. Maybe it's something like the paintings of Jackson Pollock.

From the liner notes to Ornette Coleman, *Change of the Century*, Atlantic SD 1327 (1960).

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Notes (8 Pieces): Creative Music

Wadada Leo Smith

In 1967, trumpeter Leo Smith joined the Association for the Advancement of *Creative Musicians (AACM), a collective of experimental improvisers centered on* Chicago's South Side. Though rooted in jazz, AACM members preferred the more expansive label "creative music" and saw themselves as drawing from a wide range of improvised music traditions. In the 1960s and early 1970s, Smith formed ensembles with AACM compatriots Leroy Jenkins, Anthony Braxton, and Henry Threadgill, and fellow travelers such as Anthony Davis and Oliver Lake. His interests in world music led him to Wesleyan University, where he studied ethnomusicology and developed his knowledge of African, Japanese, Indonesian, European, and American music. He learned to play a variety of instruments (koto, kalimba, mbira, bamboo flute, etc.), taught courses in instrument building, and developed a graphic notation system he calls Ankhrasmation. In the 1980s, Smith became a Rastafarian and adopted the name Wadada. He has collaborated with a range of master improvisers including George Lewis, Derek Bailey, Pauline Oliveros, John Zorn, Vijay Iyer, Min Xiao-Fen, and Okkyung Lee, and currently leads several ensembles, notably the Golden Quartet and the Silver Orchestra. In this seminal essay, self-published in 1973, Smith challenges the dominance of composition and connects free improvisation to the entire history of African-American music and the black experience.

CREATIVE MUSIC

in the art of music (rhythm-sound), there are but two types of disciplines; improvisation (improvisors) and composition (interpreters) improvisation means that the music is created at the moment it is performed, whether it is developing a given theme or is improvisation on a given rhythm or sound (structures) or, in the purest form, when the improvisor creates without any of these conditions, but creates at that moment, through his or her wit and imagination, an arrangement of silence and sound and rhythm that has never before been heard and will never again be heard; composition means that the music must first be composed and then interpreted later, with the emphasis during performance being that it should sound the same (the mechanics of it) each time it is performed, as in euro-american music.

creative music is dedicated to developing a heightened awareness of improvisation as an art form—i feel that the creative music of afroamerica, india, bali and pan-islam has done much along these lines, and is also creating a balance in the arena of world music (africa, asia, europe, euro-america, afro-america) and that this music will eventually eliminate the political dominance of euro-america in this world—when this is achieved, i feel that only then will we make meaningful political reforms in the world: culture being the way of our lives; politics, the way our lives are handled [...]

thoughts of an improviser

time has ripened for a new creative improvisor who is able to perform creative music in all its aspects (solo, ensemble, and orchestra) without any prepared planning or setting up of conditions (as far as the improvisation is concerned), but with the creative expressive ability to technically deliver a performance of music on a creative level which we have not as yet experienced or dealt with on such a broad scale-this would call for a heightened consciousness in all of our lives as well as among the musicians who participate directly or not at all in this next level of music creation—the new creative musician in most cases would be multi-instrumentalist, but for other creative musicians this would not be necessary, for the instrument is only part of a larger consciousness that transcends the mere means of an instrument or instruments-what is required is that the new creative improvisor must have the absolute ability to instantaneously organize sound, silence, and rhythm with the whole of his or her creative intelligence-the improvisor's total life experience is drawn from, including faculties of rightreasoning and the make-up of his or her psychological and physiological existence-all of these factors determine what is actually being expressed at the moment of conception and creation-thus, at each instance, this new creative improvisor's creations include the entire spectrum of space and cycle of time-this new musician is termed creative musician, a sensitive being who feels a higher calling and responds by seeking to enter into proper attunement with mind and body-the mind is not confined to the body: it prevails in all space and unifies the wholeness of creation—the creative musician can learn and utilize this great law involving mind, for music is mental, as it is conceived in the mind [...]

musicologists would agree that the most recent development in music history has been the re-emergence of improvisation (creative music) as the art-music form of the world, and that it, in its initiation, has largely come through north america, and does exist in some degree or form in every major city in the world. and yet, as a music with such a solid-hold throughout the world, it is still mostly not understood for its truest meaning as art-music. those largely responsible for this failure have been the music critics of composition and the composers themselves, neither of whom have at any time in their lives been improvisors, and therefore, as non-improvisors, cannot in any way be representatives of creative music. when the critics first came to creative music, they did not respond by trying to seek the level on which it dealt, but sought to pull it away from its foundation (improvisation), limiting it to a set of conditions foreign to its nature. but not only that, the critics placed a ceiling of definition on the music that could only force it to remain-in the state they found it, and thus stagnate. as for the composers, they held only themselves in esteem and considered themselves knowledgeable on the subject of improvisation. improvisation for them was something done off-hand, not seriously; a sortof music that they could speak about and compose in their spare-lighthearted moments. we can see why, with these types of attitudes, the critics and composers were bound to convey false ideals to their readers and listeners, and that they would failed in creative music. but now it is apparent that they failed in composition too. as an example, the composer scored all elements that were to be performed, gave information on technique used, and source of inspiration concerning work. now, with all this information (words), the critics, and a majority of their readers and listeners, were bound to fail: their level of consciousness was never awakened as to the essence of composition. so, what do you suppose could be the intelligence of one coming to improvisation (creative music)? here the failure is even greater. even the musicians are lost and divided on what is, in essence, creative music; and that shows sadly the real and drastic effect-influence of false interpretation (words) on music.

now to the point of this piece (exposition): can creative music (an improvisational music) be criticized, as was musical composition? as in all cases of something that comes into existence with absolutely no mate to-it

anywhere in the world, it naturally brings its own rules of understanding, of interpretation, and technique of expression. so it was with the coming of the twentieth century when we entered a new dimension of art, a dimension of art-music that never before existed: creative music, the improvisors. and so, the answer is *no*, creative music cannot be criticized. it does not require that form of journalism. creative music is totally determined by the improvisor, and everything in the environment affects it — the improvisor, the listener, and even the contours and shape of the environment in which the music is being performed (like the temperature and the different elements of air and the so-forths). so from the standpoint of these facts, it becomes impossible to criticize it. secondly, in this age of improvisation, critique, as we know it, is invalid in the sense of explaining what the artist has said or what is to be said. creative music-new rules. what is required is creation: to create. if you hear creative music, and the improvisor and you reach that level of creative communication, then that is what is required: an understanding of a true level of realization in-self. it can go no further than you-inside-you. it is not a music that allows one to use it and still refer to it. if someone uses the music-for example, tries to write about how it has "succeeded" or "failed" or how it was "not quite there" and how the audience "reacted" to it-they fail (lose) in just that slight moment trying to bring outside something that is inside (for the inside: soul). this great creative music is of a feeling. feeling and intelligent communion happens inside of each being and is sparked by each being. the result of this creative exchange immediately revitalizes the essence of the individual of all. that is, philosophically speaking, it takes the human, earth-being, back to the initial point of reasoning, feeling, being, in absoluteness. this creates within the contemporary maze of confusion a balance of understanding: first point love. creative music brings the conscious level of earth-beings' awareness to its highest stage of development so far as travel during this cycle.

(sources) a new world music: creative music the improvisors & improvisation

with the coming of the twentieth century, a new creative black music emerged in north america — a music whose form of expression is improvisation. this new creative music forecast the end of european music (composition) as the dominant form of expression, and lifted the boundaries from its performers (improvisors), giving them a part in the creation of the music. at the turn of the century, european instrumental and vocal music had reached a dead-lock as far as its pitch system was concerned because of the continued exclusive use of the chromatic scale in composition. here in north america, new generating sources of rhythm and sound became evident in afro-american music—ragtime and "stride" (solo piano), vocal music, ensemble and orchestra music (collective creative improvisation). the creative artists responsible for these new sources brought to music a new technique in instrumental and vocal performing. they did not confine themselves to a limiting chromatic scale, but instead projected their improvisation through the use of the entire spectrum of sound. their rhythm was conceived as units: each improvisor became a complete entity and so moved away from reference to time in unison with a group.

what is improvisation? improvisation is an art form used by creative musicians to deliver an expression or musical thought at the very instant that their idea is conceived. the improvisor must have an ability to instantaneously organize sound, silence and rhythm with the whole of his or her creative intelligence. his total life experience is drawn from, including his faculties of rightreasoning and the make-up of his psychological and physiological existence. all of these factors determine what is actually being expressed at that moment of conception and creation. thus, at each instant, the improvisor's creation includes the entire spectrum of space and cycle of time (past, present and future). his music is not, like composition, one that is conceived as one idea at one instant, only to be funneled at a later time through a standard system of notation onto paper as merely a related idea, and finally interpreted and performed sometime in the future as an idea removed at least three times from the original.

although an improvisor may create and notate certain types of symbols and forms in which to retain creative music, this process is not composition, for any elements of improvisation that are notated are but mere forms to be exploited by creative improvisors. the method and symbols used by the improvisor in retaining an improvisation have never been (and must never be) standardized. likewise, technique for the improvisor is not an arbitrary consumption of an abstract standardized method, but rather a direct attunement with the mental, spiritual and mechanical energy necessary to express a full creative impulse. in other words, to improvise, a display of flawless standardized technique is not enough: an improvisor must be creative. from the very moment of the improvisor's acquaintance with technique, it is the all-out goal to respond to the solo creative impulse from within which makes for the uniqueness of originality among all creative performers. the improvisor realizes that the natural course of his music is to respond to his own impulses, which by their very nature are original and individual.

creative music, throughout its history in black america, has developed a classical art music, both in the instrumental and vocal idioms: spiritual, ragtime, blues, bebop and free music.

spiritual music is a vocal-religious music, the history and development of which has been explored quite thoroughly in the music literature already written by black americans. since this piece is to deal only with instrumental music, further explanation of spiritual music will not be made.

ragtime, initially, was not a completely composed music, but was a very free and vital rhythmic vehicle for creative improvisation; but, eventually, because of the imbalance inherent in the racist society in which it developed where composed music was unduly thought to be of a higher order than improvised music, the improvisors of ragtime were swayed toward composition. ragtime is solo piano music that usually consists of several different sections with the first and last sections usually having the same key center, and one or more changes of key center usually occurring during the middle sections. (shortly after the decline of ragtime in popularity, an improvisation piano music—"stride"—developed in harlem using basically the same form as ragtime, excepting that it was improvisation built off of themes.)

it has been commonly mistaken that the blues is pitch oriented (chords) and relies upon a rigid structure (12 bars). rather, the blues is determined by its sound and its rhythm, and not by its harmonic function. blues can consist of 8 bars, 12 bars, 16 bars, modern (any blues functioning in an uneven structure that is recurring), or free blues (no given amount of bars, nor does the sound function in relation to a progression). the blues is a most unique music in that it has several forms within it: e.g. it is a vocal as well as an instrumental music, and there is a distinct form of blues music for piano, guitar, ensemble, and orchestra. inherent in the vocal blues form is the history of a people, "the seventh son", the newest of earth-beings. truly, there is the making of a new being, spiritually. this explains why we

are the only ones who have created a new and different culture as a contemporary people. our music is the only one to come into existence as a whole new-art-music, without going the route of the "universal orchestra" or european-way (composition). the blues form was the first music to assert this.

bebop, or bop, as it has been called, is a music that has had several periods of change, i.e. hard bop, funk, and extention bop. each of these periods has brought significant changes in the musical structure and the philosophical attitudes of its creators. originally, bop was as complex as the earlier black music—the collective improvisational orchestras in which each improvisor created a different line. the complexities of bop were similarly exhibited in the improvised solo-line. most of the "musical analysts" who have allegedly transcribed the solo-lines of the great masters, however, have misrepresented them by not transcribing the whole of the line, but by singling out, instead, only one element of the line. in the evaluation of this music, the opinion has been that the solo-line is the creation of a "soloist", and that the other improvisors involved are mere accompaniment. this is an invalid evaluation. the solo-line, in fact, is created by all improvisors contributing to it (any combination of reeds, brass, bass, drums, and piano): all the component parts become the sololine. a "solo" alone can only be created by one improvisor.

bebop unfolded toward a lesser complex music. hard bop addresses itself to more simple lines and harmonic function. funk leaned even further toward simplicity. some improvisors of funk were interested in simulating the human voice with their instruments, and this form leaned closely toward the sound of the black church.

extention bop was, again, as complex as the original bop, and innovated the music by incorporating more advanced harmonic structures and extending rhythms (i.e. the grouping of rhythms together became compound). the bop extentionists employed far advanced harmonic structures and incorporated modality into the music as a completely new level of sound; but the basic music form did not essentially change because the use of the song form and the blues continued to hold this new music within. these bop extentionists would create improvisations by superimposing several different chords on one chord that had been dictated in the harmonic structure. because of this superimposition and grouping of chords, the rhythm became of mixed levels — that is, the grouping together of uneven figures (single-line runs, chords, and multi-rhythms). the emergence and innovations of bop, then, marked the third and final stage in the evolution of the solo-line and brought the first period of our music to its completion — a period that had begun when the collective improvisational orchestras with their many lines gave way to the expression of the essence of the music through one line, which was then extended by the addition of advanced and complex harmonic, melodic (and the added level of sound through the exclusive use of modes) and rhythmic structures.

the second period of creative music began with the inception of free form, the elements of which parallel the blues form in almost every aspect as a music of many levels. the improvisor could build improvisations of great length and was again offered a chance to return to a very free and open structure, thus leading back to the original intention of all great music: to create and express original ideas without being inhibited by certain prescribed forms. in free-music we have many forms: structured forms that supply a beginning leading into improvisations; link form, whereby several different predetermined elements are linked together to form improvisations; and, at its highest level, improvisation created entirely within the improvisor at the moment of improvisation without any prior structuring.

there is another form that is not particularly an outgrowth of the evolution in free form. this form is called solo-form. here the solo refers to the improvisor who performs a complete improvisation as a soloist. the instruments that have thus far been liberated exclusively by creative music in this area have been: reeds (tenor, alto, clarinet, bass clarinet); brass (trumpet and flugelhorn); drums (trap set). (the voice, piano, balophone, and keyboard types of instruments, zither, guitar, and string instruments using a bow have been omitted here because the solo elements of these instruments have been exploited in composition as well as in ancient art music.) a new dimension of the solo form which *is* particular to free-music is provided by the multi-instrumentalist improvisor. here one improvisor creates a complete improvisation with more than one instruments and of mixed character (e.g. trumpet, flugelhorn, percussion instruments, and flute).

in free-music there are many new additional forms being created, and the few that have been outlined here only represent the first fifteen years or so of its development.

in conclusion, it must have become apparent to anyone reading this

piece that creative music (black music) is a music with a set of principles that apply exclusively to itself. its image and procreators have been persecuted since its inception in this country (u.s.a.) because the music critics and those who set the standards and regulations for registering music have insisted on confining their evaluation of improvisation to a rigid set of principles that apply only to composition (e.g. it has only been in 1972 that creative music can be registered in the library of congress in the form of a sound recording; and it is still impossible to register any scored improvisation unless it has been merely notated after the fact of creation as though it were a composition. it is a vital art form with a future as absolute as the mind. creative improvisors must not be discouraged by the obvious elements trying to destroy them (i.e. recording companies, booking agents, trade magazines, lack of proper performing places, lack of government recognition in the form of proper subsidies — all necessitating periodic exoduses abroad). these artists must hold true to the pureness of their calling. listeners, too, must not be discouraged or misled. it is time for them to move to a higher level of consciousness in terms of their music and to protect it by making certain that more adequate conditions be provided for creative musicians in this country. first we can start with a conscientious cultural program that is financed through the tax program of this country which would enable all segments of these united states to become fully aware of and experience this great classical art music of afroamerica. (it is time to realize that the classical art music of europe is not that of all america.) furthermore, it is high time that we begin to help and set up cultural ties with the other more than three-fourths of these americas (north, central, and south). finally, we must seek out other cultures that have improvisation: as their classical art music (india, panislam, the orient, bali, and africa) and make lasting cultural commitments with them. for the days are set in time that this vast world of ours can only survive unless we, as humans, become earth-beings committed in our cultural and political aspects to a pan-world future [....]

notes on my music (part 1)

the concept that i employ in my music is to consider each performer as a complete unit with each having his or her own center from which each performs independently of any other, and with this respect of autonomy the independent center of the improvisation is continuously changing depending upon the force created by individual centers at any instance from any of the units. the idea is that each improvisor creates as an element of the whole, only responding to that which he is creating within himself instead of responding to the total creative energy of the different units. this attitude frees the sound-rhythm elements in an improvisation from being realized through dependent re-action. this is the fundamental principle underlining my music, in that it extends into all the source-areas of music-making, i.e. each single rhythm-sound, or a series of soundrhythm is a complete improvisation. in other words, each element is autonomous in its relationship in the improvisation. therefore, there is no intent towards time as a period of development. rather, time is employed as an element of space: space that is determined between the distance of two sound-rhythms (here the reference to rhythm is in reference to its absoluteness: the sum of the elements and the placement of them) and space/silence that is the absence of audible sound-rhythm (just as each sound-rhythm is considered an autonomous element in an improvisation, so, too, must space and space/silence be considered; and when space and space/silence are really-realized, then we will know so well how to perceive and appreciate their uniqueness each time they appear, as easily as we perceive and appreciate the uniqueness of each sound-rhythm): i seek another dimension in music.

From notes (8 pieces) source a new world music: creative music, self-published, 1973. Used by permission of the author.

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Free Improvisation

Derek Bailey

Guitarist Derek Bailey was among the founders of "free improvisation," a musical practice linked to, but genealogically and sonically distinct from, "free jazz." On the one hand, as Bailey contends here, "free improvisation" is the world's oldest form of music-making, predating jazz, the modernist avant garde, and experimental music by millenia. On the other hand, he acknowledges that "free improvisation" also names a musical practice that emerged in Britain and Europe in the early 1960s inspired by jazz and free jazz, but also by Arnold Schoenberg's atonal music, Anton Webern's serial compositions, and the indeterminate and experimental work of composers such as Earle Brown and John Cage. Where "free jazz" players tend to affirm their ties to jazz and to African-American heritage, "free improvisers" generally resist explicit connections to "idiomatic" musical traditions, jazz included. Bailey performed in an astonishing variety of contexts, from improvisations with African, Brazilian and Burmese percussionists and sessions with buto and tap dancers to recordings with British drum 'n' bass producers and Japanese noise musicians. In 1970, he founded the Incus record label to document performances of "free improvisation"; and, from 1977 through the early 1990s, he hosted Company Week, an annual gathering that brought together improvisers of all stripes for what were often first-time encounters. The following excerpts are taken from Bailey's key book, Improvisation: Its Nature and Practice in Music, which originated as a series of television interviews with improvising musicians. Here, Bailey and his compatriots offer an account of the emergence of free improvisation and a characterization of its characteristic musical strategies.

Free

Freely improvised music, variously called "total improvisation," "open improvisation," "free music," or perhaps most often simply, "improvised music," suffers from—and enjoys—the confused identity which its resistance to labeling indicates. It is a logical situation: freely improvised music is an activity which encompasses too many different kinds of players, too many different attitudes to music, too many different concepts of what improvisation is, even, for it all to be subsumed under one name. Two regular confusions which blur its identification are to associate it with experimental music or with avant-garde music. It is true that they are very often lumped together but this is probably done for the benefit of promoters who need to know that the one thing they do have in common is a shared inability to hold the attention of large groups of casual listeners. But although they might share the same corner of the marketplace they are fundamentally quite different to each other. Improvisors might conduct occasional experiments but very few, I think, consider their work to be experimental. Similarly, the attitudes and precepts associated with the avant-garde have very little in common with those held by most improvisors. There are innovations made, as one would expect, through improvisation, but the desire to stay ahead of the field is not common among improvisors. And as regards method, the improvisor employs the oldest in music-making.

The lack of precision over its naming is, if anything, increased when we come to the thing itself. Diversity is its most consistent characteristic. It has no stylistic or idiomatic commitment. It has no prescribed idiomatic sound. The characteristics of freely improvised music are established only by the sonic-musical identity of the person or persons playing it.

Historically, it pre-dates any other music—mankind's first musical performance couldn't have been anything other than a free improvisation —and I think that it is a reasonable speculation that at most times since then there will have been some music-making most aptly described as free improvisation. Its accessibility to the performer is, in fact, something which appears to offend both its supporters and detractors. Free improvisation, in addition to being a highly skilled musical craft, is open to use by almost anyone—beginners, children and non-musicians. The skill and intellect required is whatever is available. It can be an activity of enormous complexity and sophistication, or the simplest and most direct expression: a lifetime's study and work or a casual dilettante activity. It can appeal to and serve the musical purposes of all kinds of people and perhaps the type of person offended by the thought that "anyone can do it" will find some reassurance in learning that Albert Einstein looked upon improvisation as an emotional and intellectual necessity.¹

The emergence of free improvisation as a cohesive movement in the early sixties and its subsequent continuous practice has excited a profusion of sociological, philosophical, religious and political explanations, but I shall have to leave those to authors with the appropriate appetite and ability. Perhaps I can confine myself to the obvious assumption that much of the impetus toward free improvisation came from the questioning of musical language. Or more correctly, the questioning of the "rules" governing musical language. Firstly from the effect this had in jazz, which was the most widely practised improvised music at the time of the rise of free improvisation, and secondly from the results of the much earlier developments in musical language in European straight music, whose conventions had, until this time, exerted a quite remarkable influence over many types of music, including most forms of improvisation to be found in the West.

Two important pieces of reading concerning free improvisation are Leo Smith's book *Notes: 8 Pieces* and Cornelius Cardew's "Towards an Ethic of Improvisation," which is from his *Treatise Handbook* [...] Each of these documents is written by a musician with a great deal of experience of free improvisation and they write of it with insight and pertinence. They are however totally different from each other. Smith speaks of free improvisation almost exclusively as an extension of jazz and Cardew considers it mainly in terms of European philosophy and indeterminate composition. And both accounts are valid, each reflecting perfectly one of the twin approaches to free improvisation which took place in the 1960s. [...T]hese documents also indicate that for musicians of integrity, in either field, wishing for a direct, unadulterated involvement in music, the way to free improvisation was the obvious escape from the rigidity and formalism of their respective musical backgrounds.

Opinions about free music are plentiful and differ widely. They range from the view that free playing is the simplest thing in the world requiring no explanation, to the view that it is complicated beyond discussion. There are those for whom it is an activity requiring no instrumental skill, no musical ability and no musical knowledge or experience of any kind, and others who believe it can only be reached by employing a highly sophisticated, personal technique of virtuosic dimensions. Some are attracted to it by its possibilities for musical togetherness, others by its possibilities for individual expression. There is, as far as I know, no general view to be given. So I propose to base my account of free improvisation largely on my own playing experiences within the music. Objectivity will, I am sure, be quite beyond me, but whenever possible I shall quote other views and opinions. I should emphasize that it is not my intention to try and present an overall picture of the free music scene, nor to give a definitive account of the groups mentioned. I intend only to point to certain aspects of certain groups and situations which seem to me to illustrate some of the central tenets of free improvisation.²

Joseph Holbrooke³

This group, which existed from 1963 to 1966, initially played conventional jazz and by 1965 was playing totally improvised pieces. From then on it continued to play both totally improvised and part-improvised pieces. The musicians in the group were Gavin Bryars, who was then a bass player, Tony Oxley the percussionist, and myself. The stages of our collective development from playing a standard idiomatic improvisation⁴ through to playing freely improvised music seemed at the time, and even more so in retrospect, almost imperceptible. As far as one can tell, they consisted in accepting the implications of the most logical and appropriate developments in our playing, and following where they led [...]

Initially, we were playing fairly conventionally in a jazz manner. The improvisation was on set chord sequences, usually jazz standards, and played in time. But it seems that almost from the very beginning there was a movement to expand these boundaries. The regular metre was always under attack; systematically so when Tony Oxley evolved a method of super-imposing a different time feel over the original, creating not a polyrhythmic effect but a non-rhythmic effect. He and Bryars practised working with this until the feeling of a regular pulse was totally removed. Additionally, harmonic experiments were taking place, an example of which is a composition of Bryars", a more or less conventional tune in 3/4time, in which the soloist improvised not on the chord being played but on the following chord, the chord about to played. We were also following at that time certain aspects of the recorded work of Scott LaFaro and John Coltrane. All these moves constituted an attack on the harmonic and rhythmic framework within which we were working but when we did eventually break that framework it was once again only through gradual, not wholesale, moves. One of the first of these was to break the metre down. Having reached the point where the aural effect we were achieving was one of playing out of time it began to seem almost perverse not to actually play out of time. A soloist would now stay on each chord for as long as he wished to improvise on it, making the change to the next chord how and when he wished, taking his accompanists with him. Tony Oxley: "This was rhythmically very useful to me. It was a release from the dogma of the beat." The move away from a set harmonic sequence was to modal playing. The vehicles for this were usually either John Coltrane pieces from that period or a series of modal pieces written at that time by all three of us. We spent much time playing modally, and our earliest "free" improvisations had a definite modal orientation.

This was probably the easiest way to start. Except, of course, that it wasn't free. It was modal. Still, it provided a base from which we could explore rhythmic and scalar relationships fairly freely. In order to escape the constant threat of the eternally suspended resolution we turned our attention to intervallic manipulation of pitch. Our influences here were partly a belated interest in Webern and partly some aspects of John Coltrane's improvisations. The main stimulus, however, was to escape from the lack of tension endemic in tonal or modal pitch constructions. The "tension and release" myth upon which most scalar and arpeggio patterns, phrases and designs are based seemed to us no longer valid. In these closed systems there is a circular quality to the improvisation which means that the release is built into the tension, that the answer is contained in the question. The effect is of slackness, blandness. The modal setting particularly, without the restriction or discipline of an idiom, seemed to invite a facile, vacuous type of improvisation. It was to escape from this that we turned to a more atonal, non-causal organisation of the pitch. Much of our language now was arrived at by the exclusion of the elements we didn't want, which very often turned out to be mainstays of our previous tonal language, and by a much more consistent use of the more "dissonant" intervals. There was some use of serial devices.

Bryars introduced what he describes as "the serial equivalent of a free jazz ballad". We each had a series of notes, with alternatives, and each note was held as long as the player wished. So there was a continuous changing harmony. There were attempts to improvise serially. Working in 3 or 4 note cells, 1 or 2 notes being held in common between successive cells. Oxley at this time started to change his instrument from a kit designed to supply set rhythmic patterns to one with an increased potential for varied sounds, timbres and percussive effects. An example of this is the occasion when, after hearing Bryars" newly acquired record of Cage's *First Constructions in Metal*, Oxley, impressed by the gong glissando

effect, tried to find a way to emulate it. This he eventually did by tying a piece of cloth to a cymbal in such a way as to be able to bend the cymbal after it had been struck. It was probably years later that we discovered that the gong gliss effect was created by immersing it in water. But this was the sort of thing that was influencing the music we played. About his bass playing at this time, Bryars says: "I very often played chords on the bass: triple stops, double stops, I always played 3 finger pizzicato, and I played horizontally across the strings like a flamenco guitarist. Ascending was usually in fast runs, descending in disjunct leaps. Scale steps going up and large steps down. But when these things became clichés I can remember consciously trying to drop them. I would at all times try and avoid playing the pulse of the music."

These were some of the means by which we reacted against the restrictions of the inherited improvising language, its nostalgia, and looked for fresher, less worn material with which to work. By this time most of the music was collectively improvised and solos were unaccompanied. Such accompaniment as happened was a sort of occasional commentary from the other instruments.

So the whole was somewhat atonal in character, played in a discontinuous, episodic manner, with two instruments—amplified guitar and percussion—matched to the volume of a very softly played doublebass. But the experience of playing freely soon had the effect, as it always does, of producing a set of characteristics unique to that particular grouping of musicians and of producing an identity only a small proportion of which was established by the technical, purely musical constituents [...]

Solo

Improvisors are, as a rule, musically gregarious, preferring to work with other musicians in any combination from duo up to quite inexplicably large ensembles. For most people improvisation, although a vehicle for self expression, is about playing with other people and some of the greatest opportunities provided by free improvisation are in the exploration of relationships between players. In this respect solo improvisation makes no sense at all. However, at some time or other, most improvisors investigate the possibility of playing solo [...]

For me there has always been an attraction in solo playing, perhaps

partly explained by the nature and tradition of the guitar, the instrument I play. But when, around 1970/71 after a period of some years playing in improvising groups of many different styles and sizes, I turned almost exclusively to solo improvising, I did so out of necessity. The need, after a considerable time thinking only in group terms, was to have a look at my own playing and to find out what was wrong with it and what was not wrong with it. I wanted to know if the language I was using was complete, if it could supply everything that I wanted in a musical performance. The ideal way of doing this, perhaps the only way, it seemed to me, was through a period of solo playing. Alternating periods of group playing with solo playing is something I have tried to maintain ever since [...]

The most obvious differences to group improvisation—greater cohesiveness and easier control for the soloist—are not, in improvisation, necessarily advantages and an even greater loss, of course, is the unpredictable element usually provided by other players. In this situation the language becomes much more important and there will be times in solo improvisation when the player relies entirely on the vocabulary used. At such times, when other more aesthetically acceptable resources such as invention and imagination have gone missing, the vocabulary becomes the sole means of support. It has to provide everything needed to sustain continuity and impetus in the musical performance. This, it seems to me, is where the main danger in solo improvisation arises.

Improvising alone, before an audience, is not without its terrors. The temptation, when nothing else seems to be offering itself, to resort to tried and proven procedures, to flog those parts of the performance which are most palatable to an audience—and no musician who has spent time playing in public is in any doubt about what they are—is not easily resisted and it is clear that in solo improvising, as with a great deal of performed music, audience response can be the cause of rituals and formulae being repeatedly trotted out long after they have lost any musical motivation. At this point the credibility of the activity is in the balance and maintaining it simply depends on the courage of the player. Once solo playing descends to being the recycling of previously successful formulae its relevance to improvisation becomes pretty remote [...]

The developments in my playing following on from those described in the [section] on Joseph Holbrooke continued along the same lines and for the same reasons: to find a way of dealing with a freely improvised situation in which a conventional vocabulary proved inadequate [...]

Beyond the immediate influence of the musicians I was playing with, the bases of my improvising language came from an interest in the music of Schoenberg's pre-serial, "free" atonal period, the later music of Webern and also certain early electronic music composers. (Musicians who shared, it is fairly safe to say, a deep antipathy to anything remotely connected with improvisation.) Apart from the fact that I liked the stuff, I thought (and I still think) that intervallic manipulation of pitch is less restricting and more productive than other ways of pitch management, and that the very clearly differentiated changes of timbre which characterised some early electronic music was the sort of thing which could assist in assembling a language that would be literally disjointed, whose constituents would be unconnected in any causal or grammatical way and so would be more open to manipulation. A language based on malleable, not pre-fabricated, material. Generally I was looking, I think, to utilise those elements which stem from the concepts of unpredictability and discontinuity, of perpetual variation and renewal first introduced into European composition at the beginning of the twentieth century.

But this "improvising language" was, of course, superimposed upon another musical language; one learned, also empirically, over many years as a working musician. Working musicians, those found earning a living in night clubs, recording studios, dance halls and any other place where music has a functional role, spend very little time, as I remember it, discussing "improvising language," but anyone lacking the ability to invent something, to add something, to improve something would quickly prove to be in the wrong business. In that world, improvisation is a fact of musical life. And it seems to me that this bedrock of experience, culled in a variety of situations, occasionally bubbles up in one way or another, particularly playing solo. Not affecting specifics like pitch or timbre or rhythmic formulations (I've yet to find any advantage in quoting directly any of the kinds of music I used to play) but influencing decisions that affect overall balance and pace-judging what will work. The unexpected, not to say the unnerving, can also occasionally appear. Recently, it seems to me, some reflection of the earliest guitar music I ever heard occasionally surfaces in my solo playing; music I have had no connection with, either as listener or player, since childhood.

Once a vocabulary of some homogeneity is assembled and is working and has proved to be usable in a playing situation, material can be included, at least for a period, from any source. And that's a necessity, because the need for material is endless. A feeling of freshness is essential and the best way to get that is for some of the material to be fresh. In a sense it is change for the sake of change. Change for the sake of the benefits that change can bring [...]

Solo playing, in fact, has produced some remarkable, even spectacular, performances, usually of a dense, furiously active nature: a panic of loneliness; a manic dialogue with the phantom other; virtuosic distortions of natural bodily functions unequalled since the days of La Petomaine. Missing, is the kind of playing which produces music independent of the characteristics of instruments or even individual styles ("... who played that? ..."), unidentifiable passages which are the kind of magic only possible, perhaps, in group playing [...]

Perhaps I have given the impression that there is no forward planning, no overall structure, no "form". Adverse criticism of free improvisationpretty nearly the only kind available-almost always aims itself at the same two or three targets and the clear favourite of these is "formlessness". As the criteria for assessing a piece of music, any piece of music, is usually inherited from the attitudes and prejudices handed down by the mandarins of European straight music this is to be expected. Nowhere is the concept of form as an ideal set of proportions which transcend style and language clung to with such terrified tenacity as by the advocates of musical composition. "The necessity for design and balance is nowhere more imperative than in music, where all is so fleeting and impalpable-mere vibrations of the tympanic membrane." Although written many years ago, that is still probably a fairly accurate indication of the importance attached to form by those people concerned with composed music. Even in those parts of contemporary composition where the earlier types of overall organisation no longer serve, a great deal of ingenuity is exercised in finding something upon which the music can be "based". Myths, poems, political statements, ancient rituals, paintings, mathematical systems; it seems that any overall pattern must be imposed to save music from its endemic formlessness.

There is no technical reason why the improvisor, particularly the solo improvisor, should not do the same thing. Most musical form is simple, not to say simple-minded. But generally speaking, improvisors don't avail themselves of the many "frameworks" on offer. They seem to prefer formlessness. More accurately, they prefer the music to dictate its own form. In practice, this works in many ways and, as the subconscious aim is probably to invent a form unique to every performance, giving a precise account of the complex forces that govern the shape and direction of an improvisation, even if such a thing is possible, would have no general significance. But there is a forward-looking imagination which, while mainly concerned with the moment, will prepare for later possibilities. Rather in the way that memory works, perhaps, a piece can be crisscrossed with connections and correspondences which govern the selection and re-selection of events as well as guiding the over-all pacing of the piece. Simultaneously, events remembered and events anticipated can act on the present moment. As Evan Parker says: "Improvisation makes its own form"; and similarly, Carl T. Whitmer: "In expansion the form is generated." Frank Perry, the percussionist: "For me, improvisation has meant the freeing of form that it may more readily accommodate my imagination."

The need to isolate and examine the problems of language, to connect and to extend it, are adequately answered by solo playing. But solo playing for the improvisor can be more than that and above all can offer a method by which one can work continuously on all aspects of a body of music; an uninterrupted activity which relies not on time and place or structured opportunities for its occasion or on any of the different levels of acceptance and approval upon which performed music usually depends for its viability, but relies only on the player's ability to develop his music, to maintain its evolution, and so guarantee his own continuing involvement.

Maintaining solo playing which remains meaningful from an improvising point of view is an elusive business, not least because the easier it becomes to play solo the harder it becomes to improvise solo, but it provides many rewards and is, at times, essential.

But ultimately the greatest rewards in free improvisation are to be gained in playing with other people. Whatever the advantages to solo playing there is a whole side to improvisation; the more exciting, the more magical side, which can only be discovered by people playing together. The essence of improvisation, its intuitive, telepathic foundation, is best explored in a group situation. And the possible musical dimensions of group playing far outstrip those of solo playing.

Paradoxically, perhaps, I have found that the best base from which to approach group playing is that of being a solo improvisor. Having no group loyalties to offend and having solo playing as an ultimate resource, it is possible to play with other musicians, of whatever persuasion, as often as one wishes without having to enter into a permanent commitment to any stylistic or aesthetic position. This might be, I think, the ideal situation for an improvisor.

Objections

Perhaps this is a good point at which to acknowledge that the world is not divided into improvisors, those who can, and non-improvisors, those who cannot. There are, of course, musicians who can improvise, who have considerable experience of improvisation, and who have found it, for various reasons, unacceptable to them. What follows is a transcription of a conversation between Gavin Bryars and myself in which he describes his disenchantment with improvisation. I think it also indicates one of the main differences between a composer's and an improvisor's attitude towards making music.

I decided to stop working as a practicing musician, to give up the playing job I was doing and go into teaching. For some time before that I had been getting more and more interested in theoretical aspects of music. I had been reading Cage and had been involving myself more in questions of aesthetics and composition. This was the general background. But I can point to certain specific occasions which I can now recognise as being significant in my turning from improvisation.

One of them was the last time Joseph Holbrooke played together. There had been quite a long gap, maybe months, since we had worked together and because of the demands of teaching I had not spent very much time practising the bass. When we played together regularly I was always playing, but on this occasion I think I had lost touch with the instrument a bit. And the fact that I was called upon to play just as we used to play and the fact that I was neither emotionally nor physically trained for it meant that the experience was inadequate and that I was trying to recapture something that had been happening in the past. And that seemed morally wrong. Then I witnessed some of the things that were going on in the London scene at that time. There was a bass player, for instance, who by his performance convinced me that he had no idea of what he was doing. I had always been insistent that technically I had to know exactly what I was doing on the instrument. Just achieving the "general effect" type of playing didn't interest me. And he was doing his fantastic runs and so on and although it sounded in the genre, the appropriate thing in the context, as far as I could see he had no idea what he was doing—he was a clown. He had no conceptual awareness of what he ought to be doing. I thought he was playing a part. And when I realised that it was possible for someone to sham like that it depressed me immensely and I never played my own bass again after that. I have played other basses in a number of fairly undemanding situations but from then on I did no further work on the bass, and my own bass, which at that time needed repairing, still needs repairing. Later, after going to America and studying with Cage, and returning here and joining in, on live electronics, etcetera, some of the playing that was going on around 1967 and 68 I was becoming more and more ideologically opposed to improvisation. I began to find improvisation a dead end. I could only get out of improvisation what I brought into it [...] It was not possible to transcend the situation I was playing in.

Now on the other hand, I found that by composing I could. Composing, I could reach conceptions that I could never reach in a limited, defined, performing time. I couldn't reach an equal conceptual excellence in improvising as in composing [...]

In the time you are referring to, the late 1960s, there was a lot of confusion between free improvisation and free jazz. To a lesser extent it still exists. In fact free improvisation is very often confused in its identity or in its attempt to find an identity. Yet I think there is a type of playing which it is appropriate to describe as free improvisation. But it does seem difficult, firstly to get hold of it, and secondly, to keep hold of it. The tendency is often for the music to slide off into some more readily identifiable area, jazz or comedy or into very obvious forms such as you described. Another aspect of the same problem is that the longer you play in the same situation or group—and this certainly applies to playing solo the less appropriate it becomes to describe the music as "free" anything. It becomes, usually, very personalised, very closely identified with the player or group of players. And then you suddenly find yourself in the business of peddling "my music". But I believe that that ossifying effect can be counteracted by playing with as many different sorts of improvisor as possible.

One of the main reasons I am against improvisation now is that in any improvising position the person creating the music is identified with the music. The two things are seen to be synonymous. The creator is there making the music and is identified with the music and the music with the person. It's like standing a painter next to his picture so that every time you see the painting you see the painter as well and you can't see it without him. And because of that the music, in improvisation, doesn't stand alone. It's corporeal. My position, through the study of Zen and Cage, is to stand apart from one's creation. Distancing yourself from what you are doing. Now that becomes impossible in improvisation. If I write a piece I don't even have to be there when it is "played." They are conceptions. I'm more interested in conception than reality. Because I can conceive of things that don't have any tangible reality. But if I'm playing them, if I'm there at the same time, then that's real. It's not a conception.

A lot of improvisors find improvisation worthwhile, I think, because of the possibilities. Things that can happen but perhaps rarely do. One of those things is that you are "taken out of yourself." Something happens which so disorientates you that, for a time, which might only last for a second or two, your reactions and responses are not what they normally would be. You can do something you didn't realise you were capable of. Or you don't appear to be fully responsible for what you are doing. Two examples of this might be the production by some member of the group of something so apt or so inappropriate that it momentarily overwhelms your sensibility—and the results of this type of thing are literally incalculable. Another example, on a totally different time scale, might be Joseph Holbrooke where three people produced over a period of years something they could not have achieved individually or, in fact, could not have expected to achieve collectively. Aren't these things which it is impossible to identify with? Wouldn't this be an example of improvisation producing something not totally determined by the players? [...]

But in the act of the music being made there is no discrimination between the music made and the people making it. The music doesn't exist elsewhere as some general concept.

Some years later Gavin resumed improvising. In 1991 he [...] gave his current views on improvisation.

My ambivalent feelings about improvisation are still there and some of my conceptual objections to it still remain. In a way my ongoing caveats about improvisation no longer come from a possible hostility between the improvisor and the composer, but rather stem from my perception of difficulties within the activity of improvisation itself [...]

My main objections to improvisation have not been eradicated, they have been assimilated into a broader musical practice. The principal conceptual difficulties still remain for me: that of the personalising of music, and of the unity of performer and music. I find it above all uncomfortable to watch improvisors work, and I find recordings of improvisations seldom rewarding. If I have to experience improvisation I would rather it be as a player than from the outside.

Limits and freedom

In all its roles and appearances, improvisation can be considered as the celebration of the moment. And in this the nature of improvisation exactly resembles the nature of music. Essentially, music is fleeting; its reality is its moment of performance. There might be documents that relate to that moment—score, recording, echo, memory—but only to anticipate it or recall it.

Improvisation, unconcerned with any preparatory or residual document, is completely at one with the non-documentary nature of musical performance and their shared ephemerality gives them a unique compatibility. So it might be claimed that improvisation is best pursued through its practice in music. And that the practice of music is best pursued through improvisation.

Notes

- 1 Alexander Moszkowski reported that in 1919 Einstein told him '... improvisation on the piano was a necessity of his life. Every journey that takes him away from the instrument for some time excites a home-sickness for his piano, and when he returns he longingly caresses the keys to ease himself of the burden of the tone experiences that have mounted up in him, giving them utterance in improvisations.' *Conversations with Einstein*, published 1921.
- 2 Nor is it my intention to make a contribution to the increasingly frequent re-writing of the history of the beginnings of free improvisation, except perhaps to mention that my first involvement with it—which left me totally confused and alienated—was in 1957. It was a confrontation which has no musical significance in this account. but it does provide some evidence that free improvisation wasn't 'started' by anybody.
- 3 The group's name came from Tony Oxley although it could quite easily have come from Gavin Bryars who at that time was beginning to show what was to become a lasting interest in earty twentieth-century English music. Joseph (sometimes Josef)

Holbrooke, once described as the 'cockney Wagner,' was a composer of prodigious output who, although creating something of a stir in his own lifetime has been almost totally ignored since. Investigations about him produced different dates for his birth (1875 or 1878) and different dates for his death (1958 or 1961) raising the consideration that there might be more than one Joseph Holbrooke, a speculation reinforced by the staggering amount of music published under that name. It seemed a good cover for our activities.

- 4 ["Idiomatic improvisation (...) is mainly concerned with the expression of an idiom—such as jazz, flamenco, or baroque—and takes its identity and motivation from that idiom. Non-idiomatic improvisation has other concerns and is most usually found in so-called 'free' improvisation and, while it can be highly stylised, is not usually tied to representing an idiomatic identity." Derek Bailey, from the "Introduction" to *Improvisation*, xi–xii.—Eds.]
- From Derek Bailey, *Improvisation: Its Nature and Practice in Music* (New York: Da Capo, 1992). Used by permission of the author and Karen Brookman.

Little Bangs: A Nihilist Theory of Improvisation

Frederic Rzewski

Frederic Rzewski has been a leading figure in avant-garde, experimental, and improvised music for more than four decades. In the late 1950s, he befriended John Cage and key members of Cage's circle, among them Christian Wolff, David Tudor, and David Behrman. Rzewski received a Fulbright fellowship in 1960 to travel to Rome, where he made his reputation as a virtuoso avant-garde pianist, debuting compositions by Stockhausen and others. Yet, by the mid-1960s, Rzewski's interests had turned to free improvisation. In 1966, along with a group of American expatriates in Rome, he formed the collective Musica Elettronica Viva (MEV), which dedicated itself to a bruitist improvisatory practice that employed everyday objects and makeshift live electronics. During his time with MEV, Rzewski's approach to music became increasingly political. He came to see improvisation as a way to break down the boundaries between musicians and nonmusicians, performers and audience members. By the decade's end, Rzewski had left MEV to focus on the composition of explicitly political works such as Attica (1972), Coming Together (1972), and The People United Will Never Be Defeated (1975) that were increasingly Romantic and populist, reflective of Rzewski's growing worries about the elitism of avant-garde and experimental practices. Since 1977, Rzewski has taught composition at the Liège Conservatory in Belgium. *In this piece, he reflects on the ethics and politics of free improvisation, and the* ways in which it models everyday experience, time, and causality.

[...] In the fall of 1968, I was living in Rome and working with a group of musicians, Musica Elettronica Viva. We were all composers, but were also very intensely interested in exploring the relatively new field of free improvisation.

I had just bought a Philips microcassette recorder, which had just appeared on the market, and was having a lot of fun with it. (I used it, for example, in improvised performances to make very quick loops by alternating the toggle switch between "play" and "rewind" positions.)

I was walking down the street in Trastevere one morning when I saw Steve Lacy, one of our group's members at the time, coming out of a bar. Without thinking, I went up to him, took out my little recorder, and said: "Steve, in fifteen seconds, tell me the difference between composition and improvisation."

Without hesitation, Steve replied: "In fifteen seconds, the difference between composition and improvisation is that in composition you have all the time you want to think about what to say in fifteen seconds, while in improvisation you have only fifteen seconds." (Later I timed his recorded answer with a stopwatch and found that it took exactly fifteen seconds.) Elegant as this formulation is, it clearly does not tell the whole story, nor could this story be told in fifteen seconds except perhaps as an endless succession of fifteen-second variations on this theme.

One could say that composition is a process of selectively storing and organizing information accumulated from the past, so that it becomes possible to move ahead without having constantly to reinvent the wheel. Improvisation, on the other hand, is more like garbage removal: constantly clearing away the accumulated perceptions of the past, so that it becomes possible to move ahead at all.

The most basic technique of composition is that of transferring information from short-term memory to long-term: remembering an idea long enough so that one can write it down. This process of transference is also one of translation: re-forming an impulse or feeling so that it can be expressed in some kind of symbolic language. The most basic technique of improvisation is that of short-circuiting this process of conservation: forgetting-momentarily at least everything that is not relevant to the objective of expressing an idea immediately in sound. This process has more to do with spontaneous reflexes than with language.

Composition is the result of an editing process in which one's impulses are passed through the critical filter of the conscious mind: only the "good" ideas are allowed to pass through. Improvisation is more like free association, in which ideas are allowed to express themselves without having to pass this test, somehow avoiding the barriers erected by consciousness.

Improvisation is a game that the mind plays with itself, in which an idea is allowed to enter the playing field, in order to be kicked around in pleasing patterns for a moment before being substituted by another idea. The first idea is unintentional, an error, a wrong note, a fumble in which the ball is momentarily lost, a momentary surfacing of an unconscious impulse normally kept under cover. The play to which it is subjected is the
graceful recovery of the fumbled ball, a second "wrong" note that makes the first one seem right, the justification for allowing the idea to be expressed in the first place [...]

In Lacy's view [...], there would seem to be no difference between composition and improvisation, except for one of duration in the preparation of the act. In that case, improvisation would fall into the category of "real-time composition," an idea widely accepted in the 1960s, which had legal as well as aesthetic consequences. By this was meant: music that is composed at the same time that it is performed, rather than previous to the performance, as normally happens.

If there were a machine that could write the music down as fast as it was played, or even as soon as ideas appeared in the player's mind, then there would, in fact, be no difference between these two things. But such machines, though crude, do already exist, and clearly they change nothing.

Writing is not merely a mechanical process like sound recording, but something that goes on in the brain, before any mechanical activity. Even in the experimental *écriture automatique* of the surrealists, there is a time interval, however small, before the hand executes the necessary maneuvers that record the symbols generated by the brain's nervous impulses.

Composition and improvisation, however related, however inseparable in fact, remain two quite different, even contrary, mental processes. If composition has to do with remembering, and improvisation with forgetting, it is hard to imagine one without the other, since both of these things are fundamental to the brain's activity. Furthermore, both of these things must be very common, potentially understandable by everybody, in much the same way that everybody who dreams is potentially a poet. (Pablo Neruda in his autobiography relates an encounter with a young worker on a train who, recognizing the famous poet, tells him that he too wished to be a poet, rather than a simple worker. Neruda replies that he is in fact a poet, since he, like everybody, dreams—the only difference being that poets simply remember their dreams long enough to write them down.) [...]

An improvised piece of music is held to be "free." A written piece is assumed to be "structured." Depending on one's point of view, freedom or structure might be considered to be desirable or undesirable qualities, "good" or "bad" according to the circumstances surrounding the performance, and according to one's beliefs about what makes music good or bad. In the 1960s, in radical circles of the "free music" movement, *freedom* was an ethical and political, as well as an aesthetic, concept. Free music was not merely a fashion of the times, and not merely a form of entertainment. It was also felt to be connected with the many political movements that at that time set out to change the world—in this case, to free the world from the tyranny of outdated traditional forms.

Free improvisation was viewed as the possible basis for a new form of universal communication, through the spontaneous and wordless interaction of improvising musicians of different traditions. (There are intriguing echoes of Wagner in this notion.)

Although many interesting results in this collective experiment were achieved, this movement had neither the time nor the resources to carry this research very far, precisely because its success depended upon changing the world, something that did not happen, and could not have happened at the time. There were some lasting effects nonetheless, and in a small way, at least, the world *was* changed.

The most basic propositions of free improvisation, if they could be expressed in words, might be:

- 1. Anything can, and does, happen at any time.
- 2. At the same time, things happen in predictable chains, according to predetermined conditions and agreed-upon conventions.
- 3. These chains are constantly being broken, according to changes in conditions. Our expectations of what must or will happen also change.
- 4. At any moment, my activity or inactivity may influence, actively or passively, the state of the whole.
- 5. At the same time, my perception of this state may influence my activity.
- 6. A circular causality may exist between present and future, so that not only does the present influence the future, but the future influences the present.
- 7. Likewise, the past determines the present, but the present also constantly changes the past (something which, according to Augustine, even God cannot do).

In music, it is possible to express experiences convincingly, which, if expressed in words, appear meaningless. An example would be time flowing backwards. An event, the end of a melody, is perceived before the event that preceded it. We know what is coming, and time is reversed. In this respect again, music resembles dream. (We have all had ecstatic dreams, in which we seem to be out of time or out of space.) [...]

Ecstasy, a state of perception in which one seems to be outside of

oneself, or to be in more than one place at the same time, is a fundamental element of free improvisation. (In live electronics especially, when the sound that I produce reaches me from a loudspeaker on the other side of the room, I may have the experience of hearing myself in two different places.)

Time is not just a linear sequence, in which the past conditions the future. It is also a continuous present, in which each moment is a new beginning ... Each moment is a reenactment of creation ... The universe of improvisation is constantly being created; or rather, in each moment a new universe is created ... Although events may seem to succeed each other in an orderly way, each one somehow growing out of the one that preceded it, there is no reason why this must necessarily be so ... At any moment, an event may occur for no reason at all, with no relation at all to the preceding event ... In this universe each moment is an entelechy, with both its cause and its end contained in itself.

In free improvisation this autonomy of the moment, in which things happen for no reason at all and lead nowhere, is fundamental. Nor is there any reason why my thoughts should follow a logical order. They may be constantly interrupted, forgotten as soon as they occur, and lead to nothing.

This universe—unlike the physical universe, which is presumably the effect of one primal cause, or Big Bang—is an endless series of "little bangs," in which new universes are constantly being created. The new universe may appear to follow smoothly from the old one, or it may have nothing to do with it. In this way, improvisation resembles real life in the real world, unlike most written music, in which the interruptions of real life have been edited out.

In improvised music, we can't edit out the unwanted things that happen, so we just have to accept them. We have to find a way to make use of them and, if possible, to make it seem as if we actually wanted them in the first place. And in a way, we actually *did* want them, because if we didn't want these unwanted things to happen, we wouldn't improvise in the first place. That is what improvisation is about [...]

Written music often follows the form of the syllogism: A, then B, and A again. Everyday real life, although it may have an orderly sequence, seldom has this symmetrical character. One of the things that makes written music pleasing is the violation of such symmetry. A situation is set up in which a symmetrical repetition or balancing phrase is expected. This expectation is then partly satisfied, but also partly frustrated (see, for

example, the scherzo from Beethoven's *Hammerklavier* sonata). Sometimes written music succeeds in reproducing the tentative, groping quality of certain moments of a typical improvisation (see, for example, the largo movement from the *Hammerklavier*).

On the other hand, a basic device of improvised music is to introduce a precomposed pattern unexpectedly, at a moment when anything at all might happen. Such epiphanies of order in the midst of chaos also seem to relate a seemingly formless groping to a larger world in which things make sense.

But the basic subject matter of improvisation is the precariousness of existence, in which anything, death or disease, for example, could interrupt the continuity of life at any time. The attitude of the improviser could, in this respect, be said to be tragic. The tragic situation is precisely that in which a sudden change in power relationships may intervene at any time, causing pain or death for some, and pleasure for others (especially for the impartial observer).

[...] Because improvisation resembles ordinary real life in its precariousness and unpredictability, it contains a necessary element of realism, with which many people can immediately identify, even if the musical language is strange to them. (For this reason, the radical, free music of the 1960s and 1970s, even though its harmonic language was often as difficult and obscure as the most cerebral written compositions of the same period, was able to attract a much larger audience than did its classical counterpart.)

Because improvisation resembles real life, it can illuminate this real life. It can make us aware that the surface of rationality that covers this reality may be only an illusion. This reality that seems to flow smoothly along familiar lines, behaving predictably in accordance with familiar causal patterns, may be only a small part—that part that I choose to perceive—of a greater reality in which most things happen without cause.

Why, indeed, must events have causes? Why assume that there is an "unknown" cause rather than *no* cause? Why must the universe be comprehensible to my limited human mind? Is it not simpler to admit that, among the vast quantities of data that confront my consciousness at every moment, only a tiny part may be said to be rational?

Most of my experience does not happen for a reason. It just happens. Only a few things happen in an orderly, rational sequence. But these are the things that occupy most of my attention, because they are the things I can control.

Music can expand our awareness of the irrational, dark side of reality. It can make us aware, if only vaguely, of the possibility of other universes right under our noses, in which our human systems of rational organization do not apply. Such little universes may appear and disappear at any moment, and presumably at any point in space. The improvising musician simply gives them a voice.

Anything can, and does, happen once. Furthermore, it must be so. Somewhere in the universe there must be a place where things fall up, people get younger, balloons inflate by themselves, and dead dogs get up and walk.

Paradise is now, and can be only now. The question that tormented Pascal—why humans perpetually exile themselves from this Paradise has never been answered. People continue to choose to live in the Hell of the past, or the Purgatory of the future. For some reason they prefer renunciation or postponement to immediate gratification.

For some reason they also appear to prefer an existing unequal society, in which there is a possibility of greater domination, to a more equal one in which domination is diminished.

I believe these two things are somehow connected. The difficulty of living in the present moment is somehow related to the difficulty of creating an egalitarian society. Both of these things are perceived as ideals, only partially attainable, if at all, in reality. Improvised music has something to do with both of them. Certainly it has to do with being present. It also has to do with democratic forms and equality, at least in a group situation. It can function as a kind of abstract laboratory in which experimental forms of communication can be tried without risk of damage to persons. The great improvised music of the twentieth century may be remembered by future generations as an early abstract model in which new social forms were first dimly conceived.

Improvisation tells us: *Anything is possible—anything can be changed—now*.

The world can be changed without having to change human nature. Humans are perfectly all right the way they are. They mostly get along fine, without anyone telling them how to do it. They tend not to bump into one another walking on the street. They feed, nurse, and help each other. Most of their transactions happen easily, quickly, unconsciously, efficiently, and without money. Families and villages across the world can be examples of a society in which complexity is achieved without despotism, equality without violence.

Change of some kind is inevitable. We have to be ready for anything. The potential for new forms of intolerance on a mass scale is as great as it ever was. But the beautiful nonviolent revolution is also more needed than ever. (Where there is danger, says Hölderlin, the Saving also grows: *Wo Gefahr ist, wächst das Rettende auch.*)

Great social movements do not have clearly definable causes. Although not totally free of causality, they nevertheless happen spontaneously. No individual can foresee them completely (which is precisely what improvisation is all about). And if there *is* ultimately some kind of peaceful transition to more generous forms of social organization, music and improvised music in particular—will play an important role in this process, as it has done in the past.

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Improvised Music after 1950: Afrological and Eurological Perspectives

George E. Lewis

Trombonist, composer, improviser, and computer/installation artist George Lewis studied composition with Muhal Richard Abrams at the AACM (Association for the Advancement of Creative Musicians) School of Music in Chicago. Over the course of his career, Lewis has played swing with the Count Basie Band, composed and performed experimental music and free jazz with Anthony Braxton, Derek Bailey, John Zorn, and Musica Elettronica Viva, premiered computer compositions at IRCAM (Institut de Recherche et Coordination Acoustique/Musique) and STEIM (Studio voor Elektro-Instrumentale Muziek) and debuted multi-media installations at The Kitchen. In this essay, Lewis examines the turn to improvisation in post-1950 American and European art music, highlighting the important but generally ignored or disavowed influence of jazz on this turn. He goes on to compare and contrast the contemporary Euro-American approach to improvisation with the improvisatory practice embedded in African-American musics.

Since the early 1950s controversy over the nature and function of improvisation in musical expression has occupied considerable attention among improvisers, composers, performers, and theorists active in that sociomusical art world that has constructed itself in terms of an assumed high-culture bond between selected sectors of the European and American musical landscapes. Prior to 1950 the work of many composers operating in this art world tended to be completely notated, using a well-known, European-derived system. After 1950 composers began to experiment with open forms and with more personally expressive systems of notation. Moreover, these composers began to designate salient aspects of a composition as performer-supplied rather than composer-specified, thereby renewing an interest in the generation of musical structure in real time as a formal aspect of a composed work.

After a gap of nearly 150 years, during which real-time generation of musical structure had been nearly eliminated from the musical activity of this Western or "pan-European" tradition, the postwar putative heirs to this tradition have promulgated renewed investigation of real-time forms of musicality, including a direct confrontation with the role of improvisation. This ongoing reappraisal of improvisation may be due in no small measure to musical and social events taking place in quite a different sector of the overall musical landscape. In particular, the anointing, since the early 1950s, of various forms of "jazz," the African-American musical constellation most commonly associated with the exploration of improvisation in both Europe and America, as a form of "art" has in all likelihood been a salient stimulating factor in this reevaluation of the possibilities of improvisation.

Already active in the 1940s, a group of radical young black American improvisers, for the most part lacking access to economic and political resources often taken for granted in high-culture musical circles, nonetheless posed potent challenges to Western notions of structure, form, communication, and expression. These improvisers, while cognizant of Western musical tradition, located and centered their modes of musical expression within a stream emanating largely from African and African-American cultural and social history. The international influence and dissemination of their music, dubbed "bebop," as well as the strong influences coming from later forms of "jazz," has resulted in the emergence of new sites for transnational, transcultural improvisative musical activity.

In particular, a strong circumstantial case can be made for the proposition that the emergence of these new, vigorous, and highly influential improvisative forms provided an impetus for musical workers in other traditions, particularly European and American composers active in the construction of a transnational European-based tradition, to come to grips with some of the implications of musical improvisation. This confrontation, however, took place amid an ongoing narrative of dismissal, on the part of many of these composers, of the tenets of African-American improvisative forms.

Moreover, texts documenting the musical products of the American version of the move to incorporate real-time music-making into composition often present this activity as a part of "American music since 1945," a construct almost invariably theorized as emanating almost exclusively from a generally venerated stream of European cultural, social, and intellectual history—the "Western tradition." In such texts, an attempted erasure or denial of the impact of African-American forms on the real-time work of European and Euro-American composers is commonly asserted.

This denial itself, however, drew the outlines of a space where improvisation as a theoretical construct could clearly be viewed as a site not only for music-theoretical contention but for social and cultural competition between musicians representing improvisative and compositional modes of musical discourse. The theoretical and practical positions taken with regard to improvisation in this post-1950 Euro-American tradition exhibit broad areas of both confluence and contrast with those emerging from musical art worlds strongly influenced by African-American improvisative musics.

This essay attempts to historically and philosophically deconstruct aspects of the musical belief systems that ground African-American and European (including European-American) real-time music-making, analyzing the articulation and resolution of both musical and what were once called "extramusical" issues. This analysis adopts as critical tools two complementary connotative adjectives, "Afrological" and "Eurological." These terms refer metaphorically to musical belief systems and behavior which, in my view, exemplify particular kinds of musical "logic." At the same time, these terms are intended to historicize the particularity of perspective characteristic of two systems that have evolved in such divergent cultural environments.

Improvisative musical utterance, like any music, may be interpreted with reference to historical and cultural contexts. The history of sanctions, segregation, and slavery, imposed upon African Americans by the dominant white American culture, has undoubtedly influenced the evolution of a sociomusical belief system that differs in critical respects from that which has emerged from the dominant culture itself. Commentary on improvisation since 1950 has often centered around several key issues, the articulation of which differs markedly according to the cultural background of the commentators—even when two informants, each grounded in a different system of belief, are ostensibly discussing the same music.

Thus, my construction of "Afrological" and "Eurological" systems of improvisative musicality refers to social and cultural location and is theorized here as historically emergent rather than ethnically essential, thereby accounting for the reality of transcultural and transracial communication among improvisers. For example, African-American music, like any music, can be performed by a person of any "race" without losing its character as historically Afrological, just as a performance of Karnatic vocal music by Terry Riley does not transform the raga into a Eurological music form. My constructions make no attempt to delineate ethnicity or race, although they are designed to ensure that the reality of the ethnic or racial component of a historically emergent sociomusical group must be faced squarely and honestly.

In developing a hermeneutics of improvisative music, the study of two major American postwar real-time traditions is key. These traditions are exemplified by the two towering figures of 1950s American experimental musics—Charlie "Bird" Parker and John Cage. The work of these two crucially important music-makers has had important implications not only within their respective traditions but intertraditionally as well. The compositions of both artists are widely influential, but I would submit that it is their real-time work that has had the widest impact upon world musical culture. The musics made by these two artists, and by their successors, may be seen as exemplifying two very different conceptions of real-time music-making. These differences encompass not only music but areas once thought of as "extra-musical," including race and ethnicity, class, and social and political philosophy.

Bird

In the musical domain, improvisation is neither a style of music nor a body of musical techniques. Structure, meaning, and context in musical improvisation arise from the domain-specific analysis, generation, manipulation, and transformation of sonic symbols. Jazz, a largely improvisative musical form, has long been explicitly and fundamentally concerned with these and other structural issues. For African-American improvisers, however, sonic symbolism is often constructed with a view toward social instrumentality as well as form. New improvisative and compositional styles are often identified with ideals of race advancement and, more importantly, as resistive ripostes to perceived opposition to black social expression and economic advancement by the dominant white American culture.

Ebullient, incisive, and transgressive, the so-called "bebop" movement brought this theme of resistance to international attention. Influencing musicality worldwide, the movement posed both implicit and explicit challenges to Western notions of structure, form, and expression. In the United States, the challenge of bop, as exemplified by the work of Charlie "Bird" Parker, Dizzy Gillespie, Thelonious Monk, Bud Powell, and Kenny "Klook" Clarke, obliged the dominant European-American culture to come to grips, if not to terms, with Afrological aesthetics [...]

In *Blues People*, Amiri Baraka (then LeRoi Jones) asserts that bebop "had more than an accidental implication of social upheaval associated with it."¹ For the bebop musicians this upheaval had a great deal to do with the assertion of self-determination with regard to their role as musical artists. While jazz has always existed in the interstices between Western definitions of concert music and entertainment, between the commercial and the experimental, challenging the assigned role of the jazz musician as entertainer created new possibilities for the construction of an African-American improvisative musicality that could define itself as explicitly experimental [...]

Cage

In a 1972 essay contrasting composition with improvisation, musicologist Carl Dahlhaus summarizes the former as an autonomous, internally consistent structure, fully worked-out and written out, and designed to be realized by a performer in a process separate from that of the work itself.² Already by the 1950s, the work of John Cage presented an explicit challenge to this notion of composition. Like Bird, the activity of Cage and his associates, such as Christian Wolff, David Tudor, Morton Feldman, and Earle Brown, had profound and wide-ranging influence not only in the musical, literary, and visual domains but socially and culturally as well. The musical and theoretical work of these composers can be credited with radically reconstructing Eurological composition; the trenchancy of this reconstruction involved in large measure the resurrection of Eurological modes of real-time musical discourse, often approaching an explicitly improvisative sensibility [...]

In his important manifesto, *Silence* (1961), Cage declares that "an experimental action is one the outcome of which is not foreseen" and is "necessarily unique."³ Cage's notion of spontaneity and uniqueness was informed by his studies of Zen, and in particular by his attendance at Daisetz Suzuki's early 1950s lectures on that subject in New York City. At the same time, in terms of social location, composers such as Cage and

Morton Feldman located their work as an integral part of a sociomusical art world that explicitly bonded with the intellectual and musical traditions of Europe. The members of this art world, while critiquing aspects of contemporary European culture, were explicitly concerned with continuing to develop this "Western" tradition on the American continent. The composer's "History of Experimental Music in the United States" identifies as relevant to his concerns both European and American composers and artists, including the European Dada movement, composers such as Debussy and Varèse, and later European experimentalists such as Pierre Boulez, Karlheinz Stockhausen, Luigi Nono, and Luciano Berio.⁴ Among the American composers that Cage mentions as being part of America's "rich history" of music are Leo Ornstein, Dane Rudhyar, Lou Harrison, Harry Partch, and Virgil Thomson.

Though these and other composers do earn criticism, the only indigenous music that receives sharp denunciation from Cage is the African-American music that he frequently refers to as "hot jazz." Criticizing the expression of Henry Cowell's interest in this and other American indigenous traditions, Cage appropriates the then-current conventional wisdom about the opposition between "jazz" music and "serious" music: "Jazz per se derives from serious music. And when serious music derives from it, the situation becomes rather silly."⁵

We may regard as more rhetorical device than historical fact Cage's brief account of the origins of jazz. In any event, despite such declarations as "the world is one world now" or "when I think of a good future it certainly has music in it but it doesn't have one kind … it has all kinds," it is clear that Cage has drawn very specific boundaries, not only as to which musics are relevant to his own musicality but as to which musics suit his own taste.⁶ The Cageian tendency is to confront this contradiction through the use of terms that essentially exnominate or disguise his likes and dislikes as such: "some music … which would not be useful to me at all might be very useful to someone else."⁷

The composer does, however, make allowance for the fact that others may draw different boundaries: "I can get along perfectly well without any jazz at all; and yet I notice that many, many people have a great need for it. Who am I to say that their need is pointless?"⁸ This basic reference to freedom of choice, however, can hardly be extrapolated to argue that Cage is characterizing himself as possessing a culturally diverse musical sensibility. Rather, the composer is reaffirming a relatively mundane

truism concerning the diversity of personal taste, while simultaneously making clear that, for him, a "need for jazz" would indeed be pointless.

Exnomination

Despite Cage's disavowal of jazz, however, the historical timeline shows that Cage's radical emphasis upon spontaneity and uniqueness—not generally found in either American or European music before Cage arrives some eight to ten years after the innovations of bebop. And it is certain that bebop, a native American music with a strong base in New York City, was well known to what has come to be known as the "New York School" of artists and musicians of which Cage and Feldman were part. In the case of visual artists from that social circle, such as Jackson Pollock and Franz Kline, the connection with jazz has been remarked upon in a number of essays.⁹

The composer Anthony Braxton's pithy statement concerning the disavowal of Afrological forms by the art world that nurtured Cage's work advances the essential issue directly: "Both aleatory and indeterminism are words which have been coined ... to bypass the word improvisation and as such the influence of non-white sensibility."¹⁰ Why improvisation and non-white sensibility would be perceived by anyone as objects to be avoided can usefully be theorized with respect to racialized power relations.

Commentators such as the media critic John Fiske [...] have identified "whiteness" as an important cultural construct in American society [...] For Fiske, whiteness is "not an essential racial category that contains a set of fixed meanings, but a strategic deployment of power ... The space of whiteness contains a limited but varied set of normalizing positions from which that which is not white can be made into the abnormal; by such means whiteness constitutes itself as a universal set of norms by which to make sense of the world."¹¹ Fiske identifies "exnomination" as a primary characteristic of whiteness as power: "Exnomination is the means by which whiteness avoids being named and thus keeps itself out of the field of interrogation and therefore off the agenda for change ... One practice of exnomination is the avoidance of self-recognition and self-definition. Defining, for whites, is a process that is always directed outward upon multiple 'others' but never inward upon the definer."¹²

It is my contention that, circumstantially at least, bebop's combination

of spontaneity, structural radicalism, and uniqueness, antedating by several years the reappearance of improvisation in Eurological music, posed a challenge to that music which needed to be answered in some way. All too often, the space of whiteness provided a convenient platform for a racialized denial of the trenchancy of this challenge, while providing an arena for the articulation of an implicit sensibility which I have termed "Eurological."

The anthropologist and improviser Georgina Born presents the circumstantial case:

Some of the main elements of experimental music practice—improvisation, live group work, the empirical use of small, commercial electronics in performance—were pioneered in the jazz and rock of the 1950s and 1960s. Moreover, the politics of experimental music are similar to those of the advanced black jazz of the 60s. Its musical collectivism, for example, was prefigured by the Chicago black musicians' cooperative, the Association for the Advancement of Creative Musicians (AACM), which became a model for later progressive, cooperative music organizations. The fact that these influences often remain unacknowledged and subterranean, even within experimental music, signals their status as deriving from an "other" culture and the reluctance of the postmodern sphere of legitimate music to admit its indebtedness to the "other."¹³

Texts appropriating the term "experimental music" construct this classification as denoting a particular group of postwar music-makers who come almost exclusively from either European or European-American heritage. Coded qualifiers to the word music—such as "experimental," "new," "art,""concert," "serious," "avant-garde," and "contemporary"— are used in these texts to delineate a racialized location of this tradition within the space of whiteness; either erasure or (brief) inclusion of Afrological music can then be framed as responsible chronicling and "objective" taxonomy [...]

Clearly jazz must have been a powerful force in postwar improvisative music, since so many fledgling Eurological improvisers needed to distance themselves from it in one way or another. In this regard, the ongoing Eurological critique of jazz may be seen as part of a collective project of reconstruction of a Eurological real-time musical discipline. This reconstruction may well have required the creation of an "other"—through reaction, however negative, to existing models of improvisative musicality [...]

Spontaneity

Spontaneity is an important value for improvisers working in both Eurological and Afrological forms, though the definition of spontaneity certainly differs according to tradition. Following Cage, [musicologists Elliott] Schwartz and [Daniel] Godfrey affirm that the result of a musical experience created through indeterminate means is meant to be "immediate, spontaneous, and unique: a ritual celebration, not a fixed art object bounded by predetermined relationships or notational straitjackets."¹⁴

Notions of uniqueness and the unforeseen, however, are hardly unique to Eurological indeterminacy. Saxophonist Steve Lacy observed that "you have all your years of preparation and all your sensibilities and your prepared means but it is a leap into the unknown."¹⁵ Many commentators have identified the uniqueness of an improvisation as a highly prized goal among African-American improvisers. [Paul] Berliner quotes the trumpeter Doc Cheatham, whose work straddles the pre- and postwar eras, to the effect that Armstrong and others of comparable creative ability would "play fifteen or thirty different choruses, and they would never play the same thing … Every time they'd play a tune, the solo would be different."¹⁶ A similar sentiment was expressed with Coltrane's amazement at how Gillespie could play the introduction to "I Can't Get Started" differently every time.¹⁷

Despite the statements of these and other highly experienced improvisers who have gone on record with their experiences of uniqueness and discovery, a number of composers and theorists working in Eurological music have asserted a quite different view of the same music. The cognitive psychologist John Sloboda maintains that jazz improvisers use "a model which is, in most cases, externally supplied by the culture."¹⁸ Lukas Foss has asserted that in improvisation, "one plays what one already knows."¹⁹

This viewpoint, which has attained the status of conventional wisdom in some circles, is similar to Schwartz and Godfrey's claim that "Cage's indeterminacy should be distinguished from improvisation, in that the latter is directed to a known end."²⁰ Cage's own statement that "improvisation is generally playing what you know" leads naturally to his opinion that improvisation "doesn't lead you into a new experience"²¹ [...]

Buried within [the] Eurological definition of improvisation is a notion of

spontaneity that excludes history or memory. In this regard, "real" improvisation is often described in terms of eliminating reference to "known" styles. Among the styles that are already "known," "jazz" is the most often cited in the literature on the subject—perhaps by reason of its role as epistemological other [...] The inescapable conclusion from a Eurological standpoint is that jazz, whose character is "known," cannot be truly spontaneous or original. Moreover, jazz's supposed dependence upon memorized motifs prevents it from exemplifying "true" improvisation—despite its practitioners' experience of it [...]

As with any music, close listening and analysis of improvised music requires attention to information at different laminar depths. Thus, each of the numerous released recordings of, say, Coltrane's "Giant Steps," regarded at the level of individual passages, is the result of careful preparation [...] At the same time, each improvisation, taken as a whole, maintains its character as unique and spontaneous.

The Eurological notion of pure spontaneity in improvisation fails to account for this temporally multilaminar aspect of an improvisation. By fixing upon the surface level of immediate spontaneity, unsullied by reference to the past or foreshadowing of the future, the reduction of the notion of improvisative spontaneity to the present moment insists on ephemerality. In its extreme form this notion requires that an improvisation be done once and never heard in any form again. [Larry] Solomon's insistence that a recorded improvisation, "upon replay, is no longer an improvisation" reduces experienced immediacy on the part of both listeners and improvisers to an infinitely small "now," a Euclidean point, excluding both the past and the future.²²

However, listeners have heard some recorded improvisations literally thousands of times. The performances are learned by heart, yet even after many years, new layers of meaning are spontaneously discovered. While a memorized improvisation is, taken note by note, utterly predictable, these recorded versions often seem to renew themselves when viewed in a more expansive temporal context. Moreover, improvisers are hearing their music at the same time as any potential listener; in this sense, the experiences of improviser and listener are similar [...I]t seems clear that the listener also improvises, posing alternative paths, experiencing immediacy as part of the listening experience.

The elimination of memory and history from music, emblematic of the Cageian project, may be seen as a response to postwar conditions. Seen in

historical terms, the decline of improvisation in European music in the nineteenth and early twentieth centuries would seem to preclude any identification of exclusively or even primarily European antecedents for Eurological improvised music. In such an atmosphere, the postwar modernist emphasis of musicians such as Cage on "the present," deemphasizing memory and history, would appear to be a natural response to the impossibility of discovering such antecedents on the part of those for whom the preservation of European purity of musical reference would be a prime concern.

This response to historical conditions, moreover, may be viewed not only in terms of the more usually theorized postwar modernist desire to be made new through "negation of the principles of the previous tradition" but, again, with respect to the quintessentially American myth of the frontier, where that which lies before us must take precedence over "the past."²³ On the other hand, the African-American improviser, coming from a legacy of slavery and oppression, cannot countenance the erasure of history. The destruction of family and lineage, the rewriting of history and memory in the image of whiteness, is one of the facts with which all people of color must live. It is unsurprising, therefore, that from an exslave's point of view an insistence on being free from memory might be regarded with some suspicion—as either a form of denial or of disinformation.

Improvised music

[... A] field termed "improvised music" has arisen and come to some prominence in the period since 1970. I would identify improvised music as a social location inhabited by a considerable number of present-day musicians, coming from diverse cultural backgrounds and musical practices, who have chosen to make improvisation a central part of their musical discourse. Individual improvisers are now able to reference an intercultural establishment of techniques, styles, aesthetic attitudes, antecedents, and networks of cultural and social practice [...]

The incorporation and welcoming of agency, social necessity, personality and difference, as well as a strong relationship to popular and folk cultures, are some of the features of improvised music which distinguish it as a field from Eurological work "incorporating" or "using" improvisation, or featuring "indeterminacy" or aleatoric practices. In my

own view, the development of the improviser in improvised music is regarded as encompassing not only the formation of individual musical personality but the harmonization of one's musical personality with social environments, both actual and possible. This emphasis on personal narrative is a clear sign of the strong influence of the Afrological on improvised music.

One important model in the area of improvised music is the sort of "open" improvisation practiced by members of the Association for the Advancement of Creative Musicians (AACM), the African-American musicians' collective widely recognized for the variety of innovative musical ideas promulgated by its membership since its inception in 1965 on Chicago's nearly all-black South Side. The "AACM model" stresses a composer-improviser orientation and the importance of asserting the agency, identity, and survival of the African-American artist [...]

Another important and very different model of "improvised music" is practiced by the European "free" improvisors [...] Reflecting the diverse backgrounds of its participants, this group often blends personal narrative reminiscent of an Afrological perspective with sonic imagery characteristic of European forms spanning several centuries, and [...] places great emphasis on the social necessity for the role of improvisor [...] In this regard it becomes entirely probable that the direct use of the term "improvised music" in the sense that I am using it here began among this group of European improvisors. The term was adopted, I believe, not to distinguish it from jazz in the sense of critique, but to better reflect the European improvisors' sense of having created a native model of improvisation, however influenced by Afrological forms.

A third strain within improvised music is the so-called "downtown (New York) school," whose music is often timbrally and dynamically disjunctive, with rapid and frequent changes of mood and extremes of dynamics, extensive use of timbres reminiscent of rock, and strong interface with popular culture. Again, the emphasis here on personality in improvisation is Afrological in nature; this group, in my view, has attempted to come to terms with the innovations of Cage in terms of time, spontaneity and memory, while declining to accept Cage's critique of jazz and improvisation.

In recent years, moreover, the emergence of musicians who do not claim roots in either European or American forms has further served to identify improvised music's transcultural nature, [...] pointing up the dangers of essentialist thinking with regard to the connection between music, race and national origin [...]

Freedom

The advent of various strains of "free" improvisation—including "free" jazz, which emerged in the early 1960s, as well as the European "free" improvisation which emerged in several cultural strata in the 1970s—placed "freedom" back on the musical agenda. In the case of "free" jazz, the tumultuous push for human rights in the United States had clear analogues in the music, as remarked upon by politically active musicians such as Archie Shepp. With regard to the improvisations of musicians such as Vinko Globokar and Cornelius Cardew, where improvisation itself became a symbol for freedom, the events of May 1968 in Paris and other European capitals could be seen as germane.²⁴

As with the theme of spontaneity, notions of freedom and control differ markedly between Eurological and Afrological viewpoints. "Free jazz" was, as one can readily observe from the drummer Arthur Taylor's interviews with Afrological improvisers, quite controversial among jazz musicians.²⁵ Whatever the viewpoints of the musicians on free jazz itself, the responses of several improvisers on the topic of "freedom" are instructive. In particular, the Eurological discourse concerning "rules" for improvisation is almost entirely absent. Rather, the improvisers seem to agree that freedom in Afrological improvisation is perceived as being possible only through discipline, defined as technical knowledge of music theory and of one's instrument as well as thorough attention to the background, history, and culture of one's music [...]

Among improvisers from the Eurological standpoint, freedom is sometimes framed in terms of European music's traditional composer-toperformer hierarchy. According to [Mildred Portney] Chase, "improvisation is the free zone in music, where anything is permitted and considered acceptable. You are responsible only to yourself and to the dictates of your taste."²⁶ Similarly, preparation for improvisation is described in terms of the need to "free ourselves from those negative attitudes that inhibit us."

A much more widespread view that has evolved in Eurological music circles with regard to improvisation is the notion that, to be musically coherent, improvisation cannot be left as "free," but must instead be "controlled" or "structured" in some way. The composer and critic Tom Johnson's characterization of Cage's indeterminacy is typical: "Cage began referring to work indeterminate of its performance because to have called his work 'improvisations' would have implied that the performers were not guided by goals and rules."²⁷ Another reason for asserting this necessity for rules is exemplified in the complaint by Berio that "improvisation presents a problem in that there's no true unanimity of discourse among the participants, only, once in a while, a unity of behavior"²⁸ [...]

In any event, performer choice and "intuition" systems, as promulgated by Stockhausen and other Eurological composers, do indeed turn out to be somewhat different from improvisation in the Afrological sense. These systems seem to take account of the absence of pedagogy in the Eurological music education system with regard to improvisation. At the very least, they are designed to compensate for this lack by mitigating, for the performer, the "terrifying prospect of being free to play whatever comes to mind," by providing material to supplement or even to supplant the performer's own creative lexicon.²⁹

My own view is that in analyzing improvisative musical activity or behavior in structural terms, questions relating to how, when, and why are critical. On the other hand, the question of whether structure exists in an improvisation—or for that matter, in any human activity—often begs the question in a manner that risks becoming not so much exegetic as pejorative. It should be axiomatic that, both in our musical and in our human, everyday-life improvisations, we interact with our environment, navigating through time, place, and situation, both creating and discovering form. On the face of it, this interactive, form-giving process appears to take root and flower freely, in many kinds of music, both with and without preexisting rules and regulations.

Personality

One important aspect of Afrological improvisation is the notion of the importance of personal narrative, of "telling your own story." Berliner's subchapter on this topic identifies this metaphor of the story as underlying the structural process of many improvisers.³⁰ Erroll Garner encapsulates this viewpoint well: "If you take up an instrument, I don't care how much you love somebody, how much you would like to pattern yourself after

them, you should still give yourself a chance to find out what you've got and let that out."³¹

Part of telling your own story is developing your own "sound." An Afrological notion of an improviser's "sound" may be seen as analogous to the Eurological concept of compositional "style," especially in a musically semiotic sense. Moreover, for an improviser working in Afrological forms, "sound," sensibility, personality, and intelligence cannot be separated from an improviser's phenomenal (as distinct from formal) definition of music. Notions of personhood are transmitted via sounds, and sounds become signs for deeper levels of meaning beyond pitches and intervals. The saxophonist Yusef Lateef makes it plain: "The sound of the improvisation seems to tell us what kind of person is improvising. We feel that we can hear character or personality in the way the musician improvises"³² [...]

Eurological improvisers have tended to look askance on the admission of personal narrative into improvisative activity. I believe that, for postwar Eurological improvisers, the ideas of Cage have, again, had the greatest impact in this regard: "What I would like to find is an improvisation that is not descriptive of the performer, but is descriptive of what happens, and which is characterized by an absence of intention."³³ Interviewing the members of AMM, the composer Christopher Hobbs states that one of the joys of listening to the group is that "you can't distinguish who is playing what, and that it is completely unimportant one way or the other."³⁴ British composer Gavin Bryars, who moved away from improvisation during the 1970s, maintained that "one of the main reasons I am against improvisation now is that in any improvising position the person creating the music is identified with the music.... It's like standing a painter next to his picture so that every time you see the painting you see the painter as well and you can't see it without him."³⁵ [...]

At the same time, though the members of the innovative improvisation group Musica Elettronica Viva (including pianist Alvin Curran, electronic improviser Richard Teitelbaum, trombonist Garrett List, and pianist Frederic Rzewski) have all had close associations with Cage, their ideas about group improvisation—as with other "post-Cage improvisers" such as Malcolm Goldstein—seem to part company with Cage's views. Frederic Rzewski's "Description and Analysis of a Process" maintains that the music of MEV is "based on friendship. This element of friendship is communicated in the music; it cannot be concealed."³⁶ Earlier in this passionate, brilliant, yet somewhat rambling treatise, Rzewski states that "Any unfriendly act on the part of some individual threatens the strength of the music we are all trying to create."³⁷ Malcolm Goldstein is even more direct than Rzewski, maintaining, with Erroll Garner, that the improvisative act demands from the improviser that an answer be created to this important question: "Who are you? How do you think or feel about this moment/sounding?"³⁸ Perhaps the most trenchant conception of what improvisation can be is to be found in this testament by Charlie Parker: "Music is your own experience, your thoughts, your wisdom. If you don't live it, it won't come out of your horn."³⁹ The clear implication is that what you do live does come out of your horn.

Notes

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- 3 John Cage, *Silence: Lectures and Writings by John Cage* (Hanover, NH: University Press of New England/Wesleyan University Press, 1973), 39.
- 4 John Cage, "History of Experimental Music in the United States," in *Silence*, 67–75.
- 5 Cage, *Silence*, 72.
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- 7 Cage in Kostelanetz, Conversing with Cage, 257.
- 8 Cage in Kostelanetz, *Conversing with Cage*, 257.
- 9 See Chad Mandeles, "Jackson Pollack and Jazz: Structural Parallels," *Arts Magazine* 57 (1981): 139.
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- 14 Elliot Schwarz and Daniel Godfrey, *Music Since 1945: Issues, Materials and*

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- 15 Steve Lacy, quoted in Derek Bailey, *Improvisation: Its Nature and Practice in Music* (New York: Da Capo, 1992), 57–58.
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- 17 Quoted in Berliner, *Thinking in Jazz*, 269.
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- 21 John Cage quoted in Kostelanetz, *Conversing with Cage*, 223.
- Larry Solomon, "Improvisation II," *Perspectives of New Music* 24, No. 2 (1985):
 226.
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- Vinko Globokar, "Reflexionen über Improvisation," in *Improvisation in Neue Musik: Acht Kongreßreferate*, ed. Reinhold Brinkmann (Mainz: Schott, 1979), 29– 30.
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- 28 Luciano Berio, Two Interviews (London: Marion Boyars, 1985), 81.
- 29 Christopher Small, *Music of the Common Tongue: Survival and Celebration in Afro-American Music* (London: Calder, 1987), 302.
- 30 Berliner, *Thinking In Jazz*, 210.
- 31 Erroll Garner quoted in Taylor, Notes and Tones, 97.
- 32 Yusef Lateef, "The Pleasures of Voice in Improvised Music," *Views on Black American Music* 3 (1985–88), 44.
- 33 John Cage quoted in Kostelanetz, *Conversing with Cage*, 222.
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- 36 Frederic Rzewski, "Description and Analysis of a Process," unpublished, obtained from the author, 1968, 3.
- 37 Rzewski, "Description and Analysis of a Process," 3.

- 38 Malcolm Goldstein, *Sounding the Full Circle* (Sheffield, England: Goldstein/Frog Peak, 1988), 10.
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Improvisation: Terms and Conditions

Vijay Iyer

Widely celebrated improviser and composer Vijay Iver was trained as a classical violinist and taught himself to play the piano, now his primary instrument. He studied math and physics before earning a doctorate in the cognitive science of music, exploring embodied cognition in West African and African-American musical forms. Iver is deeply influenced by members of the Association for the Advancement of Creative Musicians—notably Wadada Leo Smith, George Lewis, Roscoe Mitchell, Muhal Richard Abrams, and Henry Threadgill—and also by South Indian classical music, hip hop, and electronica. He has written music for orchestral and chamber ensembles, composed for film and dance, collaborated with poets such as Mike Ladd and HipHop outfits such as Das Racist and dead prez, produced electronic music for his own ensembles and remixes for Talvin Singh, Meredith Monk, and others. He leads a trio with bassist Stephan Crump and drummer Marcus Gilmore, and runs several other ensembles as well. In the following essay, Iver investigates the paradox of improvisation, which is basic to human action and experience, and yet often greeted with suspicion by composers and felt to be mysterious to listeners.

Improvisation

If we define it provisionally as real-time decisions and actions, then what *isn't* improvisation? We're improvising from the moment we acquire sensation and motion—you could say it's prenatal. The process by which we acquire cognition—embodied action, situated in an information-rich environment—is improvisation itself. There is a fundamental identity between improvisation and what we more generally call "experience." They are one and the same. Life begins at improvisation. Life is a sustained improvisational interaction with the structures of the world, of the body, of culture. Improvisation is a condition of being alive.

Composition and performance

Exceptions to the above immediately come to mind: for example, the composition of works to be performed to the composer's exact specifications, and the performance of such compositions. This composeramong the more performer bifurcation is peculiar hierarchical differentiations we have in culture. That statement is not meant to invalidate or pass judgment on the art of composition (I'm a composer, after all). However, this claim does reposition composition as highly of unordinary in the scheme things. This phenomenon—the micromanipulation of the actions of others at the behest of a single composer-ego—is accepted unproblematically as a structural necessity of music, dance, and theater in the West. We swear by this order of things, so much so that we tend to view improvisation as a rare and dangerous behavior. We tend to forget that the performance of fully composed works is an "extreme occasion," to use Edward Said's phrase, whereas improvisation is not only everyday and ubiquitous, but moreover an utterly central phenomenon in our lives, fundamental to who and what we are.

A recurring conceit among classical musicians, critics, and listeners is that the best performances of composed works are those that "sound improvised." (What, I always wonder, are the hallmarks of that sound? What exactly does improvisation sound like and how do we know that it's occurring? The short answer, it seems to me, is that we don't; more on this below.) We make similar demands of actors, that utterances should appear unscripted, as though the characters just decided to say those words in that moment.

And yet the extreme occasion of (classical) performance is always one in which we know every gesture, word, and sound to be scripted, sculpted, premeditated, endlessly rehearsed and precisely timed. We know all this to be true, and yet we want to pretend not to know; we want to suspend our disbelief. We crave the unpremeditated, and we construct elaborate, exacting rituals of performance to access fleeting sensations of spontaneity.

Composing for improvisers

Composing for improvisers differs from the kind of composing described above. Where performers need scripts, improvisers need stimuli and constraints. Composing for improvisers becomes a kind of architecture: the construction of spaces that frame, enable, and contextualize human action, without overspecifying these actions. The composer becomes instead an architect of environments, a contriver of situations. Relinquishing more levels of control to the improvisers, this situational architect loses the traditional composer's centrality, but is rewarded with an improvised expansion of the music beyond its original design.

Improvising against the composer

It seems that the main reason for the scarcity of improvisation in the concert-music world is that the culture that separates composer from performer also maintains and polices that separation. Classical performers are trained to fear improvisation and to place the composer's "intent" on a pedestal. Composers are taught to mistrust the improvisational input of others and to be extremely possessive of their output.

It feels like an anxiety, this systematic exclusion of the basic human act of improvisation. We should work to unravel this stifling order of things. Why shouldn't performers "liberate" compositions from the tyrannical micromanagement of composers? Why not work with composed material not as a closed system, but as an open text through which to express/explore something else?

Of course, this has gone on for a long time. Early jazz musicians commandeered pre-existing Tin Pan Alley songs as vehicles for improvisation. The point wasn't to worship those songs or their authors, but rather to turn the songs into something they weren't. The improvisers worked not with the songs themselves but with their underlying architecture, finding new ways to navigate through these hidden forms, subverting and undoing them.

An improviser develops an analytical take on a composition's contents in order to improvise against it, to turn the composition against itself and against its composer. Improvising against (or, at the very least, "not with") the composer becomes a path towards discovery—not of the composer's intent (which is a useless concept), but of musical possibility.

The "whether" question

It is common 'to ask "whether" a musical act was "truly" improvised. For example, an anxious composer will decry improvisation as untrustworthy, claiming that it's impossible to improvise something really original, and alleging that an improviser is just selecting from a repertoire of canned mini-routines. Such claims both deny the possibility of real-time invention and place unreasonable demands for newness on the situation. But they also miss the point. It's the real-time nature that has meaning. It's not just the fact that those sounds appeared in the music; it's that someone chose to make those sounds at that moment.

Another complicating factor is that there's nothing inherent in musical improvisation that "sounds" improvised. It's easier to identify things that "sound composed": ensemble synchronies and unisons, very difficult to achieve spontaneously, typically signal to a listener that something was planned. In talking about improvisation, witnesses tend to invoke performers' body language, eye contact, visual cues, or of so-called "mistakes" to prove that these acts were (or were not) spontaneous. But short of such things (which are not essential attributes of improvisation) it seems awfully difficult to pinpoint improvisation as such.

There are reliable attributes of a specific improvised idiom—culturally specific principles of variation, parameters of expression, and choices to be made—but nothing in the sound of a musical action that announces, "Yes, I was 'authentically' improvised! You can tell just by hearing me ... I came into existence in the moment that you heard me. It was only just decided that I should exist. My creator chose me over all the options within reach at that time." And so on ad absurdum.

Listeners often want to decode the level of real-time agency in what they just heard, so they tend to ask questions like, "What percentage of that was improvised?" This would seem to suggest that, at least to the uninitiated, it's impossible to know just from listening. And if this is indeed the case, then how does anyone ever really know? There's certainly no point in asking what was "intended" in an improvisation, or what an improviser was "thinking" at that moment.

And we still have that "impression" of improvisation discussed earlier, that improvised "quality" that is supposedly conjured by the best classical performers. (It is also common, conversely, to praise improvisations for the apparent presence of compositional elements: motific developments, a "natural" arc, and so on.) If a listener can knowingly allow himself to believe that a fully composed work has just been improvised into existence, or that an improvisation was instead composed, then of what use is the distinction at all?

But it is a valuable and meaningful distinction. It brings us to a central

paradox: the drama of improvised music involves the understanding that those sounds were chosen and deployed at that moment by those people. And yet, you cannot tell this to be true just by listening; you have to already know that this is happening. It follows that you only really know by referring to something beyond the sound.

Improvisation as a condition

What I submit (after George Lewis and others) is that we agree to understand improvisation not as a quality but as a condition. Muhal Richard Abrams recently provided an activist definition of improvisation as "a human response to necessity." If we accept the ubiquity and centrality of improvisation in our lives, and if we also accept its contingent, fragile, unknowable status, then we must purposefully frame improvisation as our very state of being, our particular stance toward the world. Improvisation is our *hexis*: the position we hold ourselves in while taking action. Or, improvisation is simply what we do when we must do something; necessity is its mother.

Improvisation as a technique may be magnified or suppressed in various forms of music, but improvisation as a condition is always with us. We all know exactly what it feels like because we are always doing it. Is "improvisedness" audible? It doesn't matter. To paraphrase Peter Falk's character in *Wings of Desire*: I can't hear it, but I know it's there.

From Arcana IV: Musicians on Music, ed. John Zorn (New York: Hips Road, 2009). Used by permission of the author.

Going Fragile

Mattin

The work of Basque musician and artist Mattin investigates the politics of experimental music, particularly noise and free improvisation. He examines the ability of these musical forms to unsettle the economic and social relations characteristic of capitalism and, at the same time, interrogates the notion and extent of "freedom" in noise and freely improvised music. Mattin's performances highlight the tangle of power relationships that exist among performers and between performers and audience members. Thus, his performances are often provocative, unsettling the ordinary conditions of spectatorship. In 2009, Mattin co-edited (with Anthony Iles) Noise and Capitalism, a collection of essays on the politics of music. He runs the w.m.o/r, Free Software, and Desetxea labels and has recorded dozens of records with the punk band Billy Bao, musicians such as Taku Unami, Eddie Prévost, and Tony Conrad, and philosophers such as Ray Brassier and Reza Negarestani. With Miguel Prado, he recorded the ten-CD set Evacuation of the Voice, an investigation of the voice as connected to identity, subjectivity, and property. In this essay, prompted by an encounter with the Austrian improviser Radu Malfatti, Mattin reflects on the importance of improvised music in pushing performers and audiences beyond their comfort zones, exposing their fragility, and offering the possibility of radical openness and receptivity.

Of course it is not easy to get out of your own material, and it can be painful; there is an insecurity aspect to it. This actually is probably the most experimental level. When do you think real innovation and experimentation are happening? Probably when people are insecure, probably when people are in a situation very new to them and when they are a bit uncertain and afraid. That is where people have to push themselves. People are innovative when they are outside of their warm shit, outside of the familiar and comfortable ... I don't know exactly what I want, but I do know exactly what I do not want.

– Radu Malfatti

Improvised music forces situations into play where musicians push each other into bringing different perspectives to their playing. Improvised music is not progressive in itself, but it invites constant experimentation. When players feel too secure about their approaches, the experimentation risks turning into mannerism. What I would like to explore here are the moments in which players leave behind a safe zone and expose themselves in the face of the internalized structures of judgment that govern our appreciation of music. These I would call fragile moments.

During the summer of 2003 I had the opportunity to spend time in Vienna researching the political connotations of improvised music. Not that I found a direct relationship, but through conversations, going to concerts and playing with other musicians, I became aware of some of the potentials and limitations that improvisation has in terms of political agency within the space of music production. For this text, I draw from the conversations I had with the trombonist Radu Malfatti as part of my research. While Malfatti's roots are in the chaotic-sounding improvised free jazz of the 1970s, he is currently more focused on ultra-quiet and sparse playing. His approach to performance runs against the stagnation that might occur in sustained improvisation. In his quest to avoid stagnation, Malfatti looks for those insecure situations that I mention above—situations that can call into question the dominant structures of music appreciation.

How could you anticipate what you might achieve if you do not know what you will find on the way? To be open, receptive and exposed to the dangers of making improvised music, means exposing yourself to unwanted situations that could break the foundations of your own security. As a player you will bring yourself into situations that ask for total demand. No vision of what could happen is able to bring light to that precise moment. Once you are out, there is no way back; you cannot regret what you have done. You must engage in questioning your security, see it as a constriction. You are aware and scared, as if you were in a dark corridor. Now you are starting to realize that what you thought of as walls existed only in your imagination.

While your senses alert you to danger, you are also going to use them to deal with it. Keep going forward toward what you do not know, to what is questioning your knowledge and your use of it. Keep pushing yourself, knowing that the other players will be pushing you, replacing traces of comfort. This is an unreliable moment, to which no stable definition can be applied. It is subject to all the particularities brought to this moment. The more sensitive you are to them, the more you can work with (or against) them. You are breaking away from previous restrictions that you have become attached to, creating a unique social space, a space that cannot be transported elsewhere. Now you are building different forms of collaboration, scrapping previous modes of generating relations.

Something is happening here, but what is it? It is hard to say, but certainly there is intensity to it. These moments are almost impossible to articulate; they refuse pigeonholing, and evade easy representation.

We are forced to question the material and social conditions that constitute the improvised moment – structures that usually validate improvisation as an established musical genre. Otherwise we risk fetishizing "the moment" and avoid its implications.

When we talk about stagnation and progression there is just one instrument to help us explain what we mean, and this is time, history.

– Radu Malfatti

When Radu Malfatti talks about the breaks that some musicians have made from musical orthodoxy, he looks at the ways that they have dealt with these breaks. Some seek to consolidate or re-metabolize the fragile moments they have encountered; others simply return to the safety of their previous practices. Only very few manage to keep searching for fragility; it requires musicians to make multiple breaks from their own traditions. It's easier to develop coherence within one's practice: There is a fine line between being persistent in pursuing a particular line of research, and getting comfortable within one's methods.

When something new happens, people do not like it. It's as simple as that ... There is nothing I can do about it.

– Radu Malfatti

When something different and hard to place appears within the dichotomy of the new and the old of mainstream values, attention cannot easily be drawn to it.

While nobody might recognize the importance of what you have done, you need to keep your confidence. It is difficult to be alone in working toward something and yet not know where it will take you; something which threatens to destroy your artistic trajectory, which you have worked so hard to build up. Of course when one uses music, not as a tool for achieving something else (recognition, status...) but in a more aggressively creative way, it is going to produce alienation. But what do you want to do as an improvising musician? Work toward the lowest common denominator, making music which more people can relate to?

Improvised music has the potential to disrupt previous modes of musical production, but it is up to the players to tear them apart in order to find a way in. Opening new fields of permissibility means to go fragile until we destroy the fears that hold us back.

We are not talking here about changing the labor conditions of a majority of people, but, being aware that culture, creativity and communication are becoming the tools of the "factory without walls," we need to be suspicious of ways in which cultural practices can be exploited by capital. Because of this we must constantly question our motives, our *modus operandi* and its relation to the conditions that we are embedded in, to avoid recuperation by a system that is going to produce ideological walls for us. To be antagonistic to these conditions means danger and insecurity. To go through them will mean commitment and some of what Benjamin described as the "Destructive Character":

The destructive character has the consciousness of historical man, whose deepest emotion is an insuperable mistrust of the course of things and a readiness at all times to recognize that everything can go wrong. Therefore the destructive character is reliability itself. The destructive character sees nothing permanent. But for this very reason he sees ways everywhere. Where others encounter walls or mountains, there, too, he sees a way. But because he sees a way everywhere, he has to clear things from it everywhere. Not always by brute force; sometimes by the most refined. No moment can know what the next will bring.

- Walter Benjamin, "The Destructive Character," 1931

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27 Questions For A Start ... And Some Possible Answers to Begin With

Trio Sawari

In the mid-1990s, a group of improvisers in Berlin began to describe their practice as Echtzeitmusik (real-time music) in order to distinguish it from more established forms of free jazz and improvised music. By the early 2000s, the term was widely used as a description of Berlin's experimental music scene, and particularly as a synonym for so-called "Berlin Reductionism": a spare, non-expressionist mode of improvisation that patiently explores the arrival and departure of singular sonic events. The Berlin Reductionism exemplified by Burkhard Beins, Axel Dörner, Annette Krebs, Andrea Naumann, and others connects with other forms of minimalist improv and composition that emerged in the late 1990s, notably the work of Japanese onkyō musicians such as Sachiko M, Toshimaru Nakemura, and *Otomo Yoshihide; Viennese improvisers such as Werner Dafeldecker, Christof* Kurzmann, and Radu Malfatti; Londoners Rhodri Davies, Phil Durrant, and Mark Wastell; American "lowercase" musicians Richard Chartier, Greg Kelley, and Bhob Rainey; and the Wandelweiser composers Jürg Frey, Michael Pisaro, Manfred Werder, and Eva-Maria Houben. On tour in 2007, the Trio Sowari (Beins, Durrant, and Bertrand Denzler) noted the undertheorization of their form of music and generated a series of questions that became the starting point for discussions in the "Labor Sonor" series at Berlin's KuLe club. The following text presents these questions, along with answers by some members of the scene: drummer Sven-Åke Johansson, musicologist and bassist Nina Polaschegg, percussionist and performance artist Diego Chamy, and visual artist Vered Nethe.

To what degree is this kind of music experimental?

Are there preconceptions?

Is the group constellation already a compositional element? Is this music only for musicians and specialists? Is there any "popular" potential in this kind of music? Would it be a good thing if it became popular? Is music a language or something beyond?

Does our musical scene simply reproduce capitalistic structures?

To what degree is this kind of music improvised?

Is it all about learning to make decisions without being able to fully analyse the current situation (due to a lack of time and/or capacity)?

Does it swing?

Can this music help to stop global warming?

Is our musical scene merely a resort for failed existences and dysfunctional people?

Is it easier to play than not to play?

Is failure one of our main sources for progress?

Are there different levels of listening?

Should everything be possible at any time?

Do we listen differently to an improvisation than to a composition?

Does a recording turn an open process into a completed piece of work?

Do we have to file it under a generic term?

How can stasis be avoided?

Is an improvisation a composition (in progress)?

Is it possible to have no expectations?

Does music anticipate changes in society?

Is this a gender-, race-, education- and region-specific form of art?

Is it possible to have a non-hierarchical group interaction?

Do we need a dedicated space?

Although we received answers to most of the questions, we present here only those where we had three answers that together made an informative and/or controversial collective contribution.

To what degree is this kind of music experimental?

- Sven-Åke Johansson: I wouldn't call it experimental at all; this is but an accomplished method. Something is experimental if you don't know if it makes sense, but I'm not questioning something. I'm making a proposition. An experiment is usually considered something where you don't know the outcome, but music is not this for me. Rather, it's something that gets proposed. One doesn't interrogate music in general. (Perhaps one doesn't know the result, but that is something else again.) So I wouldn't call this experimental.
- *Nina Polaschegg*: What does "experiment" or "experimental" mean? Is the term (as it seems sometimes) used as a criterion of value, or is it purely descriptive? From its meaning in Latin, a musical experiment would mean an attempt, a rehearsal, an examination, or even a proof. This would thus make it necessary to think about what should be rehearsed or tested. Wouldn't this mean something unfinished, not yet accepted? An experiment as a methodically applied setting for investigation would allow the audience to participate in this field of research. And this would further mean attention was directed more towards the process (or the attempt) than towards an aspired end result.

The conclusion of these loose ideas: it's not really possible to answer this question in a general way. Are the improvisers specifically interested in sound research? (And would this kind of working, pure sound research already be art in itself or just a preliminary step towards the creation of art, one that should be taken in the rehearsal room?) Do they work with parameters of interaction? Is it about temporal processes, or is it more centered around a formal shaping? What would the term "to experiment" mean applied to these examples?

Diego Chamy/Vered Nethe: Something is experimental every time an artist takes a risk.

Is the group constellation already a compositional element?

SÅJ: Yes, I would claim this to be the case.

NP: If you want to understand the term "composition" in its original and literal sense, this might be true (*componere* = to assemble), but how far would we get with this? Then every type of music would be composed, and the term "composition" would be made redundant by this because it wouldn't lead to any significant clarification anymore. Terms that don't make any distinctions (which are not necessarily judgments!) in fact don't help me in my considerations. No doubt, the group constellation is one of the first and momentous decisions to be made within the course of music making and thus within improvisation as well. It can demand or
preclude stylistic directions—for instance, it can more or less determine or restrict the sound and/or amplitude.

DC/VN: Everything is a compositional element: the audience, the color of the musician's underwear, and so on.

Is this music only for musicians and specialists?

SÅJ: No, decidedly not!

- *DC/VN*: Music has no addressee in itself, but, yes, this music has been mainly for artists and specialists until now. So the question we have to ask ourselves is *how come* this is happening.
- *NP*: If there is a claim for music being art, then music can't be only for musicians and specialists. If music is only for musicians, it only furthers self-awareness, private amusement, recreation, or things like that. The popular notion of there being a "special feeling" while playing can be on the ragged edge of pointing in this direction, assuming the playing doesn't go any further than this type of subjective "feeling." There's nothing to say against that, but if one claims to create art and/or applies for public funding, such things can hardly be the main thing.

Is this music only for specialists? There are a number of questions behind this: (a) Who is a specialist? and (b) What would be the objection if this music were meant only for "specialists" and not immediately appreciated by everyone? It's a known fact that specialization doesn't exist only within the area of contemporary music, but also in all other kinds of music. There are Early Music specialists, opera connoisseurs, jazz freaks, and pop and rock fans. Through the question and the way it's asked, one can hear the accusation of elitism, or the overly demanding, by which the non-initiated become excluded, an accusation with which contemporary, composed music (and even the broad field of classical music) must also live. This in turn is due to the scales for measuring music being increasingly derived from purely functional music for entertainment and relaxation. (Here it's even worse than in other branches of art, except maybe for literature, where even the "light novel" is regarded as "art," but where it's a given that some time needs to be invested, and the full enjoyment of art is allowed to be a little bit exhausting.)

I'm advocating to stand up for it and say, yes, this music is also meant for specialists, but—and this is an important distinction—no one can be stopped from becoming such a specialist. And this can be achieved through open listening and a willingness to question familiar musical approaches and concepts. And by daring to just ask the musicians. And by asking the musicians not to take up an elitist position themselves or to laugh about "stupid" questions, not to criticize listening newbies, nor to exclude the non-initiated by an all-too-closed peer group behavior, which is in my opinion one of the biggest socio-communicative mistakes a musician who is concerned about an audience can make.

Is music a language or something beyond?

- *NP*: Big standard question, if music is a language. Counter question: if music were a language, why would it exist? Isn't our verbal language (at least for the moment) far more differentiated? At least this is not a question that is only relevant to improvised music. The comparison would have to be made on the basis of a linguistic definition of language. And it would be necessary to ask to what extent this might change historically, if there are differences between art musics and functional musics, between music with and without lyrics, etc. It's a known fact that there are differences. At the very least, a reduction to the notion that music "Wants to say something"—and hence bears a "meaning" that could be translated into verbal language—would be inadequate. And even if one concluded that music has some elements similar to language, it would still have to be asked how these musical language-like set pieces are transformed into art. Finally, there is always a connective question resonating within this question (or the consideration of an answer to it): what is the difference between language and communication, as they are applied to music?
- *SÅJ*: Well, it is by no means language! It is "something beyond" language, far beyond, or before, or whatever. Because music actually conveys totally different movements to the listeners than language does. It mediates in certain respects very different abstract phenomena than language ever could, if language is meant as everyday language here.
- *DC/VN*: For us a language consists in the formalization of any specific expression. In this sense, music is sometimes a language and sometimes something else. But even when it is a language, it is always something else (a matter of expression or unformalized expressive matter). It is also possible to find music that is not a language, since its expressions are not formalized. Then it will be just unformalized expressive matter. Anyway, we believe that most improvised music is actually formalized, usually without the musicians noticing it. But we don't believe this has to be taken as a bad thing.

Is it all about learning to make decisions without being able to fully analyze the current situation (due to a lack of time and/or capacity)?

- *DC/VN*: When you play there are never options. If you need to make a decision you are already late. To make a decision, a subject is needed, and music is not made by subjects but by events and forces in relation to each other. The ability that is needed is to be able to be open to the event.
- *SÅJ*: Yes, generally it is about making decisions; you making the decision to play this or that, loud or quiet, or if you are not going to play at all. It is impossible to have an overview of everything, at least not of the coming situation. But of course it also matters if you are playing on your own or together with others. It also depends on this. But in the end it is about the decision you are making.
- *NP*: If it's only about being capable of making decisions, then it would not be about art but about the skills needed to deal with your life—it would be improv as self-awareness.

Is failure one of our main sources for progress?

- *SÅJ*: No, I wouldn't say that. While I'm playing, there are actually no things like mistakes. But preliminary decisions can be made in the wrong way, due to whatever kind of misapprehension, before the playing itself begins (for instance, during the set up of an orchestra). While it is possible that dilemmas can cause progress—for example, if you challenged yourself to make something in the shortest period of time, or if you're asked to play somewhere you can't imagine playing—this means you are doing something you wouldn't do based on your own decision. But this can in turn lead to progress in your own playing or your musical work.
- *NP*: Not only in improvisation, not only in making music, but in life in general. The old saying "You learn from your mistakes" was not made up out of thin air, as has been shown in diverse publications of neuroscientific research. The question be, "What is 'failure' in improvised music?"!
- *DC/VN*: It is not clear that there is such a thing as progress. But failure could be a good source for change.

Are there different levels of listening?

SÅJ: Yes, I would think there are quite a lot. For instance it's possible to figure out an overall sound or to concentrate on one voice. Or it's possible to hear a visualized

picture by imagining scenery, and the music becomes the accompaniment for the scenery, something that can often be helpful since music that doesn't evoke any picture at all sometimes doesn't really work for people. So I also see this as a type of "level of listening." To imagine scenery at the same time, to compare the music to scenery, while listening although it's abstract.

- *NP*: Yes, functional-emotional listening, analytic listening, focused listening ... Needless to say, I have translated "levels" as *Arten* [kinds] or *Varianten* [variations], which is something that is not hierarchical.
- *DC/VN*: Some people have a greater power to be affected than others. It is more about degrees than about levels. Levels are hierarchical; degrees, not necessarily.

Is it possible to not have any expectations?

- *SÅJ*: No, I don't think so. There is always some kind of expectation, whatever it is—in the music, if someone is coming. You're making records, and you are thinking someone is going to buy them. Playing involves certain expectations, but that doesn't mean you had a detailed concept beforehand about what it should become.
- *NP*: In general, certain basic expectations are always there, and they are necessary to stay capable of acting and to classify a particular situation—regardless of improvisation. It seems that expectations can sometimes also arise automatically (if you are thinking of certain fellow musicians or a special setting, etc.).
- To approach it from the negative side wouldn't playing without expectations just be a pure reproduction of trained licks and already familiar story lines? Also, playing without expectations should not be mixed up with intuitive playing.
- Because intuition, as is well known, is based on quite a lot of presumptions, on already known and learned things, therefore it's not possible to think of improvisation without (implicit or explicit) expectations—even if not all expectations have to be fulfilled, also not within one's own playing.
- *DC/VN*: It is possible not to have any expectations. From the point of view of the artist, we think it helps to have them. To have expectations about the effects of your work can help the work go somewhere. From the point of view of the audience, it helps not to expect something in particular, but to be open and accept what can happen.

Is it possible to have a non-hierarchical group interaction?

NP: Hierarchies can change, also within an improvisation. Hierarchies don't automatically have to be seen as something negative if they are "balancing" each

other. It's also possible to think of them in a neutral way and to connect hierarchy with musical ways of creation (keywords: form, process development, playing with foreground and background, etc.). One can even imagine interacting "non-hierarchically" in a string quartet!

- *SÅJ*: Hierarchy doesn't actually mean that one thing is better than the other, but that there are classifications, that everyone has a function in group music. So hierarchy can make sense. If there is not any order and everyone can do anything, this is possible in interactions, but the question is what's coming out of that.
- *DC/VN*: It is possible, but having a non-hierarchical group interaction doesn't avoid power relationships. Power relationships will be always there. The thing is how to make the power relationships helpful and not hierarchical.
- From *Echtzeitmusik Berlin: Self-Defining a Scene*, ed. Burkhard Beins et al. (Hofheim: Wolke Verlag, 2011). Used by permission of Burkhard Beins.

The form of their pieces is always flat. They are not interested in building to climaxes, or in manipulating tension and relaxation, or in working with large contrasts of any kind. They keep their music flat, never allowing it to rise above or fall below a certain plane. In a way, this flatness is related to the idea of "all over" painting. In both cases, there is an attempt to make all areas of the form equal in importance. The term "static" is often used in reference to their music, since it never leaves this one level and never seems to be moving toward anything. Traditionally this word has been considered derogatory when applied to music, and in many quarters it still is. But in listening to the music of these composers, one soon discovers that static does not necessarily mean boring, the way we always thought it did. Many interesting things can happen all on one plane. A pitch changes slightly, a rhythm is altered, something fades in or out. They are not big changes, but they are changes, and there are more than enough of them to sustain one's interest, provided that he can tune in on this minimal level.

— Tom Johnson on musical minimalism¹

[In the early 1960s] I was noticing that things didn't sound the same when you heard them more than once. And the more you heard them, the more different they did sound. Even though something was staying the same, it was changing. I became fascinated with that. I realized it was stasis—it was what La Monte [Young] and I had talked about a lot in terms of his long-tone pieces—but it was stasis in a different application. In those days the first psychedelic experiences were starting to happen in American, and that was changing our concept of how time passes, and what you actually hear in music.

- Terry Riley²

In Zen they say: If something is boring after two minutes, try it for four. If still boring, try it for eight, sixteen, thirty-two, and so on. Eventually one discovers that it is not boring at all but very interesting.

— John Cage³

I have often tried to explain that my music is a reaction against the romantic and expressionistic musical past, and that I'm seeking something more objective,

something that doesn't express my emotions, something that doesn't try to manipulate the emotions of the listener either, something outside myself

Sometimes I explain that my reasons for being a minimalist, for wanting to work with a minimum of musical materials, is because it also helps me to minimize arbitrary self-expression.

Sometimes I say, "I want to find the music, not to compose it."

Sometimes I talk about mathematics and formulas, and how these things provide a means of avoiding subjective decisions and permitting objective logical deductions

Sometimes I quote my teacher Morton Feldman who said so often, "Let the music do what it wants to do."

Sometimes I draw a parallel with the way John Cage used chance, which was also an attempt to base his music on something outside of himself.

Sometimes I talk about all these things, and think that surely everyone will understand what I'm doing and why I am doing it, but whatever I say there are questions: What am I supposed to feel? How can music be impersonal like that? Don't you want to express something? Etc. etc. The idea of music as selfexpression is so ingrained in the music education of almost everyone that people become totally disoriented when you try to take it away. Then one day, frustrated by my inability to communicate my esthetic goals to a group of students, I just said "I am *not* interested in *autobiography*."

- Tom Johnson⁴

In black culture, repetition means that the thing *circulates* (exactly in the manner of any flow [...]) there is an equilibrium. In European culture, repetition must be seen to be not just circulation and flow but accumulation and growth. In black culture, the thing (the ritual, the dance, the beat) is "there for you to pick it up when you come back to it." If there is a goal (*Zweck*) in such a culture, it is always deferred; it continually "cuts" back to the start, in the musical meaning of "cut" as an abrupt, seemingly unmotivated break (an accidental *da capo*) with a series already in progress and a willed return to a prior series [...] The "cut" overtly insists on the repetitive nature of the music, by abruptly skipping back to another beginning which we have already heard. Moreover, the greater the insistence on the pure beauty of repetition, the greater the awareness must also be that repetition takes place not on a level of musical development or progression, but on the purest tonal and timbral level.

— James A. Snead⁵

Certain modern musicians oppose the transcendent plan(e) of organization, which

is said to have dominated all of Western classical music, to the immanent sound plane, which is always given along with that to which it gives rise, brings the imperceptible to perception, and carries only differential speeds and slownesses in a kind of molecular lapping: *the work of art must mark seconds, tenths and hundredths of seconds*. Or rather it is a question of a freeing of time, Aeon, a nonpulsed time for a floating music, as Boulez says, an electronic music in which forms are replaced by pure modifications of speed. It is undoubtedly John Cage who first and most perfectly deployed this fixed sound plane, which affirms process against all structure and genesis, a floating time against pulsed time or tempo, experimentation against any kind of interpretation, and in which silence as sonorous rest also marks the absolute state of movement.

— Gilles Deleuze and Félix Guattari⁶

And you thought Carl Orff had found an easy way to make a living! — Glenn Gould upon hearing Terry Riley's *In C*⁷

We dig repetition/We dig repetition/We dig repetition/We dig repetition in the music/And we're never going to lose it/All you daughters and sons/Who are sick of fancy music/We dig repetition/Repetition on the drums/And we're never going to lose it/This is the three R's//Repetition, Repetition, Repetition

— The Fall⁸

There's joy in repetition.

- Prince⁹

VII. Minimalisms

Introduction

A dense and raspy drone pours from the speakers like a tidal wave. At first, the tone is monolithic, sheer force without detail or definition. As the sound fills the space, textures and intervals begin to emerge from, and recede back into, the immense rush of sound. At the core of the drone, a violin and a viola cycle continuously, at times sounding like organs, at other times like foghorns or whistles. Intermittently voices enter and drop out, punctuated by an almost subliminal patter of hand drums. Strings and voices all waver around the drone, at times swerving slightly up or down, occasionally jumping to a higher harmonic. Immersed in the drone, temporal recollection and anticipation seem to fall away, and one comes to focus on the moment, on each new texture and interval. Beginnings and endings come to seem unimportant, and one can imagine this music carrying on forever.¹

Whether organized around a drone or a pulse, classic minimalism replaced the teleology of harmonic development with a music of ec-static repetition. It turned away from the modernist classical music of the era and instead allied itself with the earthy discourse of 1960s counterculture.²

From its inception, minimalism actively blurred the boundaries between "high" and "mass" culture, "classical" and "popular" music. Many of its practitioners (e.g., Terry Riley, Steve Reich, Philip Glass, and, later, Glenn Branca, Arnold Dreyblatt, and Rhys Chatham) formed and trained small groups more akin to rock or jazz bands than classical ensembles. Breaking with the decorum of the concert hall, the minimalists forged connections with the icons of art pop and found a new fan base in rock clubs. Theatre of Eternal Music violist John Cale provided the backdrop for the Velvet Underground's late 1960s psychedelia. In the 1970s and 1980s, David Bowie, Brian Eno, and David Byrne developed a fascination with the music of Philip Glass that eventually led to direct collaborations. Rhys Chatham and Glenn Branca fused minimalism with punk rock and recruited members of Sonic Youth, Mars, Swans, and Band of Susans. Today, the cultural ties between minimalist composers and popular music have never been stronger, thanks largely to the influence of techno and its offshoots.

Despite the tag (never favored by its practitioners), "minimalism" contains a wealth of resources, allowing each generation to interpret it differently. Early minimalism drew inspiration from Indian ragas, Indonesian gamelan, and West African drumming; today, minimalism sounds at home among the denizens of the datascape attuned to the buzz and crackle of cybernetic paraphernalia. In both cases, the essential impulse is the same. Steve Reich, for example, was certainly inspired by Balinese gamelan and Ghanaian drumming; but, years before dub and hiphop, he also made pioneering use of tape effects and studio manipulations. Though composed for marimbas and bongos instead of samplers and sequencers, the kind of layered, modular repetition fostered by Reich and Glass is the stuff of which techno is made.

Techno's minimalism recapitulates the sonic and social spirit of early minimalism, offering a repetitive, psychedelic provocation for mindexpansion and all-night partying. Yet, through techno and beyond it, minimalism has also provided new resources for sound artists who are as likely to present their work in galleries as in clubs. For artists such as Ryoji Ikeda and Carsten Nicolai, minimalist repetition provides a means of slowing down the data flow and focusing the listener's attention on the nature of sound and signal.

Today, minimalist strategies are evident across the musical spectrum: in the work of post-rock ensembles such as Tortoise and Battles; the microhouse and minimal techno of Basic Channel and Ricardo Villalobos; the ambient drones of Thomas Köner and Sarah Davachi; the jazz-based improvisation of Joshua Abrams and The Necks; drone metal bands such as Sunn O))) and Boris; footwork producers such as DJ Rashad and Jlin; etc. All these artists employ minimalist strategies as a means of escape from the verse/chorus/verse song form so common in pop, rock, and jazz (see Reynolds, Chapter 62). Where the traditional rock song is always invested in the logic of tension and release, build-up, climax, and dénouement, minimalism affirms the joy in what philosophers Gilles Deleuze and Félix Guattari call the "plateau": "a continuous, self-vibrating region of intensities whose development avoids any orientation toward a culmination point or external end."³

- 1 The description above is based on the only publicly-available recording of the Theatre of Eternal Music (a.k.a. the Dream Syndicate), *Inside the Dream Syndicate, Vol. I: Day of Niagara (1965)* (Table of the Elements, 2000). Whether this music is properly attributed to La Monte Young or to the quintet (which included John Cale, Tony Conrad, Angus MacLise, and Marian Zazeela) is still an open question.
- 2 Portions of this introduction are drawn from Christoph Cox, "Remix and Match," *Artforum* (March 1999): 35.
- 3 Gilles Deleuze and Félix Guattari, *A Thousand Plateaus*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 22. Deleuze and Guattari draw this term and description from Gregory Bateson's description of Balinese culture.

Thankless Attempts at a Definition of Minimalism

Kyle Gann

Through his regular contributions to The Village Voice and The New York Times, Kyle Gann has been a tireless advocate for minimalist and post-minimalist music. He is the author of The Music of Conlon Nancarrow (1995), American Music in the 20th Century (1997), No Such Thing as Silence: John Cage's 4'33" (2010), and articles on La Monte Young, Rhys Chatham, Henry Cowell, and others. A composer of microtonal music, Gann draws equally from the American experimental tradition and from Hopi, Zuni, and Pueblo Indian musics. What follows is Gann's attempt to pinpoint the defining features of minimalist music and to distinguish several of its distinct strands.

What is minimalism? What constitutes a minimalist work? [...]

There have even been thirty years of carping about the term minimalism, which was coined apparently by Michael Nyman in 1968, though Tom Johnson (as music critic for the *Village Voice* in New York) has also staked such a claim. Many of the original minimalist works last for hours and contain thousands of notes: how, disbelievers claim, can we call such grandiose music minimalist?

Well, it's pretty simple, really. Minimalist music, at least originally, tended to restrict itself to a tiny repertoire of pitches and rhythmic values, like the F Dorian scale and steady 8th-notes of Philip Glass' *Music in Fifths*. The length of the works actually underlines the intense restriction of materials: you might write a four-minute piece using only seven pitches and no one would notice, but write a thirty-minute piece, and the austere limitations become a major phenomenon of the composition.

Moreover, minimalism borrowed its name from the eponymous art movement, and there are clear parallels between the quasi-geometric linearity and predictability of Philip Glass' and Steve Reich's notes with the clean geometric lines and simple optical illusions of a Frank Stella or Sol Lewitt. One visual-art tome describes minimalist art as that which is "barren of merely decorative detail, in which geometry is emphasized and expressive technique avoided."¹ That's a fairly precise, if incomplete, description of most early minimalist music. K. Robert Schwarz quotes La Monte Young's definition as "That which is made with a minimum of means," which applies if by "means" you mean pitches and rhythmic values, not necessarily number of notes and stretches of time.²

Moreover, as Wittgenstein emphasized, the use of a word is its meaning. Most culturally literate people by now know that the word has been used to describe the musics of Young, Reich, and Glass. Pragmatically speaking, its meaning is circumscribed by at least their music of the 1960s and 1970s. To deny the term's usefulness at this point would be as futile as going back and arguing that we shouldn't call Monet's paintings Impressionistic. Other terms have been advanced: "trance music," "hypnotic music," "process music," "modular music," and, more pejoratively, "wallpaper music" and "going-nowhere music." Some of these are too vague, others too specific, and none is as precise and flexible at once as minimalism.

Composer John Adams [...] has stated three cut and dried criteria for what constitutes a minimalist piece: regular, articulated pulse; the use of tonal harmony with slow harmonic rhythm; and the building of large structures through repetition of small cells. That certainly covers a lot of the public perception of minimalism. It ties together Riley's *In C* and *A Rainbow in Curved Air*, Glass' *Music in Fifths* and *Einstein on the Beach*, and Reich's *Drumming* and *Music for 18 Musicians*.

What it specifically (and intentionally) leaves out is the sine-tone installations of La Monte Young, and the related drone music of the Theatre of Eternal Music, which contain neither regular pulse nor repetitive pitch cells.³ Personally, for me, Young's *Composition 1960 No.* 7, which consists of the pitches B and F-sharp and the notation "to be held for a long time," must be regarded as a seminal work, perhaps *the* seminal work, of minimalism. I have trouble with a definition that omits that piece, and also with one that omits the drone music of Phill Niblock and the slow, ambling chord progressions of Harold Budd [...]

Let's consider for a moment the ideas, devices, and techniques through which early minimalist music found expression:

1. *Static harmony*: Starting with Young's *Composition 1960 No.* 7, the minimalist tendency to stay on one chord, or to move back and forth among a small repertoire of chords, has marked most minimalist music, including Reich's *Piano Phase*, *Drumming*, and *Octet*. Glass' early ensemble works tended to stay within one scale rather than harmony—not

necessarily a tenable distinction. In minimalist music this harmony is almost always related to the diatonic scale or mode—though there are important exceptions, such as Phill Niblock's music and James Tenney's *Chromatic Canon*, which applies a minimalist process to a 12-tone row.

2. *Repetition*: This is perhaps the most stereotypical aspect of minimalist music, the tendency that audiences superficially associate with its stuck-in-the-groove quality. It first appears in Terry Riley's tape pieces from 1963: *Mescalin Mix* and *The Gift*. Many minimalist works do not use repetition, however: Young's completely static sine-tone installations (except in the most microscopic acoustic sense), Tom Johnson's and Jon Gibson's permutational pieces, Phill Niblock's drone works.

3. Additive process: Minimalist works tended to start with a basic repeated pattern and add on in one of two ways. Either the pattern would be lengthened by adding additional notes or measures or phrases in usually a 1, 1+2, 1+2+3, 1+2+3+4 kind of way (*Music in Fifths*; Frederic Rzewski's *Les Moutons des Panurge, Attica*, and *Coming Together*; and later Carl Stone's electronic *Shing Kee*), or else by slowing down existing patterns ([Reich's] *Music for Mallet Instruments, Voice, and Organ*); or else a certain recurring duration would begin with silence and add notes with each recurrence (*Drumming*).

Because of additive process and other types of linear process detailed below, minimalist music was often called "Process Music"—a perfectly viable term and an interesting subject in its own right, but not a term that can be considered exactly coextensive with minimalism.

4. *Phase-shifting*: This technique, of two identical phrases played at the same time but at slightly different tempos so as to go out of phase with each other, was most characteristic of Reich's works of the 1960s and early 1970s: *Piano Phase, Come Out, It's Gonna Rain, and Drumming.* This technique had antecedents in Henry Cowell's *New Musical Resources* and Conlon Nancarrow's tempo explorations. Though not widely used in minimalist works per se, it survived as an important archetype in postminimal music (e.g. William Duckworth's *Time Curve Preludes, John Luther Adams' Dream in White on White,* Kyle Gann, *Time Does Not Exist*).

5. *Permutational process*: Composers who wanted slightly less obvious melodic progressions, like Jon Gibson in his *Melody* (1975) and *Call* (1978), and Tom Johnson in his *Nine Bells*, would sometimes turn to systematic permutations of pitches.

6. *Steady beat*: Certainly many of the most famous minimalist pieces relied on a motoric 8th-note beat, although there were also several composers like Young and Niblock interested in drones with no beat at all. We can at least say that it was a near-universal trait of minimalism to never use a wide variety of rhythms; you might proceed in 8th-notes, or 8ths and quarters, or whole notes with fermatas, but you do not get the kind of mercurial rhythmic variety one would hear in any nineteenth-century classical composition. Perhaps "steady-beat-minimalism" is a criterion that could divide the minimalist repertoire into two mutually exclusive bodies of music, pulse-based music versus drone-based music.

7. Static instrumentation: The early minimalist ensembles, starting with *In C* and the Theatre of Eternal Music and continuing through the Reich and Glass ensembles, were all founded on a concept of everyone playing all the time; the minimalist concept of instrumentation is based on the idea of music being a ritual in which everyone participates equally, not on the classical European paradigm of the painter's palette in which each instrument adds its dash of color where needed. Minimalist ensembles (and postminimalist and totalist after them) hardly ever display the traditional give-and-take of a classical chamber group. In these days of amplification, which has been applied to minimalist works from the beginning, this makes minimalism, in my view, the beginning of a new and more economical symphonic tradition that can dispense with that labor-intensive, economically inefficient dinosaur, the orchestra.

8. *Linear transformation*: This is a generalization of processes such as additive structure above. Many of the minimalists have cultivated a fascination with linear motion from one musical state to another, such as Niblock's slow mutations from maximum in-tuneness to maximum dissonance or vice versa, or James Tenney's motion from tonality to atonality in his *Chromatic Canon*, and the linear acceleration of his *Spectral Canon for Conlon Nancarrow* (1974), an indisputably minimalist work and a very important one.

9. *Metamusic*: For awhile in the 1970s it seemed that Steve Reich's chief preoccupation was the unintended acoustic details that arose (or were perceived) as a side effect of strictly carried-out processes. These included soft melodies created by the overtones of played notes, which Reich referred to as "metamusic," and even reinforced with notated instrumental melodies in such works as his *Octet*. One could say that the overtone phenomena buzzing above the slowly glissandoing drones of Phill

Niblock's music, and even the changing overtone patterns heard as you walk through a La Monte Young sine-tone installation, constitute metamusic as well.

10. *Pure tuning*: It's noteworthy that minimalism started, in the musics of Young, Tony Conrad, and the Theatre of Eternal Music, as a slowed-down exploration of pure frequency ratios, resonant intervals outside the 12-pitch piano scale; Phill Niblock's music and much of Terry Riley's continue this feature as well. One could make an argument that the true minimalist music, hardcore minimalism, is in pure tunings. But since Glass and Reich have always been happy with the equal-tempered scale, this would be a hard sell.

11. *Influence of non-Western cultures*: This is far from a universal component of minimalism, nor a necessary one, but composers who started on the minimalist path had no European precedent to look to for examples of repetition or harmonic stasis, and typically turned eastward. It is significant that Young, Riley, and Glass were inspired by Indian classical music, and that Reich studied African drumming. And minimalism led directly to a much greater absorption of non-Western aesthetics and techniques by younger composers of the next generation. In a way, minimalism created a bridge over which American composers could rejoin the rest of the non-European world.

This is hardly a complete list of techniques and features of minimalist music, but it does constitute a family of character traits. No minimalist piece uses all of these, but I could hardly imagine calling a piece minimalist that didn't use at least a few of them. (If anyone can identify such a work, contact me and I'll add its traits to the list.)

Looking, however, to the opposite bank of minimalism, we find that many of these traits can be found in music that was influenced by minimalism, that grew out of minimalist practice, but that has departed so far from what we think of as minimalist as to no longer justify the name. For instance, many works that I consider postminimalist are characterized by steady beats, static harmony, and additive structures. For that reason, I like to add one delimiting feature to my own personal definition of minimalism:

12. Audible structure: For me, the thing that Drumming, In C, Attica, Composition 1960 No. 7, Einstein on the Beach, Budd's The Pavilion of Dreams, and all the other classic minimalist pieces shared was that their structure was right on the surface, that you could tell just from listening,

often just from the first audition, what the overall process was. It seemed to me that part of minimalism's early mystique was to have no secrets, to hold the music's structure right in the audience's face, and have that be listened to.

Notes

- 1 Kenneth Baker, *Minimalism* (New York: Abbeville Press, 1988).
- 2 K. Robert Schwarz, *Minimalists* (London: Phaidon, 1996), 9.
- 3 John Adams, "In Conversation with Jonathan Sheffer," *Perceptible Processes: Minimalism and the Baroque*, ed. Claudia Swan et al. (New York: Eos, 1997), 76.
- From Kyle Gann, "Minimal Music, Maximal Impact," *NewMusicBox* 31, vol. 3, no. 7 (November 2001). Used by permission of the author and *NewMusicBox*.

Basic Concepts of Minimal Music

Wim Mertens

The second-generation Minimalist composer Wim Mertens has written dozens of compositions for solo piano and for unusual instrumental ensembles (twelve piccolos, ten bass trombones, thirteen clarinets, etc.). His 1982 piece Struggle of Pleasure was featured in Peter Greenaway's film The Belly of an Architect (1987). Mertens is also an important theorist of musical minimalism. His book, American Minimal Music, was one of the earliest and most philosophically astute studies of the four classic minimalist composers: La Monte Young, Terry Riley, Steve Reich, and Philip Glass. In this excerpt from that book, Mertens considers the nature of structure, time, and memory in minimalist composition, contrasting the dialectical and teleological nature of traditional classical music with the non-dialectical, static character of minimalist music.

By the designations *American Minimal Music* or "Repetitive Music" one usually understands the music of the composers La Monte Young, Terry Riley, Steve Reich and Philip Glass. These four American composers were the first to apply consistently the techniques of repetition and minimalism in their works. Their music developed in the 1960s in America, and during the seventies became very successful in Europe as well [...]

It might be useful to consider the difference between the use of repetition or techniques of repetition in traditional Western music and American repetitive music.

The use of repetition is not new at all. What is new is only the global musical *context* in which it is used, and it is only this situation that allows us to distinguish between American repetition and repetition in classical music. In traditional music, repetition is used in a preeminently *narrative* and *teleological* frame,¹ so that musical components like rhythm, melody, harmony and so on are used in a causal, pre-figured way, so that a musical perspective emerges that gives the listener a non-ambivalent orientation and that attempts to inform him of *meaningful* musical *contents*.

The traditional work is *teleological* or end-orientated, because all musical events result in a directed end or synthesis. The composition

appears as a musical product characterized by an organic totality. By the underlying dynamic, dramatizing construction, a directionality is created that presumes a *linear memory* in the listener, that forces him or her to follow the linear musical evolution. Repetition in the traditional work appears as a *reference to what has gone before*, so that one has to remember what was forgotten. This demands a learned, serious and concentrated, memory-dominated approach to listening. The music of the American composers of repetitive music can be described as non-narrative and a-teleological. Their music discards the traditional harmonic functional schemes of tension and relaxation and (currently) disapproves of classical formal schemes and the musical narrative that goes with them (formalizing a tonal and/or thematic dialectic). Instead there appears non-directed evolution in which the listener is no longer submitted to the constraint of following the musical evolution [...]

The differences one can find in the compositional techniques that Young, Riley, Glass and Reich use, in no way obscure the broad similarities in the basic mechanics of their music and its ideological connotations. These are most easily delineated by setting them against the traditional romantic-dialectical musical model.

There is only a very tenuous polemical relationship between repetitive music and romantic-dialectical music—in fact, the guiding principles of the latter have simply been ignored. On the other hand, it is clear that repetitive music can be seen as the final stage of an anti-dialectic movement that has shaped European avant-garde music since Schoenberg, a movement that reached its culmination with John Cage, even though his music has a very obvious polemical-intellectual background and orientation completely absent from repetitive music. So, bearing in mind the way in which repetitive music had adopted certain avant-garde ideas, it is possible to evaluate critically the struggle between the avant-garde and the dialectical model. Thus the real importance of repetitive music lies in the way in which it represents the most recent stage in the continuing evolution of music since Schoenberg.

One can, of course, approach the phenomenon of repetitive music from a number of different angles—for instance, one could focus on the restorative features of its musical language, such as the restoration of tonality or the emphasis on rhythmic pulse, or the choice of easily recognisable sound images. But such an approach seems superficial and defensive, because no matter how consistently composers of repetitive music have spoken out against the intellectualism of the avant-garde (which for Reich, includes Webern and Cage), they cannot escape its influence.

Another possible line of investigation would have been to draw attention to the open influence of non-European, so-called primitive music. La Monte Young has been influenced by Japanese Gagaku theatre and Indian raga music; and he and Terry Riley are both disciples of the Indian raga master Pandit Pran Nath. Philip Glass has based his rhythmic systems on the additive time-structures of tabla music; and Steve Reich had adopted certain rhythmic principles from the music of Ghana and the Ivory Coast, and also from Balinese Gamelan music. But this use of non-European techniques should not be regarded as the foundation of their work, but rather as a symptom of the ability of the modern culture industry to annex a foreign culture, strip it of its specific social-ideological context and incorporate it into its own culture products.

In the analysis which follows, traditional dialectical music will be compared and contrasted with non-dialectical repetitive music from a number of different viewpoints. For instance, one finds that in repetitive music the concept of *work* has been replaced by the notion of *process*, and that no one sound had any greater importance than any other. And as Ernst Albrecht Stiebler wrote: "It is a characteristic of repetitive music that nothing is being expressed: it stands only for itself."

Traditional dialectical music is representational: the musical form relates to an expressive content and is a means of creating a growing tension; this is what is usually called the "musical argument." But repetitive music is not built around such an "argument"; the work is nonrepresentational and is no longer a medium for the expression of subjective feelings. Glass has written that "This music is not characterized by argument and development. It has disposed of traditional concepts that were closely linked to real time, to clock-time. Music is not a literal interpretation of life and the experience of time is different. It does not deal with events in a clear directional structure. In fact there is no structure at all." And additionally, that "Music no longer has a mediative function, referring to something outside itself, but it rather embodies itself without any mediation. The listener will therefore need a different approach to listening, without the traditional concepts of recollection and anticipation. Music must be listened to as a pure sound-event, an act without any dramatic structure."

In the *Village Voice*, Ron Rosenbaum, the critic, wrote of an antiapocalyptical music with an extra-historical experience of time, brought about by discarding teleological and dramatic elements. La Monte Young has removed finality, the apocalypse, from his music, and what is left is mere duration and stasis, without beginning or end: eternal music. In fact, Young has said that his *Dream House* project is a permanent, continuous work that has no beginning and goes on indefinitely.

The conventional idea of the musical work as a totality is no longer valid, since a repetitive work is essentially a process, a music whose function is not to represent something outside itself but only to refer to its own creation. Stoianova has spoken of "... generating the present at each moment. Aimless wandering without beginning, multidirectional motion without cause or effect." And, of course, this omni-directionality makes causal relationships impossible. A work becomes a process when it relates only to itself. The most important characteristic of musical process as defined by Reich is that it determines simultaneously both the note-to-note details and the overall form. Reich believes in the work's gradual inevitability: "Once the process is set up and loaded, it runs by itself." Subjective intervention is strictly ruled out in favour of a complete determinacy. Reich calls this a particularly liberating and impersonal ritual -he nominally controls everything that happens in the compositional process but also accepts everything that results without further modification. Like Reich, Glass rejects any structure that exists outside the musical process—the process has to generate its own structure: "My music has no overall structure but generates itself at each moment."

In process music, structure is secondary to sound; the two coincide only in so far as the process determines both the sound and the overall form. Repetitive music is mono-functional and sounds are not programmed to achieve a final solution of the opposition between material and structure. In dialectical music the real drama lies in the opposition between form and content and the final resolution of this opposition. But with the removal of logical causality sound becomes autonomous, so that in a process work no structure exists before sound: *it* is produced at each moment. Reich has said that he readily accepts any unplanned acoustical effects that arise in the course of the process. These are also important to Glass who said that "What is important is the immediate physiological effect on the listener." And La Monte Young, in particular, experimented with these physiological effects; he wrote about the *Well-Tuned Piano*, his most farreaching attempt to systematize these effects, "that each harmonic interval determines a distinct feeling." What he had in mind was to make a catalogue of intervals and the feelings they produce, so as to be able to calculate a measurable effect that could be made on the listener.

In repetitive music perception is an integral and creative part of the musical process since the listener no longer perceives a finished work but actively participates in its construction. Since there is no absolute point of reference a host of interpretative perspectives are possible. So that goal-directed listening, based as it is on recollection and anticipation, is no longer suitable and must be in favour of a random, aimless listening, traditional recollection of the past being replaced by something akin to a "recollection into the future," actualisation rather than reconstruction. This "forward recollection" removes memory from its privileged position.

Stoianova called this a game of 'iterative monadism': what matters is not what the sound may stand for but its physiological intensity, or, as Young puts it: "One must get inside the sound."

American repetitive music is an objective music in that, since no physiological tension is created, there is an ambiguous relationship with the listener. The music exists for itself and has nothing to do with the subjectivity of the listener. The latter's position has become an ambiguous one: on the one hand he is freed of intentionality, but on the other hand he is reduced to a passive role, merely submitting to the process. Reich had this in mind when he remarked that, one can control everything only as long as one is prepared to accept everything.

What is more important: freedom or manipulation? Liberating the listener does not seem to be a major concern of repetitive composers. Since each moment may be the beginning or the end, the listener can choose how long he wants to listen for, but he will never miss anything by not listening. Some people have commented on the bulldozer effect of repetitive music, but this effect is erroneous since repetitive music has brought about a reversal of the traditional position; the subject no longer determines the music, as it did in the past, but the music now determines the subject. This reversal results in a shift towards extra-musical elements. For unlike traditional dialectical music, repetitive music does not represent a physical event but is the actual embodiment of this event.

Though Reich and Glass are somewhat less outspoken about the importance of the aural result, for Young and Riley, this aural result is music's only raison d'être. Riley's accumulative processes assume a

fundamental distinction between micro-level and macro-level. Continuous change is achieved by inserting new elements into the basic form that is repeated and the pulse displaces attention away from the details of form towards the overall process, so that extreme variations on the micro-level may paradoxically produce an impression of immobility. The very rapid patterns that Riley uses produce slow movements that nevertheless feel like a "vibrating motionless trance," which resembles, as Stiebler noted, a state of weightlessness, which is precisely the effect that Riley intends to achieve. In fact he has said that he considers his music has failed if it cannot bring the listener out of himself. But the opposite process is also possible: La Monte Young has used the static dimension of music as a means of producing in the listener the feeling of motion.

To what extent the adoption of a mystical ideology is an inevitable byproduct of the use of repetition is not too clear, though the use of non-European musical elements has certainly led Riley and Young to come under the influence of Eastern ideology. To Riley and Young the aim of music is to get "far out," or as Young put it: "If people don't get carried away by my music it is a failure." For Riley, pulse is a somewhat Eastern method of getting "far out": "You can get as far out as you want by relating to a constant." And the effect of Riley's music is achieved by identification with what he calls the total time process. But the continuous variation in Riley's accumulative process negates itself because of its emptiness and leads one to perceive passing time simply as stasis. Young, on the other hand, refers to identification with sound as such: "To get into the sound: The sound is God, I am the sound that is God." The extended static sounds of La Monte Young's music suggest an anti-apocalyptic time as pure duration. Or as Wolfgang Burde wrote: "Minimal music has discovered the adventure of macro-time and what is required is no longer an analytical approach, but a surrendering to a musical stream that will lead to a new expanded experience of time." Daniel Caux made a similar point when he noted in Riley's music an attempt to hypnotize the listener back into a state of innocence.

For Glass and Reich, the removal of dialectical content from music is in no way connected with mystical ideology. Reich's music assumes neutrality of values as a matter of principle. And while his attempt to use Western sound material in the context of non-Western structural methods seems at first sight to be merely a technical procedure without ideological relevance, the fact that both his and Glass' music takes place in nondialectical macro-time, brings them very close to the mysticism of Riley and Young. Glass has expressed his opposition to traditional clock-time and denies structured time-relationships and intentionality. In Western music, the musical argument is the result of a dialectical subdivision of time. Yet both Riley and Reich have eliminated this historical negativity: their idea of time is an empty one, and because of this no real change can take place in their music, so that a higher level of macro-time, beyond history, is reached, which has been called now or stasis or eternity. It is this non-historical character of repetitive music that is the real negation of subjectivity. Repetitive music attempts to unite the historical subject with nonhistorical time and it is in this way that repetitive music refers to the mythical ending of history. As the sleeve note of Riley's Rainbow in Curved Air says: "And then all wars ended. Arms of every kind were outlawed and the masses gladly contributed them to giant foundries in which they were melted down and the metal poured into the earth [...] All boundaries were dissolved [...] The energy from dismantled weapons provided free heat and light [...]. The concept of work was forgotten."

Note

1 The term *teleology* has its origin in the Greek *telos* (purpose) and originally was a concept in natural philosophy referring to certain directednesses that can be distinguished in nature, and mainly in living nature. Within the modern science of nature a distinction is made between teleology and finality. With teleology, the directedness is defined but one cannot determine scientifically whether there is also an intention behind it. Here the distinction is made between Zweck and Absicht, End and Purpose. We will not retain this distinction, except in the sense of external and internal musical purposes. The external musical directedness corresponds to what is above called *Absicht* and *Purpose*. It includes the expression of feelings, the symbolisation of situations and the imitation of actions. In this sense, teleological music is a music that has a representative function. (Programme music is a particular example of this external directedness.) Internal directedness refers to the evolution within the music itself, and not to a representational content directed from the outside. In Western music, this kind of directedness is realized through the strong stress on harmony, which can be seen as an evolutional model aiming at a final climax. Thus, Western music is essentially *dialectical*: development follows from the presence of a conflict between opposites and finally leads to a situation of synthesis, in which conflicts are entirely or partially resolved. This can be called

narrative by analogy with the evolution of a classical novel, in which the dénouement resolves the conflicts of the plot.

The concepts "teleology" and "narrative" run in parallel so that, as in the case of teleology, a distinction can be made between the narrative in the external and internal sense.

From Wim Mertens, *American Minimal Music*, trans. J. Hautekier (London: Kahn & Averill, 1983). Used by permission of Usura publishers and the author.

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Music as a Gradual Process

Steve Reich

Steve Reich is among the major early minimalist composers. He studied philosophy as an undergraduate and then pursued composition, first at Julliard and then at Mills College and the San Francisco Tape Music Center, hotbeds for early experimental music in America. In 1970, Reich traveled to Accra to study Ghanaian drumming. Upon his return to the US, he began performing with a Balinese gamelan in Seattle. His early tape pieces, It's Gonna Rain (1965) and Come Out (1966) stand at the origin of both minimalist and experimental musical practices. Drawing from his experiences with African and Balinese musics, Reich's early instrumental pieces, particularly his music for percussion, foreground the phased repetition and accumulation of small rhythmic cells. In this 1969 manifesto, Reich succinctly proclaims his commitment to repetition and audible process in music.

I do not mean the process of composition, but rather pieces of music that are, literally, processes.

The distinctive thing about musical processes is that they determine all the note-to-note (sound-to-sound) details and the overall form simultaneously. (Think of a round or infinite canon.)

I am interested in perceptible processes. I want to be able to hear the process happening throughout the sounding music.

To facilitate closely detailed listening a musical process should happen extremely gradually.

Performing and listening to a gradual musical process resembles:

- pulling back a swing, releasing it, and observing it gradually come to rest;
- turning over an hour glass and watching the sand slowly run through to the bottom;
- placing your feet in the sand by the ocean's edge and watching, feeling, and listening to the waves gradually bury them.

Though I may have the pleasure of discovering musical processes and composing the musical material to run through them, once the process is set up and loaded it runs by itself.

Material may suggest what sort of process it should be run through (content suggests form), and processes may suggest what sort of material should be run through them (form suggests content). If the shoe fits, wear it.

As to whether a musical process is realized through live human performance or through some electro-mechanical means is not finally the main issue. One of the most beautiful concerts I ever heard consisted of four composers playing their tapes in a dark hall. (A tape is interesting when it's an interesting tape.)

It is quite natural to think about musical processes if one is frequently working with electro-mechanical sound equipment. All music turns out to be ethnic music.

Musical processes can give one a direct contact with the impersonal and also a kind of complete control, and one doesn't always think of the impersonal and complete control as going together. By "a kind" of complete control I mean that by running this material through this process I completely control all that results, but also that I accept all that results without changes.

John Cage has used processes and has certainly accepted their results, but the processes he used were compositional ones that could not be heard when the piece was performed. The process of using the *I Ching* or imperfections in a sheet of paper to determine musical parameters can't be heard when listening to music composed that way. The compositional processes and the sounding music have no audible connection. Similarly in serial music, the series itself is seldom audible. (This is a basic difference between serial—basically European—music and serial—basically American—art, where the perceived series is usually the focal point of the work.)

What I'm interested in is a compositional process and a sounding music that are one and the same thing.

James Tenney said in conversation, "Then the composer isn't privy to anything." I don't know any secrets of structure that you can't hear. We all listen to the process together since it's quite audible, and one of the reasons it's quite audible is, because it's happening extremely gradually.

The use of hidden structural devices in music never appealed to me. Even when all the cards are on the table and everyone hears what is gradually happening in a musical process, there are still enough mysteries to satisfy all. These mysteries are the impersonal, unintended, psychoacoustic by-products of the intended process. These might include sub-melodies heard within repeated melodic patterns, stereophonic effects due to listener location, slight irregularities in performance, harmonics, difference tones, and so on.

Listening to an extremely gradual musical process opens my ears to *it*, but *it* always extends farther than I can hear, and that makes it interesting to listen to that musical process again. That area of every gradual (completely controlled) musical process, where one hears the details of the sound moving out away from intentions, occurring for their own acoustic reasons, is *it*.

I begin to perceive these minute details when I can sustain close attention and a gradual process invites my sustained attention. By "gradual" I mean extremely gradual; a process happening so slowly and gradually that listening to it resembles watching a minute hand on a watch —you can perceive it moving after you stay with it a little while.

Several currently popular modal musics like Indian classical and drugoriented rock and roll may make us aware of minute sound details because in being modal (constant key center, hypnotically droning and repetitious) they naturally focus on these details rather than on key modulation, counterpoint and other peculiarly Western devices. Nevertheless, these modal musics remain more or less strict frameworks for improvisation. They are not processes.

The distinctive thing about musical processes is that they determine all the note-to-note details and the overall form simultaneously. One can't improvise in a musical process—the concepts are mutually exclusive.

While performing and listening to gradual musical processes one can participate in a particular liberating and impersonal kind of ritual. Focusing in on the musical process makes possible that shift of attention away from *he* and *she* and *you* and *me* outward toward *it*.

From Steve Reich, Writings on Music, 1965–2000 (Oxford: Oxford University Press, 2002). Used by permission of the publisher.

Conversation with Richard Kostelanetz

La Monte Young and Marian Zazeela

La Monte Young is among the founders of American Minimalist music. During the 1950s, he played jazz saxophone in groups with Billy Higgins, Don Cherry, Ornette Coleman, and Eric Dolphy, and developed an attraction to blues forms. Influenced by the music of Anton Webern, Young turned to composition, writing a set of serialist pieces the most prescient of which was Trio for Strings (1958), the long, sustained tones of which anticipated his later work. An encounter with the work of John Cage and David Tudor at the Darmstadt summer course had a profound effect on Young, leading to the production of a series of text scores collectively titled Compositions 1960, published in An Anthology, a compendium of experimental scores edited by Young and poet Jackson Mac Low. In the early 1960s, Young, Tony Conrad, Angus MacLise, John Cale and others began to perform long duration, just tuned drone music under the name The Theatre of Eternal Music (or, The Dream Syndicate). At the same time, Young and his wife, the light artist Marian Zazeela were planning a long-duration electronic drone installation they called the Dream House, the first version of which was mounted in 1966, and was composing The Well-Tuned Piano, a long-form improvisatory solo piano piece he debuted in 1974. As interested in mathematics as in Indian classical music and Vedic cosmology, Young and Zazeela brought Hindustani singer Pandit Pran Nath to the United States in 1970 and became life-long disciples. Young describes his development and musical practice in this 1966 interview with artist and writer Richard Kostelanetz.

- [...] RICHARD KOSTELANETZ: What do you consider your most important early experiences?
- LA MONTE YOUNG: The very first sound that I recall hearing was the sound of the wind going through the chinks in the log cabin, and I've always considered this among my most important early experiences. It was very awesome and beautiful and mysterious; as I couldn't see it and didn't know what it was, I questioned my mother about it for long hours [...]
- KOSTELANETZ: The earliest piece in your list of compositions is dated 1955. Were you already a functioning composer at that time?

YOUNG: Oh yes. Of course, I had already started playing jazz in high school.

KOSTELANETZ: Professionally?

- YOUNG: As professionally as I could play the kind that I was interested in playing. I never recorded, but I always went to the best and most exciting sessions at the clubs. When I got a few jobs at dances and so on, I used to hire all my friends, like Billy Higgins, Don Cherry, Dennis Budimir, and Tiger Echols. We rarely got hired back to those jobs, because we played jazz all night long. Billy and I had a group at Studio One, as it was called, downtown in LA.
- KOSTELANETZ: Are you still interested in jazz?
- YOUNG: Only from a listening and speaking point of view.
- KOSTELANETZ: Was it your original ambition to do something in jazz?
- YOUNG: Yes, in high school, it was. The reason I discontinued my work in jazz was to progress into more serious composition. I found that I got into far-out areas that were not being appreciated except by a very small group. Most were complaining that my rhythmic style didn't out-and-out swing, because I used rhythmic configurations that weren't always right on the beat in the most obvious way. They confused the drummer. I was also interested in harmonic patterns that were beyond what the ordinary jazz musician was using. Jazz is a form, and I was interested in other forms.
- KOSTELANETZ: Did you object to the repetitiousness that tends to plague even the best jazz?
- YOUNG: No, that wasn't it. I'm very interested in repetition, which is why I prefer the style of John Coltrane or Indian music. I am wildly interested in repetition, because I think it demonstrates control [...]
- KOSTELANETZ: After you gave up your jazz career, what was your next step?
- YOUNG: While I was at City College, studying with Leonard Stein, I became quite interested in the work of Anton Webern. In fact, to this day his work stands out among my influences as one of the most important examples of clarity, which is a value of great interest to me.
- KOSTELANETZ: What kind of clarity—his uncompromising precision in the use and extension of serial principles?
- YOUNG: I think the clarity in every dimension of his work may be unprecedented in Western music [...] I feel that in most music peculiar to the Western hemisphere since the thirteenth century, climax and directionality have been among the most important guiding factors, whereas music before that time, from the chants through organum and Machaut, used stasis as a point of structure a little bit more the way certain Eastern musical systems have [...] In Webern [...] stasis was very important, because not only was he involved with row technique but he also developed a

technique for the repetition of pitches at the same octave placements throughout a section of a movement. That is, each time C, A, or E-flat comes back in the section of the movement, it is at the same octave placement. So, as you hear the movement through, you find this static concept of a small number of large chords reappearing throughout the entire movement.

- KOSTELANETZ: Were you interested more in this static dimension than the serial language?
- YOUNG: I was interested in both elements; for even though we can define serial technique as constant variation, we can also redefine it as stasis, because it uses the same form throughout the length of the piece [...]
- Beginning in 1956 I enjoyed writing with serial technique for about three years, but by 1957–1958 I was beginning to discover reasons for moving beyond the twelve-tone system. I felt that it was by no means the final word as far as structure is concerned. There are so many forms that structure can take, and so many structures that form can take—so many possible forms in art. In my Octet for Brass (1957), I began to introduce, within the serial style, very long notes. In the middle section, there were notes sustained easily for three or four minutes, where nothing else would happen except other occasional long notes overlapping in time, and there would be rests for a minute or, at any rate, a few beats, and then another long note or chord would come in. This technique became more refined and perfected in the *Trio for Strings* (1958) which has pitches of longer duration and greater emphasis on harmony to the exclusion of almost any semblance of what had been generally known as melody. The permutations of serial technique imply possibilities of ordinal organization only. Ordinal organization applies to line or melody, whereas the increasing emphasis on concurrent frequencies or harmony in my work implied the possibility of the organization of the cardinal values both in regard to how many frequencies are concurrent and the relationships of the frequencies to each other [...] KOSTELANETZ: What else initiated your turning away from serial composition? YOUNG: In the late fifties I had more opportunities to hear Indian classical and Japanese Gagaku music, partly because of the outstanding ethnomusic department at
- UCLA, which had its own student Gagaku orchestra and Japanese instructors, and partly because of that famous early recording by Ali Akbar Khân and the late Chatur Lal of Râgas *Sind Bhairavi* and *Piloo* which essentially introduced the longest example then available of masterfully played Indian music. I literally flew to the record store when I first heard it on the radio. I was also hearing recordings of plainchant and organum, and while at Berkeley I had the privilege of visiting a nearby Dominican monastery where I heard the monks sing plainchant. That was a beautiful experience. These examples of modal music, and particularly the systems of

harmonic frequencies required by the continuous frequency drone of Indian music and the sustained harmonics of the *sho* in Gagaku, seemed to move me much more deeply than anything else I was hearing.

- In contemporary European music after Webern, the work of Karlheinz Stockhausen had made a very powerful impression on me. In the summer of 1959 I traveled to the Darmstadt Festival for New Music to take his composition seminar. On my way there from Berkeley I met Richard Maxfield in New York, and heard his new electronic music for magnetic tape. I liked it so much that a year later I took his class in electronic music at the New School for Social Research.
- In the seminar at Darmstadt, Stockhausen devoted much time to his own work in sound, and to the work of John Cage. The events at the festival also provided my first exposure to John Cage's lectures and the concert presentation of the recording of the David Tudor performance of the *Concert for Piano and Orchestra* played on an impressive sound system. After this sequence of refreshing experiences, meeting composers and hearing new work, I returned to Berkeley even more inspired to further explore extensions of the ideas related to the sustained frequencies I had presented in my *Trio for Strings*. The relevance of this work as a synthesis of particular Eastern and Western musical systems and a new point of departure for my work had become strikingly clear to me, and the cumulative effects of all of my exposures to music were at this point providing enough information that I began to think of serial technique as only one of many possible methods applicable to music composition.

KOSTELANETZ: Why had you not been exposed to John Cage's ideas previously?

- YOUNG: In those days, there was no Cage on the West Coast, except on records. Dennis Johnson had played the recording of the *Sonatas and Interludes for Prepared Piano* for me maybe once, and Terry Jennings had a record of the *String Quartet* which we used to listen to, but I had to go to Europe to really discover Cage. When I got back to Berkeley and started to perform Cage, everybody there still considered him an out-and-out charlatan. I really had to fight to get him on programs.
- KOSTELANETZ: What were your purposes in the pieces of your second year at Berkeley, the *Compositions 1960*, written after your encounter with Cage?¹
- YOUNG: I was on my way to Mount Tamalpais, the biggest mountain in the Marin County area, and I started thinking about the butterfly. Alone, it made a very beautiful piece. Being very young, I could still take something so highly poetic and use it without the fear I would have now—that it would be trampled on. Now, I would offer something quite a bit more substantial than a butterfly or a fire something that can't be so easily walked on. After all, a butterfly is only a butterfly. No matter how much I write about the fact that a butterfly does make a sound—that it

is potentially a composition—anyone that wants to can say, "Well, it's only a butterfly."

- KOSTELANETZ: Your point, then, in bringing into the concert situation a jar of butterflies and then releasing them, was that a butterfly makes a sound.
- YOUNG: True. Another important point was that a person should listen to what he ordinarily just looks at, or look at things he would ordinarily just hear. In the fire piece, I definitely considered the sounds, although a fire is, to me, one of the outstanding visual images. I'm very fascinated by the form of fires, as I am fascinated by the form of the wind. In fact, during my entire Berkeley period, I was constantly talking to people about the form of the wind and the form of fires. Also, I was talking at that time about the sound of telephone poles, and I liked to quote these words from Debussy:

Listen to the words of no man,

Listen only to the sound of the winds and the waves of the sea.

I feel, in fact, that Debussy is among my most important influences [...]

- KOSTELANETZ: At this point, too, you developed that composition where you instruct the performer to hold an open fifth "for a long time."
- YOUNG: Another related to it was Composition 1960 #9...
- KOSTELANETZ: ... which you published as a straight line on a three-by-five file card.

YOUNG: I have performed this work at one sustained pitch.

KOSTELANETZ: What is your purpose here?

YOUNG: This leads us from the old area of the *Octet for Brass* and the *Trio for Strings*, where I had sustained pitches in the context of other pitches, into the new area. I noticed about 1956 that I really seemed more interested in listening to chords than in listening to melodies. In other words, I was more interested in concurrency or simultaneity than in sequence.

KOSTELANETZ: That was your radical step.

YOUNG: Yes, that separated me from the rest of the world. I was really interested not only in a single note, but in chords, while other musical systems have placed great emphasis on melody and line or sequence.

KOSTELANETZ: Because the wind is a single note or chord.

YOUNG: The wind is a constant sound, the frequency of which at any given time is dependent on its surroundings or location, and therefore not always constant. Sometimes the frequency was fairly constant, during blizzards as the wind blew through the chinks in the log cabin, although even at those times the sound was characterized by that kind of increase and decrease in frequency with which we all

associate the sound of a wind storm as the gusts would become stronger and then weaker. I really enjoyed it. I found it fantastic. It sounded great coming in like that—very calm, very peaceful, very meditative. During my childhood there were four different sound experiences of constant frequency that have influenced my musical ideas and development: the sounds of insects; the sounds of telephone poles and motors; sounds produced by steam escaping from such as my mother's tea-kettle or train whistles; and resonation from the natural characteristics of particular geographic areas such as valleys, lakes, and plains. Actually, the first sustained single note at a constant pitch, without a beginning or end, that I heard as a child that did not have a beginning or ending was the sound of telephone poles—the hum of the wires. This was a very important auditory influence upon the sparse sustained style of work of the genre of the *Trio for Strings* and *Composition 1960 #7* (B and F-sharp "To be held for a long time").

KOSTELANETZ: At this time, did you go back and listen to telephone poles?

YOUNG: I did—and to this day, I'm also very fond of power plants. For instance, the step-down transformer up there on the telephone pole probably contributes to the hum. As the power hits intermediary stages, it has to go through transformations, and hums of various frequencies are generated. A great deal of electronics and machinery seems to generate series of partials. The partials of many of these series are related to each other as positive integers, and what is interesting is that the partials in the series produced by strings and pipes are also related in this way. When my refrigerator goes on again, or if I happen to turn on my little turtle motor, I can sing a few of the earlier harmonics for you.

KOSTELANETZ: So, you observed that nature is full of constant sounds?

YOUNG: Actually, aside from the sound of groups of insects and natural geographic resonators, sounds of constant frequency are not easily found in nature before mechanization and electronics.

KOSTELANETZ: What about a waterfall?

YOUNG: That's pretty constant. If it's a large waterfall, it's a pretty noisy sound, similar to white noise. It is very full—it has so many frequencies in it that one tends to hear it as a complex of sounds. Theoretically, white noise has every frequency within a given band, although a particular waterfall may or may not have all of these.

One place where we find a constant sound that has been with us for a few thousand years is the drone used in certain musical systems, such as those of India, Scotland, and Spain. The constant sound is also in organum, a form that grew out of chant, used in the ninth-century Catholic Church; in one style of organum various pitches were sustained, and a melody woven over them. After the first plainchant (which was just melody alone and very static, as I hear it and analyze it), the next stage was parallel

fifths and fourths. After that, a musician started holding one of these notes for a long time, while another one moved around over it.

KOSTELANETZ: Once you observed this tradition, did you want to recreate it?

- YOUNG: I wanted to do more of it, because I felt there was all too little around. It made me feel very good to hear it, so I really wanted to hear a lot of it. In fact, my ideal is to have a number of machines playing a constant sound around the house.
- KOSTELANETZ: You spoke once of "trying to get inside a sound." How does this process work?
- YOUNG: There are several ways you can approach it. One is that someone concentrates so heavily upon a given sound—he gives himself over to it to such a degree—that what's happening is the sound. Even though I could be sitting here, all I am is an element of the sound. Another approach is to walk into an area in which the sound is so abundant that you actually are in a physical sound environment. This happens when someone walks into one of my concerts.

KOSTELANETZ: It's the same thing as walking into a noisy generator room.

- YOUNG: Yes, it depends upon the level. If it were high enough, you could be enveloped.
- KOSTELANETZ: Is this a valuable process?

YOUNG: I find that it does things to me unlike anything else.

- KOSTELANETZ: If you walk into Grand Central Station, you're also enveloped by sound, but it consists of a different, dissonant quality.
- YOUNG: The difference in which sound you would want to be enveloped depends upon whether you are John Cage or La Monte Young. The harmonically related frequencies I'm interested in have so much to do with the way we hear and the way so many sounds are structured. These common characteristics reinforce each other. Alain Danielou points out in an article on sound in the *Psychedelic Review* #7 that he feels the mental mechanism permits us to analyze and recognize only those musical intervals which are harmonically related. This is an area in which I plan to do more work—what happens after the information carried by the sound passes the reception stage at the ear. It is highly likely, as I hear it, that what makes me like this sound is more than just the way the ear receives information; the brain finds this kind of information congenial.
- KOSTELANETZ: Let me go back to that earlier point. Why do you prefer the constant sound of the generator to the sound of Grand Central Station that Cage has always treasured so much?
- YOUNG: I think it has more to do with how human beings have related to sound from history on end. Not only do the ears receive information this way, but the vocal

chords are strings. The sound with which we are most familiar, the voice, is structured according to these principles.

- KOSTELANETZ: So, in retrospect, we may trace two long-standing preoccupations that are reflected in your present work—the *Tortoise* piece—one was creating a social situation or environment in which all kinds of elements were used, another was the interest in the constant sound.²
- YOUNG: My recent work has led me away from the twelve-note equal-tempered system, which is necessarily a compromise of music and musical structure, if we are going to consider how sound is organized and how the ear hears. The twelve-note system divides the octave into twelve equal-tempered intervals, equidistant pitches. The interval between each consecutive frequency is an equal irrational proportion. An accepted standard allots one hundred cents to the distance between each consecutive semitone; so there are twelve hundred cents to the octave.

If we take the major scale, which is the Ur-scale, or scale of origin for many musical systems, we find that this scale is most rationally and musically represented in the octave 24 to 48 in the overtone series. The overtone series—the system of partials arising within a given sound—is one basic aspect of the area of music I'm involved with today. If we assume a fundamental, which can be a random note of any pitch, and subject it to the analysis which twentieth-century electronic instrumentation allows us, we find that most sounds consist of more than one frequency. These many other pitches are partials, also known as harmonics or overtones. In many sounds these partials exist in whole-number relationship to the fundamental. The frequencies of these partials relate to each other as integers. For example, if we have the fundamental one, which we will call the first partial, the wave pattern of the second partial completes two cycles to each cycle of the fundamental.

- KOSTELANETZ: Which is to say, the second partial has twice as many frequencies as the original; it is the octave.
- YOUNG: Right. These partials exist in the frequency ratios of 2:1, 3:2, 3:1, 4:3, 4:2, 4:1, 5:4, 5:3, 5:2, and so on.

We distinguish the timbre, or characteristic sound, of one instrument from another by which overtones are present, which ones are louder and softer, and their phase relationships.

If we take the major scale as represented in the octave 24 to 48, the scale of frequency proportions is 24, 27, 30, 32, 36, 40, 48. Many cultures have been hearing and playing this scale. The twelve-note system of equal-temperament was a simplification developed to approximate the integral relationships found in the major scale, but since none of the adjacent rational intervals in the harmonic series (by
which the major scale is represented) are equal, we are confronted with a compromise [...]

An array of composers, theoreticians, and scientists have been aware of, or written about, the problems of twelve-note equal temperament; Helmholtz, Alain Danielou, Harry Partch. Lou Harrison, Narendra Kumar Bose, and C. Subrahmanya Ayyar a\re just a few of the investigators in the field. Some have recommended a division of the octave into the larger number of 53 equal-tempered intervals which allows a smallest interval that is very nearly the same size as 81/80 for the basic unit, and a lesser compromise for limited musical systems composed only of intervals expressible as powers of this smallest unit interval, whereas others have accepted no compromises whatsoever. But with our present system of tuning the piano, the only intervals that are rationally in tune are the octaves. None of the other intervals are harmonically in tune. If you play these other intervals for a long time at a loud enough volume, there is no problem hearing how unharmonious they sound. In practice most of the time, however, they are underemphasized and rushed over. To compare some harmonic and inharmonic intervals, just listen to any piano quintet, any piano concerto with orchestra, any choral work in which the piano is out part of the time. Whenever the piano is not around, instrumentalists tend to play in tune with exact harmonic proportions. This is called "just intonation." There are two factors which lead musicians to do this if their instruments do not have equal-tempered limitations [...]

- KOSTELANETZ: What you are saying, then, is that nature sounds in "just intonation."
- YOUNG: This is an example of a harmonic system that occurs naturally in the world of sound.
- KOSTELANETZ: Aren't there some cultures that don't use this harmony?
- YOUNG: Some cultures have very interesting different systems. In the music of Java, for instance, we know about *pelok* and *salendro*, which are scales of irrational intervals. The seven-note, heptatonic scale is also used in Cambodia. There is evidence for another kind of harmonic hearing, however, when we consider the fact that in Java they use plates and bells as resonating bodies. Plates and bells have irrational harmonic systems, whereas here and in Europe, as well as in India, China, and Japan, we use strings and pipes as our primary resonating bodies, and as the bases for determining the frequencies of our musical system.
- One factor that shapes the use of the system of just-intonation and what the audience hears at my concerts is amplification. It happens that the audibility of harmonics can be a function of amplification—the louder a sound is, the more likely you are to hear the harmonics that sound makes, which is to say that they increase as the amplitude goes higher. At ordinary volumes they are so soft that you don't even hear most of

the higher partials. In fact, if you listen closely to my singing voice without amplification, you will hear perhaps up to three. With amplification, the seventh harmonic in my voice and often the ninth harmonic in Marian's voice become clear and audible for everyone. That's only one reason we play the *Tortoise* piece so loud [...]

- KOSTELANETZ: Music being anything that makes a sound. Is anything not "music"?
- YOUNG: There probably are very still things that do not make any sound. "Music" might also be defined as anything one listens to [...]
- KOSTELANETZ: Where does the piece in which you drew a line for an entire evening belong in your development?³
- YOUNG: As we have observed, I have been interested in the study of a singular event, in terms of both pitch and other kinds of sensory situations. I felt that a line was one of the more sparse, singular expressions of oneness, although it is certainly not the final expression. Somebody might choose a point. However, the line was interesting because it was continuous—it existed in time. A line is a potential of existing time. In graphs and scores one designates time as one dimension. Nonetheless, the actual drawing of the line did involve time, and it did involve a singular event—"Draw a straight line and follow it" [...]
- KOSTELANETZ: Is your desire to concentrate upon one thing influenced by Eastern philosophy?
- YOUNG: It's both an influence and a parallel, because at the time I started to do this I was becoming aware of various concepts of mysticism. I've been interested in Taoism since the time I became acquainted with it, which was about the same time I began to become aware of these areas of my experience. I had already started reading haiku in high school, for instance.
- KOSTELANETZ: What other steps did you take before the *Tortoise* piece?

YOUNG: There is the "dream chord," which I used to hear in the telephone poles, which is the basis for the *Trio for Strings*. It is, for instance, G, C, C-sharp, D [...]

KOSTELANETZ: Is this an *a priori* system?

- YOUNG: No, I determined all of this by ear, before I decided I would use certain numbers. In fact, I always work by ear first, and later, by number, I analyze what I've done. Of course, as I become more sophisticated about what I'm doing, I start plotting and making devious schemes and plans [...]
- KOSTELANETZ: When I hear the *Tortoise* piece, the timbre of the sound continually changes, and I notice that certain timbral textures seem to go and return. Is this because one voice is dominant?

- YOUNG: One voice or another might predominate at different times. Basically, we are interested in the blend, as we are working with timbre at many levels. The whole complex is a form of timbre, from its definition, which is various emphases of phase relationships, number, and amplitude of the different harmonics. Not only do we have individual timbres, but we also have a cumulative timbre, which corresponds to the component partials of an assumed lowest fundamental frequency one.
- KOSTELANETZ: Then you send out the blend at an extremely loud amplitude, almost at the pitch of aural pain.
- YOUNG: It's getting up there. To me it is not painful, but to a newcomer it often is. This is a threshold of sensitivity that is developed. One learns, I believe, to hear loud sounds without feeling pain. I don't think that I have lost much hearing over the past few years. When I worked with Ann Halprin and heard loud sounds from close up, I often did not regain my normal hearing until a few hours later. Currently, I don't get that effect. I find that I can still hear up to 17,500 Hertz, which is probably as high as I've ever been able to hear. Although I have no way of proving that I can hear something very soft as easily as I used to be able to, my assumption is that my ears are not deteriorating.

There are two very important reasons for my interest in sounds at levels of 120 and 130 decibels. One, we know from studies of the Fletcher-Munson curve that the ear does not hear bass at lower amplitude as loudly in proportion to treble. In other words, if we take a given sound situation that has basses and highs and middle-range tones and it's not too loud, the ear really doesn't perceive all the bass that is there. It can't pick it up as easily. We find, however, that at louder amplitudes the ear hears bass more in proportion to the way it is actually being produced. This gives you a fuller chord. Secondly, combination-tones, particularly difference-tones, are more audible. The least frequent, or lowest of these at frequencies below 15 Hertz, are called beats and can be very valuable in helping the musician tune intervals to a very fine tolerance, and they only become audible at the loudest levels.

KOSTELANETZ: The louder the volume is, the more difference-tones you can hear.YOUNG: And the greater the intonation-precision potential, as well as the richer the complex.

KOSTELANETZ: What do these difference-tones sound like?

YOUNG: Well, they add these tubas, trombones, double basses, and cellos that, you notice, we don't have in the group but whose sounds are apparent on the speakers.

KOSTELANETZ: How would you characterize the result I hear?

YOUNG: By the time someone walks into our environment, the sound is extremely complex. We've got seven fundamentals going. This means a large number of combination-tones.

KOSTELANETZ: Why isn't there any dissonance?

YOUNG: Everything functions in whole-number relationships. There can never be any dissonance in this system, unless things get out of hand—somebody wavers, somebody misses his pitch, the machinery goes haywire [...]

KOSTELANETZ: Do you expect to devote your whole life to this piece?

- YOUNG: I suspect that I might easily, because it seems to become more and more inclusive. I'm trying to include many of the areas I'm interested in, and the steps from one area to another seem to be gradual, as I gradually leave one emphasis and move on to another [...]
- KOSTELANETZ: In traditional terms, how do you classify *The Tortoise, His Dreams and Journeys*?
- YOUNG: Music and theatre. The music might dominate, but it does so in a theatrical situation [...]
- KOSTELANETZ: What is the design you project on yourselves and the wall behind you?
- MARIAN ZAZEELA: I designed it as a cut-out which, although it exists originally on cut paper, was intended to have light either behind it, or projected through it. Then the slides were made from the design. There are two patterns; one is a development of the other. They are both used in their negative and positive forms, and there is some variation within the negative form itself. The black-and-white patterns have been treated with colored theatrical gels. The colors are in ranges of either pink or green, as are the lights that project upon us. I have found that my interest in these particular colors has extended into my work in light, which is natural as they are two of the three primaries of the light media. In different superimpositions they produce or suggest nearly every other color. The designs themselves are symmetrical, derived from calligraphic forms. Part of the projection falls upon us as we play and reprograms us, or actually re-costumes us visually into the larger pattern, which is intended as a mode for visual concentration—as votive image.
- KOSTELANETZ: Objective elements intended to inspire subjective responses—this is a strategy aesthetically similar to your music.
- YOUNG: The areas we are working with in light are the earlier stages of development toward directions that may relate to some of the things we're trying with the music. I feel there are parallels already. This concentration on the light images does not distract the mind from the music but rather gives the eyes something to rest on and become absorbed in, as the ears have the sound to become absorbed in [...]

KOSTELANETZ: Do you like to work as theatre?

YOUNG: Yes, but I would prefer Dream Houses or truly Eternal Theatres with a more permanent installation, which would allow us to perform in one location for longer

periods—weeks, months, and hopefully, in time, years—without having to move on like traveling musicians to the next concert site.⁴ Constant moving about interrupts the continuity of the work and prevents the realization of its full potential as a living organism with a life and tradition of its own.

- KOSTELANETZ: That remark about life and tradition applies to your audience as well. Why did you choose the title *The Tortoise, His Dreams and Journeys*?
- YOUNG: "Tortoises have been tortoises for two hundred million years, which is 199 million years longer than people have been people." I refer you to a very nice book on turtles by Robert J. Church [...] He points out that while other creatures over the years have been changing, tortoises and turtles remain essentially the same. I'm interested in this, because I'm interested in long durations. I'm interested in stasis, and in things that stay the same although they change in detail.

KOSTELANETZ: Are you perhaps developing a turtle aesthetic for human art?

YOUNG: I'm going in this direction because of my own natural tendencies. There still is considerable variation in the piece, because variation is such an unavoidable factor of life that nothing exists without it. No matter how exact you try to be, no matter how many times you try to draw the line exactly the same, things will always be different. This is one of the inherent characteristics of my work.

KOSTELANETZ: What kind of time does the *Tortoise* piece create?

YOUNG: Its own time, which is determined by and measured in terms of the frequencies we are sustaining.

KOSTELANETZ: Could someone find the *Tortoise* piece boring?

- YOUNG: Somebody certainly could. I feel that the audience must be free to come and go as they choose. I do not like to impose limitations on people, but I am interested in organization and precision—in controlling a situation to a considerable degree.
- KOSTELANETZ: Should the piece induce in the audience a particular psychological state?
- YOUNG: The tradition of modal music has always been concerned with the repetition of limited groups of specific frequencies called modes throughout a single work and, as a rule, the assignation of a particular mood or psychological state to each of the modes. There is evidence that each time a particular frequency is repeated it is transmitted through the same parts of our auditory system. When these frequencies are continuous, as in my music, we can conceive even more easily how, if part of our circuitry is performing the same operation continuously, this could be considered to be or to simulate a psychological state. My own feeling has always been that if people just aren't carried away to heaven I'm failing. They should be moved to strong spiritual feeling.
- KOSTELANETZ: Does your theatre have a therapeutic value?

YOUNG: I suppose it could. People have said that they have come in depressed and left fantastically elated.

Notes

- [In 1960, Young composed a series of scores collectively titled *Compositions* 1960. Here Young discusses *Composition 1960 #5*, which instructs the performer to "Turn a butterfly (or any number of butterflies) loose in the performance area," and *Composition 1960 #2*, which begins: "Build a fire in front of the audience."— Eds.]
- 2 [In 1964, the Theatre of Eternal Music (composed of Young, Marian Zazeela, Tony Conrad, Angus MacLise, John Cale, and Billy Linich) began performing *The Tortoise, His Dreams and Journeys*, a composition that, at the time of this interview in 1966, remained Young's central project.]
- 3 [Composition 1961: "Draw a Straight Line and Follow It"]
- 4 [Young and Zazeela conceived their Dream House installation in 1962 and realized the project for the first time in 1969 at Galerie Heiner Friedrich in Munich, where it took the form of sustained, electronically generated sine wave chords and Zazeela's light-and-mobile sculptures. In 1979, with support from the Dia Foundation, they mounted a "permanent" Dream House installation at 6 Harrison Street, New York City. Loss of funding required that the installation be relocated to their Church Street loft in 1985. In 2015, Dia acquired a new version of the Dream House, which it presents periodically at Dia: Chelsea on 22nd Street.—Eds.]
- From Richard Kostelanetz, The Theatre of Mixed Means: An Introduction to Happenings, Kinetic Environments, and Other Mixed-Means Performances (New York: Dial Press, 1968). Used by permission of Richard Kostelanetz.

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LYssophobia: On Four Violins

Tony Conrad

Violinist Tony Conrad was a key member of The Theatre of Eternal Music (or the Dream Syndicate, as Conrad called it), the drone-based minimalist ensemble centered around La Monte Young in the early 1960s. Indeed it was Conrad, a Harvard-trained mathematician, who introduced Young to the mathematics of the harmonic series that the group so steadfastly explored. After the original Theatre of Eternal Music disbanded in 1966, Conrad went on to record with the German art-rock collective Faust and, later, to collaborate with the post-rock duo Gastr del Sol, Keiji Haino, C. Spencer Yeh, Jennifer Walshe, and others. Conrad is also known as a pioneer "structuralist" filmmaker whose debut, Flicker (1966), consisted solely of stroboscopic light patterns. In the following piece, written in 1996 to accompany the release of his 1964 drone composition Four Violins, Conrad recalls his experience with the Theatre of Eternal Music, describing the group's musical practice and reflecting on the ways that it challenged inherited notions of musical authorship and the musical work. With its capitalized "LY," the article's title refers to Conrad's long dispute with La Monte Young, who claims sole authorship of the recordings made by the Theatre of Eternal Music.

[...] I can't say that my early experiences with the violin were pleasurable, because I always thought the violin sounded so bad. I'm saying that I didn't practice much, if at all, or advance well, even with my own private teacher. An excellent young symphony violinist, Ronald Knudsen, started coming to my house when I was in high school, to teach me, but he soon found that I wasn't going to learn the licks. He advised a better instrument; he made me go back to scales; nothing worked. The saccharine ninetenthcentury salon pieces in my music book could have sung out, if I had played them "expressively," with vibrato; but I hated vibrato. Then Knudsen gave me some eighteenth-century music, full of double stops, and I discovered what it was like to hear two notes sounding together.

Playing in tune, Knudsen urged, was a matter of playing slowly and listening carefully. And playing ever so accurately in tune made the music sound so much better. Whatever you can play slow, you can easily play fast, he always said. When he found that I was responsive to the intonation exercises he gave me, Knudsen brought me a book on acoustics. I was playing two-part harmony from the Bach Chorales. Then we started spending my whole lesson on long conversations about the harmonic series, scales and tunings, intonation, long durations, careful listening, and the relationship between these ideas and disciplined attention to fundamentals.

Knudsen's wife was Japanese; perhaps this was linked to his almost "Zen" approach to practice. He passed on to me exercises that he had found startling: could I hold one bow stroke for a half minute? a minute? How closely could you learn how long a half minute was? Could I play in tune? I mean, really in tune? And more than one note at a time, which was the only way to really hear intonation most clearly? Were there other notes, scales, harmonic progressions, which could be understood through intonation? If I were really careful, it might take me a long time just to get my violin really in tune. And anything that I could play slow I could play fast; the secret of playing well was playing more slowly [...]

The first recording of Indian music I heard was an Ali Akbar Khan performance on Angel Records, in late 1959. It was electrifying; my recollection is vivid. I had never heard the classical music of another culture before; ethnomusicological recordings were extremely unusual in this time.

The underlying relations among melodic and rhythmic functions, and the role of pitch in establishing a key tone (*Sa*), are not so terribly different in Indian music and Western common-practice harmony; and the emotional compass of Indian music is fairly coherent and legible to the Western listener (moreso, one might say, than that of Arabic singing, for instance). It was apparent to me upon first listening that the element which enabled the acute focus and unusual emotional intensity of this music was the drone, which expanded attentiveness to intervallic relations while eliminating the function of harmonic motion.

The drone, as a quintessential of Indian musical logic, plays much the same role that the progression $V \rightarrow I$ plays in Western music. Each is a core, an armature, which defines the listener's sense of the musical events. Western music, with its ever-present investment in progression, animates a sense of absence—of suspension or expectation. This irresolution corresponds to the conflict that provides a forward impetus in narrative story telling. Indian music also conveys feelings of suspension and

resolution, but much differently—and always in the presence of its object. Its operative figure is balance, or repetition, but not absence and conflict.

My response to this music was different from that of my composer friends, all of whom discovered Indian music at about the same time. What most of them found exciting in Indian music was its modal, rhythmic, and ornamental structure. On the other hand, I had been strongly focused upon the intersection of intonation, slow playing, and intervallic (rather than harmonic) listening for some years, and found in Indian music a vindication of my predilection for drone-like performing [...] Feeling the leveraging capability of drone playing in Indian music made me imagine what other new musics might spring from a drone, set within a less authoritarian and tradition-ridden performance idiom.

Around the time I left school and moved to New York, my friend La Monte Young was playing a series of improvisational concerts with several other musicians at a small gallery, called "10-4." I was enraptured to find that he had swerved off in an "oriental" direction: while Young played saxophone (somewhere between Bismillah Khan and Ornette Coleman), Angus MacLise improvised on bongos, Billy Linich (Billy Name) strummed folk guitar, and Marian Zazeela sang drone. All in all, those were hysterical and overwrought concerts; they went on for hours in overdrive, with frequent breaks for the musicians to refresh themselves offstage or in the john. The music was formless, expostulatory, meandering; vaguely modal, arhythmic, and very unusual; I found it exquisite.

What I heard in this music was two parts of what I later saw as three. First, I heard an abrupt disjunction from the post-Cagean crisis in music composition; here the composer was taking the choice of sounds directly in hand, as a real-time physicalized (and directly specified) process—in short, I saw redefinitions of composition, of the composer, and of the artist's relation to the work and the audience. As a response to the unchoices of the composer Cage, here were composerly choices that were specified to a completeness that included and concluded the performance itself.

Secondly, I also heard a composition process which drew upon established vocabularies of traditions, abstracting (or appropriating) the foundations of different musicological (and ethnomusicological) structures, and which worked outward from these linguistic taproots to articulate a (comprehensible) voice in a (new and) invented musical language.

What I did not hear was perhaps the most obvious part of what had appeared here, which was simply that Young had torn a page out of his own history as a jazz musician. He had played, in fact, with Ornette, with Don Cherry [...], and with others as a young sax player in the LA area. The black players had tried to get Young to "swing"; he would not (or could not), and (like other white 1950s jazz musicians in California) went "cool." Young, characteristically, went cooler than any of the rest of them, and started incorporating cool, long spaced-out tones in his classical pieces. His *String Trio* is a kind of hyper-cool California modern classical piece. It was a point of pride, with Young at this time, that he was slow and cool, which brought him to the point of a shared taste with me. Slow, cool, and (which neither of us would have owned up to) nerdy.

Back to the 10-4 Gallery concerts: Though their music was certainly not cool at this point, the group was if nothing else extremely "way-out." I talked to Young, and began to play with the band after the 10-4 concert series ended [...] For the first month I played one drone note, then adding an open fifth for the next month or so. This made Young ecstatic, as he had already composed a piece, *Composition 1960 #7*, which was nothing more than a perfect fifth, marked "to be held for a long time;" and the onus that the ensemble's work might appear to resemble "jazz improvisation" was lifted from him by the device of this nominal contiguity with his neodada composition period. Zazeela also held a drone, though it was clear from the first that my presence would introduce entirely new standards of attentiveness to pitch and stability.

John Cage's work and the activities of Fluxus (which were going on all around us) appeared to bring modernism, and the project of an authoritarian musical form based on the sanctity of the score, to a halt. La Monte Young had become notorious as an avatar of this modernist collapse, particularly through his neo-dada compositions (which incorporated unobservable events, were sometimes performed before they were composed, and otherwise exploited logical and textual paradoxes and aporias of the composer-to-performer relation.) [...]

There were three pathways that made sense to the performers of "Dream Music," or the "Theatre of Eternal Music," or "The Dream Syndicate," as I sometimes called it. Happily, what each of these solutions shared was a solid opposition to the North Atlantic cultural tradition of composition.

The first was the dismantling of the whole edifice of "high" culture.

Also around this time, I picketed the New York museums and high-culture performance spaces with Henry Flynt, in opposition to the imperialist influences of European high culture. More than that, I had strong sympathies with the aims of Flynt's program, which amounted to the dismantling and dispersion of any and all organized cultural forms. At the time I was also a part of the "Underground Movie" scene, which (as I saw it) reconstructed the movies as a documentary form—a merging of life-aims with movie production. Other counter-cultural components of the Dream Music picture were our anti-bourgeois lifestyles, our use of drugs, and the joy which John Cale and I took in common pop music. Down this pathway there were other fellow travelers, like Andy Warhol and Lou Reed; it led straight to the Velvet Underground, and the melting of art music into rock and roll.

The second solution was to dispense with the score, and thereby with the authoritarian trappings of composition, but to retain cultural production in music as an activity. The music was not to be a "conceptual" activity (either in the sense that Fluxus had exhausted the conceptual approach, nor in the sense that "conceptual art" was to retrace a similar terrain seven years later); it would instead be structured around pragmatic activity, around direct gratification in the realization of the moment, and around discipline [...]

At the time, when we played together it was always stressed that we existed as a collaboration. Our work together was exercised "inside" the acoustic environment of the music, and was always supported by our extended discourse pertinent to each and every small element of the totality, both as to each person's performance (the inexorably evolving "improvisation") and as to the ideas which could be attached to the overall sound image. Much of the time, we sat inside the sound and helped it to coalesce and grow around us.

In keeping with the technology of the early 1960s, the score was replaced by the tape recorder. This, then, was a total displacement of the composer's role, from progenitor of the sound to groundskeeper at its gravesite. The recordings were our collective property, resident in their unique physical form at Young and Zazeela's loft, where we rehearsed, until such time as they might be copied for each of us.

The third route out of the modernist crisis was to move away from composing to listening, again working "on" the sound from "inside" the sound. Here I was to contribute powerful tools, including a nomenclature for rational frequency ratios, which ignited our subsequent development [...]

[T]here was a baseline which stabilized the group—our (then) shared conviction that the collaborative composer/performer identity was the way to proceed (historically), and that the mechanism which could make this congruence fruitful would be attention to, and preoccupation with, the sustained *sound itself*. At the point of my arrival in the group, the *sound itself* was "way out," which was incontrovertibly good, but this sound itself had no particular sustained structural integrity or richness. At first, as co-drone (on violin) with Zazeela (on voice), I played an open fifth, as I have mentioned. After a month or two, however, I suggested that I might also some times play another note. What should it be?—And so began our extended discourse on the advisability of each of the various scale degrees. But the evolution of a new argot for this discourse only really got into high gear another month later, some while after I had started playing a third drone note (which we agreed would be a major second or ninth) and our discussions moved on to the fourth note [...]

I played two notes together at all times, so that I heard difference tones vividly in my left ear. The major second, as a consonant interval, has a very deep difference tone, three octaves below the sounded tones. Any change in the pitch of either of the two notes I played would be reflected in a movement of the pitch of the difference tone—but the difference tone would move eight times as fast as the actual pitches. I spent all of my playing time working on the inner subtleties of the combination tones, the harmonics, the fundamentals, and their beats—as microscopic changes in bow pressure, finger placement and pressure, etc., would cause shifts in the sound.

After a while I needed to explain what I was doing to the others, especially as Young had suggested looking for a playable seventh degree. The lowered minor seventh, which he referred to as "bluesy," might—it seemed to me—be identical with the seventh harmonic. The seventh harmonic! How exciting it would be to incorporate accurately tuned intervals which simply do (did) not occur in Western music! I played a seventh harmonic to Young, and he felt it might indeed be the "blue" tone; but how does one tell whether two intervals are the same?

I launched an explication of the scale degrees and their relation to simple numerical frequency ratios. From this point of understanding, it readily followed that we might construct a system of intervals based on the prime numbers three and seven, rather than three and five (which are the foundation for the ordinary diatonic and chromatic scales). The simple arithmetic of composite scale intervals provided us with the makings of a nomenclature, which soon evolved into a fully articulated patois of the Dream sound.

The quality of listening inside the sound, once our playing began to approach rational frequency ratios very closely, became different from other listening experiences. Our unfamiliar intervals, built on tones and timbres which are alien to the vocabulary of twentieth-century common practice, were surprisingly sonorous—dissonant but not discordant. Ripples of beats, in various ranges of the frequency spectrum, emphasized various aspects of the performance—its focus on timbre, its demands for technical accuracy, and its engagement with rhythm as an aspect of pitch. As I put it at the time, "Pitched pulses, palpitating beyond rhythm and cascading the cochlea with a galaxy of synchronized partials, reopen the awareness of the sine tone—the element of combinatorial hearing. Together and in pairs in all combinations, the partials combine. The ear responds uniquely."¹

We lived inside the sound, for years. As our precision increased, almost infinitesimal pitch changes would become glaring smears across the surface of the sound. I found that I had to make a very minute pitch adjustment to compensate for the change in the direction of travel of the bow. When John Cale's viola and my violin began to fuse, as though smelted into one soundmass, I felt that the Dream Music had achieved its apogee. Zazeela's voice had grown rock hard, unerring in its pitch control, and unique in its hugeness and stridency of character. The totality of the sound began to outstrip any of our expectations, and to move into new, larger territories with ever more unusual intervallic combinations [...]

Note

¹ Tony Conrad, "Inside the Dream Syndicate," *Film Culture* 41 (Summer 1966), 6.

From liner notes to Tony Conrad, *Early Minimalism*, Vol. 1, Table of the Elements TOE-CD-33. Used by permission of the author.

Rap, Minimalism, and Structures of Time in Late Twentieth-Century Culture

Susan McClary

One of the founders of the "New Musicology," Susan McClary refuses to treat music as an autonomous domain and instead focuses on the socio-political contexts and significations of music, both classical and popular. McClary's groundbreaking book, Feminine Endings: Music, Gender, and Sexuality (1991), re-reads the history of music, from Monteverdi and Bizet through Madonna and Diamanda Galas, as gendered in both form and content. In the following essay, McClary poses the historical and anthropological question "Why is repetition so prevalent in the music of the late twentieth-century?" In response, she offers a genealogy of musical minimalisms that situates them in relationship to the cultural crises of the twentieth century.

[...] Imagine that a traveler from 100 years ago arrives at our doorstep and asks us why the music of the late twentieth century operates so frequently on the basis of cyclic repetition. Not just the rap and dance genres of popular culture, but also minimalism—perhaps the single most viable extant strand of the Western art-music tradition. So ubiquitous are these patterns that they appear even in the soundtracks to historical films: recall, for example, Michael Nyman's soundtrack to *The Piano*, the minimalist score of which was designed to conjure up the mid-nineteenth-century Romanticism of, say, Schumann.¹

The proliferation of such patterns across genres has not been noticed very much, in large part because they do not share the same audiences. The devoted fans of Goldie or Missy "Misdemeanor" Elliott don't usually attend Steve Reich concerts, nor do many of the symphony subscribers who admire the works of John Adams involve themselves in the danceclub scene or participate in raves. At my local record store, you must descend two full flights of stairs from the bins containing CDs by Terry Riley to find those featuring Ice Cube. This spatial separation prevents any accidental contamination of one clientele with the unintelligible noises of another—only those intrepid souls committed to crossing over make the effort to bridge this physical enactment of cultural hierarchy. And when you finally present your eclectic selection at the cash register, the checkout clerks eye you with suspicion; sometimes they even ask if you know what you're buying or if you've just grabbed items at random.

Yet the genres often sound astonishingly similar, especially in their ways of structuring time. Let me offer some brief examples:

- 1 P.J. Harvey, "The Dancer," *To Bring You My Love*, 1995.
- 2 Philip Glass, "Hymn to Aten," Akhnaten, 1984.
- 3 Tupac Shakur, "Tradin' War Stories," All Eyez On Me, 1996.
- 4 Prodigy, "Climbatize," *The Fat of the Land*, 1997.
- 5 Glass, "Northern Tibet," Kundun, 1997.

This is the music of our own time—not the only kind, to be sure, but these figure among the most pervasive. We do not have to descend at all into the deep well of the past in order to make contact with its practitioners and audiences; we ourselves should qualify as native informants. If we cannot answer such questions, then who can? Musicologists tend to trust the eye-witness accounts of previous generations when they address the music of their time, yet we defer passively to the future for judgment concerning that of our own moment.² So let me pose my ethnographic questions: why does so much of our music work this way? What kinds of needs do these patterns satisfy?

Allow me to anticipate some objections. Left to our own devices, we probably would not ask these questions of ourselves: to those of us invested in any of the genres to which I refer, distinctions count for far more than resemblance. Only listeners not familiar with Tupac Shakur or Philip Glass would privilege the repetitive procedures within which each operates; indeed, a knowledgeable fan or connoisseur might scoff at the idea of dwelling on that most elementary level of activity. To anyone, acquainted with a whole range of rap groups or minimalist composers, what matters are not stylistic similarities, but rather the particularities of Tupac's latest posthumous release, the haunting beauty of the harmonic changes in Glass' most recent collaboration with Robert Wilson, Monsters of Grace. To a large extent, the structures of repetition used by these artists have ceased to register as significant: they constitute merely the neutral ground of basic assumptions up against which the actual music occurs. Consequently, we (and I include here relative experts) might well prove inarticulate or downright antagonistic when faced with this line of questioning.

Yet a time-traveler from 100 years ago would no doubt insist on interrogating precisely these issues. We can now look back to the 1800s, to what must have seemed then like the infinite variety of symphonic possibilities, and recognize that they all shared an investment in dynamic narratives of subjective struggle towards triumph; we may identify them now as all participating in a specifically nineteenth-century cultural agenda. Indeed, that peculiar way of structuring time (mostly unremarked by commentators of the period) may now qualify as far more important for purposes of cultural history than the manifest content of any given symphony.³ If the ideological priorities of late Romantic music appear relatively obvious from our vantage point, so too our own characteristic habits would seem absolutely fundamental to anyone transported from a previous time [...]

Consequently, instead of simply asking *us* why our music works as it does, I will try to imagine explaining to someone from the outside how things got to be this way. No one a century ago could have predicted the shape of music today: how did it get to be this way? Strange to say, it proves nearly as difficult to account for our own predicament as for that of an earlier period, for which the receding years have filtered out many of the elements that make everyday life so complex, leaving behind for analysis—for better or worse—only those artifacts that managed somehow to survive [...]

I will begin, then, by considering the dislodging of what would have seemed to nineteenth-century Europeans a structure of time as pervasive as a fact of nature: the narrative orientation not only of operas but also of symphonies and quartets. At the peak of what appeared its greatest triumph, however—the period of the gigantic instrumental epics of Mahler and Bruckner—this model came under exceptionally vicious attack. And not from another cultural stratum: no, this was an insider job, perpetrated by those whose training had prepared them to inherit and pass on this tradition, so rich with the accreted wisdom of centuries.

Schoenberg, for instance, sought to strip away from his work all vestiges of convention, which he regarded as repressive ideology, and he plunged inward to cultivate what he took as authentic, intensely organic subjectivity: indeed, a subjectivity capable of producing its own selfgenerated objectivity. Cultural critic Theodor Adorno, who worked closely with the musicians of the Second Viennese School, explained why Schoenberg fought so vehemently against instances of repetition: if we understand a piece of music as an allegory of personal development, then any reiteration registers as regression—as a failure or even a refusal to keep up the unending struggle for continual growth demanded for successful self-actualization. Similarly, reliance on cultural conventions— even those responsible for nineteenth-century symphonies—betrays for Schoenberg/Adorno an intolerable concession to pressures to conform to the outside world. Schoenberg's embattled Self thus enacts a scenario of extreme insularity, admitting neither reference to the previously existing musical codes that make communication feasible nor to the redundancy that offers the listener internal structural markers; it glorifies a Self so resistant to the constraints of normative social interaction and accepted definitions of reason that it became—and quite deliberately so—indistinguishable from manifestations of madness.⁴

But Schoenberg's was not the only apocalyptic agenda of the early 1900s. Stravinsky's heresy, by contrast, raged against the fetish of individualistic interiority Schoenberg held in common with the Romantic tradition; in place of allegories of exquisitely wrought Selfhood, he offered collective, ritualized violence. Disdaining the bourgeois sensibility given voice by classic forms, he hurled the primitivism of *Rite of Spring* at scandalized Parisian audiences: *this*—not pretty, cleaned-up images of love, duty, and self-expression—was Stravinsky's vision of humanity (revealed here just as Freud was unmasking the anarchic substructure of the unconscious). Civilization and its discontents had become too burdensome; urban artists coveted the freedom they imagined as the birthright of tribal peoples.⁵

Predictably, Adorno critiqued Stravinsky severely—not for his dissonance or departure from traditional practices, but for the hypnotic effect of his repetitious ostinato patterns, which Adorno heard as seducing listeners into passive acceptance of the most barbarous elements of encroaching totalitarianism.⁶ He believed that when audiences give up the admittedly difficult task of critical thinking, then the path is paved for demagogues like Hitler or Stalin. To Adorno, Schoenberg's music posed fierce challenges to keep the mind alert and behavior autonomous; from that point of view, Stravinsky seemed to cast his lot in with group-incited hedonism and potential atrocity.

We do not have to accept these arguments as somehow or other *true*, but they do offer insight into why musical repetition became a moral

battlefield in the 1920s. Schoenberg's position, which came to prevail within the North American academy, has strongly influenced the training of young musicians. This training accounts in part for the automatic reaction against musical styles that operate according to repetition, though many of the musicians who parrot the condemnation of repetition could not reconstruct the prehistory of this controversy: they know only that *repetition is bad*.

But the repetition in today's music does not descend directly from Stravinskian ostinatos—except perhaps for the memorable leitmotiv for the shark in *Jaws*. In certain respects, minimalist composers owe more to Schoenberg. To be sure, his declared war on repetition would seem to move us further away from the cyclicism of today's music. In retrospect, however, we might argue that the very fanaticism with which Schoenberg's atonal followers strove to enforce his radical position eventually helped to precipitate its opposite: the oedipal child rebels by acting out precisely the worst nightmare of the too-strict parent, and High Modernism's stringent prohibition inadvertently goaded a later generation to embrace obsessive repetition.⁷

Yet repetitive structures signify more than a simple reaction formation —an arbitrary strategy for refuting paternal serialists. Nor does it necessarily align itself with fantasies of primitivism, as did Stravinsky's *Rite-of-Spring* ostinatos. But in order to explain more fully for this phenomenon we have to entertain the idea that the European classical tradition has ceased to occupy the mainstream, that it no longer qualifies as the protagonist in the history of music—not even in the West. In other words, my answer to our time traveler will require a very different account of music of the last hundred years than the one typically delineated in textbooks titled *Twentieth-Century Music*.⁸

Two other musical traditions have played unexpected but starring roles in the development of our music—both introduced into the West largely as a result of the imperialist projects that led Europe to hold dominion over the rest of the globe during the nineteenth century. For conquest, it seems, cuts both ways: if the West prevailed economically and politically, the attractions of some of its plunder proved irresistibly seductive. Bizet's opera *Carmen* presciently staged in 1875 some of this cultural reversal, as an aristocratic soldier in a colonial army falls under the sway of native customs: his lofty sentiments and proper operatic idiom wilt before the sensual license of "gypsy" music. And like Don José, audiencesincluding even listeners as sophisticated as Tchaikovsky and Nietzsche confessed themselves spellbound by Carmen's exotic utterances, even though her French-composed songs and dances represented World Music at third remove at best.⁹ The glories of the symphonic legacy began to feel like the White Man's Burden.¹⁰

In 1889, to celebrate the centennial of its Revolution, France hosted the Exhibition Universelle, at which it displayed the acquisitions of its century of colonial expansion. A young French composer happened to wander into the Indonesian Pavilion, where he encountered a performance by a gamelan-a percussion ensemble from Java. The shimmering sounds themselves captivated his ear, but the Indonesian fashion of shaping time impressed him even more. Instead of the goal-oriented trajectories of the music he knew, Claude Debussy heard the gamelan playing what Javanese musicians would recognize as complex interlocking cycles related to Indonesian philosophies of life.¹¹ Although he had little interest in the metaphysics that generated these patterns, he perceived in this music a radically different mode of temporality from the one inscribed in European practices. This experience helped Debussy to transform his modus operandi as he experimented-along with Satie and Ravel-with how to structure sound without recourse to the postponed gratification of tonal harmony or the promise of climax. If previous composers had sought exotic color in superficial references to the Orient, sprinkled innocuously on top of a securely European tonal framework, Debussy increasingly accepted as his structural premise the Asian structures of time he had stumbled upon by accident at a world's fair.¹²

As it turns out, Debussy was just the first of a distinguished line of Western composers drawn not only to Asian musical practices, but also to the philosophies and theologies that sustain them: to name but a few, Colin McPhee, Lou Harrison, Benjamin Britten, and John Cage. Even quintessential modernists such as Pierre Boulez and Karlheinz Stockhausen have featured gamelan-inspired textures or foregrounded the recitation of Hindu mantras in their work. The list would also include a virtual *Who's Who* of 1960s minimalism: La Monte Young, Terry Riley, Pauline Oliveros, Laurie Anderson, and Philip Glass.¹³ Thus, a colonialist enterprise that set off to impose European values on the rest of the globe also produced the reverse effect, as an increasing number of the West's most creative artists—weary of what they perceived as the cul-de-sac of the European tradition and its attendant ideologies—jumped ship.¹⁴

Several of these went far beyond the simple imitation of alien musical styles: compelled first by the non-violent and non-linear cyclic sound-patterns they heard, they eventually converted to Buddhism and now strive to live their lives in accordance with its precepts.

The public, however, felt the impact of Asian influences on Western music in the 1960s not through the work of these still-obscure experimentalists, but rather through the rock music that was quickly becoming an international lingua franca. Most famously, the Beatles-a band that began its career with covers of Chuck Berry songs-suddenly started weaving sitars and trance-like passages into their albums: a move very much in keeping with the counterculture's fascination with alternative (ahem) drug-induced modes of consciousness. To be sure, although some disciples of the counterculture studied with gurus and undertook pilgrimages, many responded to this engagement with Eastern references as the latest fad, as an accessory like hash brownies. Still, regardless of intentions, whether lofty or fashion-driven, the cyclic patterning of Asian music infiltrated Western culture in general, and its sounds became part of the overall range of possibilities available to musicians. The Beatles' Sgt. Pepper begat Led Zeppelin's "Kashmir," to say nothing of the exotic references in everything from Metallica to Beck to Madonna, who actually sings in Sanskrit [... in Ray of Light].

But the musical framework onto which these specifically Asian characteristics were grafted—namely the blues—was itself already posited on repetitive procedures. For the other tradition that has come to dominate the music of our century is a legacy of the people who were transported to the Americas against their will from West Africa.

Christopher Small, in his magnificent *Music of the Common Tongue*, traces how inherited musical practices have enabled African-Americans to survive the brutal conditions of slavery and other forms of social oppression throughout the last four centuries.¹⁵ James Snead and Henry Louis Gates, Jr. have further theorized the centrality of repetition in African-based cultural forms, literary as well as musical. An earlier generation of critics, most of them trained to privilege structural complexity and innovation in their aesthetic judgments, often decried what they perceived as the simple-mindedness of African-American music and literature. But Small, Snead, Gates, Samuel Floyd, Tricia Rose, Robert Walser, and others have explained how these practices work to maintain a sense of community through the recycling of materials, while individual

artists "signify" imaginatively on those familiar materials.¹⁶

Most listeners did not await the verdicts of these cultural theorists, however, before embracing African-based music. Narrative accounts of music in the twentieth century ought to (but rarely do) find at their core the succession of Black genres that stamped themselves indelibly on the lives of generation after generation: ragtime, blues, jazz, R&B, gospel, doowop, soul, rock, reggae, funk, disco, rap. This, I would argue, is the most important tributary flowing into today's music.

[...] Yet my time-traveler from 1900 would no doubt profess astonishment that this displacement of European by African-based musics in Western culture could have occurred. To be sure, Dvorak had suggested Black music as the obvious source for a genuinely American musical language, but few composers took his recommendation seriously.

A large part of the explanation for this startling cultural emergence has to do, of course, with the exceptional vitality, creativity, and power of musicians working within these idioms. But quality alone does not guarantee reception—especially when it springs from a long marginalized, even despised segment of the population. What kinds of conditions allowed for the displacement of a dominant tradition by one of negative prestige?

Recall that turn-of-the-century European composers chose to depart radically from the conventions sustaining their customary relationship with audiences. This widespread crisis took place at the same moment as the emergence of unanticipated technologies: sound recording and radio. Suddenly, the performance by an improvising musicians could be heard directly, without the previously necessary mediation of notation. Details such as quality of voice, rhythmic nuance, expressive gesture could be captured and circulated far beyond the musician's actual location. At the moment these technologies appeared, European composers had their minds set on alienating their usual audience. Black popular music stepped in to fill the resulting vacuum, and the 1920s proclaimed themselves worldwide The Jazz Age.

Perhaps the single most important feature of twentieth-century musical culture is its gradual but pervasive African-Americanization. If we are subjected to debates about the value of gangsta rap, most of the alternatives available are other genres that can trace themselves back to blues. Given its ubiquity, black pop music would seem to be the element most clearly responsible for converting our collective sense of time from tortured heroic narratives to cycles of kinetic pleasure. As Prince sings, "There's joy in repetition!" One can even perceive a strong influence of African-based patterning in both the experimental music and rock of the 1960s—the time when the influence of Asian practices is most explicit. The blues and its descendants had predisposed both rockers and minimalist composers to experience time in this way, even if their attraction to Buddhism or Hindu mysticism led them to propose a somewhat different lineage.

How, then, do we explain this structure of feeling so prevalent in our own moment? [...] The postmodernists claim this propensity for repetition as a reaction against the formalist excesses of High Modernism, and they rightly draw parallels between the minimalist art of, say, Andy Warhol and the music of Glass or Reich. Whether multiple images of Marilyn Monroe or self-replicating cycles of arpeggios, the underlying structure operates according to an additive process rather than either a traditional mode of representation or the abstraction of mid-century artworks. Certain postmodernist philosophers, especially Gilles Deleuze and Jean-François Lyotard, have sought to valorize the repetitive, ecstatic structures of time in our moment; they theorize it as a new mode of consciousness, only now becoming intelligible up against the dialectical individualism of the recent past.¹⁷

Yet many still resist what they perceive as the dire implications of repetitive formations. Much of this criticism continues the line of argumentation first articulated by Adorno against what he heard variously as reification in Schubert's crystalline structures, Wagner's flashcard leitmotivs, and the robotic jitterbug rhythms of jazz. Thus Fredric Jameson decries the absence of depth in today's artworks, and Jean Baudrillard lays the blame at the feet of advertising strategies, which produce desire by bombarding the population with slogans, trademarks, and rootless (if spellbinding) imagery.¹⁸ [...]

By contrast, my convoluted genealogy would have to include Stravinsky's primitivism; Debussy's escape from European narrativity into Indonesian temporalities; the global circulation of blues and jazz made possible by sound technologies; Benjamin Britten's use of gamelaninspired sonorities as symbols of alternative sexualities;¹⁹ Aaron Copland's redeployment of Stravinskian ostinatos to construct the stillprevailing semiotics of the American West; the attempts by a succession of youth cultures to reclaim their bodies through the rhythms of swing, 1950s rock 'n' roll, disco, or techno; the drug-induced mysticism of the Counterculture and the trance-states sought by New Age devotees in their preference for drone-based musics; the cyclic processes explored by feminist musicians searching for alternatives to what they perceive as the violence of dominant procedures;²⁰ the virtuosity of Ravi Shankar, who influenced Coltrane, Glass, and the Beatles; the yearning of composers of the 1970s to reconnect with the audiences estranged by the Modernists; the attractiveness of Buddhist philosophies to many Westerners burned out on materialist consumption; the disco movement that emerged from gay venues to challenge rock's self-proclaimed authenticity and that continues in the various versions of dance-club music; the aggressive international music business which makes the world's music available as commodity, simultaneously homogenizing and diversifying cultural forms; a commitment to ecology, which inspired Koyaanisqatsi, Eno's ambient music, and the Grateful Dead; the technologies of sampling and digital arrangement that greatly facilitate repetitive constructions; the griot and gospel-preaching traditions that inform the cultural practice of rap.²¹

In other words, the structures of repetition that characterize so much of our music testify to the complex, unpredictable history of our century. As the poststructuralists might say, this condition is overdetermined—that is, it owes its emergence to countless moments of creativity, accidents of reception, strange correspondences between distant sensibilities, contributions from long-ignored minorities, and much more. Like all cultural moments, ours has both utopian and dystopic elements,²² which is why we must continue to strive to make sense of it and debate as participants each new option as it appears.

Very deep indeed is the well of our own era. Too many possible explanations jostle for our attention, all of them accompanied by fiercely contested cultural baggage. Yet the fact that we cannot reduce the phenomenon of cyclic structures to the effect of a single cause does not make it arbitrary or meaningless—quite the contrary. Answers may present themselves more easily some time in the future when our particular set of conventions begin to give way to others. At that point, another flurry of debates will point up explicitly what has become exhausted, what is still held as valuable about these repetitive schemata.

The historian of the future will have the luxury of looking back on our era, to see what turns out to have been important after all. That historian, however, will no doubt yearn to have experienced what it was like to be alive at this very moment, trying to make sense of the bewildering profusion of musical practices and critical opinions. That's why it's so important for us to perform—if only from time to time—an anthropology of ourselves. For there's no time like the present.

Notes

- 1 Similarly, the soundtrack for *Angels and Insects* used minimalist patterning to represent the nineteenth century.
- 2 When I was receiving my training in the 1960s, the profession still regarded nineteenth-century music as too close for serious scrutiny. The journal *19th-Century Music* began only in the late 1970s, and scholars have started to tackle early twentieth-century repertories only in the last ten years—just as we prepare to face the next millennium.
- 3 It takes a great deal of effort to teach advanced graduate students how to interpret the particularities of a nineteenth-century score (a skill that the most casual concert-goer of the 1890s would have assumed as basic), but today's public-radio subscribers happily tune in for interchangeable instances of a repertory that guarantee in advance the quality of motion to which they are addicted.
- 4 Theodor W. Adorno, "Arnold Schoenberg, 1874–1951," Prisms, trans. Samuel Weber and Shierry Weber (Cambridge, Mass.: MIT Press, 1981), 147–72. For more on this cultural moment and its motivations see Friedrich A. Kittler, Discourse Networks, 1800/1900, trans. Michael Metteer and Chris Cullens (Stanford: Stanford University Press, 1990) and Andreas Huyssen, After the Great Divide: Modernism, Mass Culture, Postmodernism (Bloomington: Indiana University Press, 1986).
- 5 A good deal has been written recently on the relationship between early twentiethcentury Modernism and this primitivist projection. See, for instance, Marianna Torgovnick, *Gone Primitive: Savage Intellects, Modern Lives* (Chicago: University of Chicago Press, 1990).
- 6 Adorno pits Stravinsky and Schoenberg against each other in *Philosophy of Modern Music*, trans. Anne G. Mitchell and Wesley V. Blomster (New York: Seabury Press, 1973). For another point of view, see Richard Taruskin, *Stravinsky and the Russian Traditions*, 2 vols. (Berkeley and Los Angeles: University of California Press, 1996). In his novel of 1924, *The Magic Mountain*, Thomas Mann too focuses on what was already seen among German intellectuals as the widespread refusal of the Enlightenment project in the wake of the Great War. Mann's Hans Castorp—a young man of privilege who has trained to work as an

engineer—becomes absorbed in the repetitive daily regimen in a tubercular sanitarium and gradually abandons his sense of teleology. In his text Mann devotes many long passages to discussing the philosophical and social implications of these two ways of experiencing time. Interestingly, the character who consistently advocates the progress-model of time is also associated with Satan—as was, of course, Faust's Mephistopheles.

- 7 For more on this set of reactions, see my "Terminal Prestige: The Case of Avant-Garde Music Composition," *Cultural Critique 12* (Spring 1989): 57–81.
- 8 See, for instance, Robert P. Morgan, *Twentieth-Century Music* (New York: W.W. Norton, 1991). Only a few books attempt to cross between the continuation of the European art tradition and popular music. See John Rockwell, *All American Music* (New York: Vintage Books, 1983) and David Toop, *Ocean of Sound: Aether Talk, Ambient Sound and Imaginary Worlds* (London and New York: Serpents Tail, 1995).
- 9 See my Georges Bizet: Carmen (Cambridge: Cambridge University Press, 1993).
- 10 See the comparison between Bizet and Wagner in the opening sections of Friedrich Nietzsche, *The Case of Wagner*, trans. Walter Kaufmann (New York: Vintage Books, 1967).
- 11 Judith Becker, Gregory Bateson, and Clifford Geertz have all written extensively about Indonesian modes of temporality.
- 12 For more on the specific responses to the gamelan in the music of Debussy and subsequent composers, see Mervyn Cooke, "The East in the West': Evocations of the Gamelan in Western Music," in *The Exotic in Western Music*, ed. Jonathan Bellman (Boston: Northeastern University Press, 1998), 258–80.
- 13 For more on the musical procedures of these musicians, see Wim Mertens, *American Minimal Music*, trans. J. Hautekiet (London: Kahn & Averill; White Plains, NY: Pro/Am Music Resources Inc., 1983).
- 14 [... Thomas] Mann's *The Magic Mountain* recognizes as early as 1924 this pull of the East, as he traces the appeal of repetitive time-structures to Asia and to the disenchantment of so many with European ideals concerning science and progress. See especially the chapter titled "Encyclopaedic."
- 15 Christopher Small, Music of the Common Tongue: Survival and Celebration in Afro-American Music (London: John Calder, 1987; rev. ed., Hanover, N.H.: Wesleyan University Press, 1998).
- James Snead, "On Repetition in Black Culture," *Black American Literature Forum* 15, no. 4 (1981): 146–54; Henry Louis Gates, Jr., *The Signifying Monkey: A Theory of African-American Literary Criticism* (Oxford: Oxford University Press, 1988); Samuel A. Floyd, Jr., *The Power of Black Music: Interpreting Its History*

from Africa to the United States (Oxford: Oxford University Press, 1995; Tricia Rose, *Black Noise: Rap Music and Black Culture in Contemporary America* (Hanover, N.H.: Wesleyan University Press, 1994); Robert Walser, "Rhythm, Rhyme, and Rhetoric in the Music of Public Enemy," *Ethnomusicology* 39/2 (1995): 193–218.

- Gilles Deleuze, *Difference and Repetition*, trans. Paul Patton (New York: Columbia University Press, 1994); Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987); Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi (Minneapolis: University of Minnesota Press, 1984) and "Several Silences," in his *Driftworks*, trans. Joseph Maier (New York: Semiotext(e), 1984), 91–110.
- 18 See, for instance, Fredric Jameson, "Postmodernism and Consumer Society," and Jean Baudrillard, "The Ecstasy of Communication," both in Hal Foster, ed., *The Anti-Aesthetic: Essays on Postmodern Culture* (Port Townsend, Wash.: Bay Press, 1983). See also the extended Adorno-like critique of repetition in Jacques Attali, *Noise: The Political Economy of Music*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1985).
- 19 Philip Brett, "Eros and Orientalism in Britten's Operas," in *Queering the Pitch: The New Gay and Lesbian Musicology*, ed. Brett, Elizabeth Wood, and Gary C. Thomas (London and New York: Routledge, 1994), 235–56. See also Cooke, "The East in the West."
- 20 See the discussions in my *Feminine Endings: Music, Gender, and Sexuality* (Minneapolis: University of Minnesota Press, 1991).
- 21 Tricia Rose argues persuasively that we must locate rap in the intersection between traditional practices and state-of-the-art technology. See her *Black Noise*.
- 22 See the concluding section of Mertens, *American Minimal Music*, 113–24.
- From Susan McClary, "Rap, Minimalism, and Structures off Time in Late-Twentieth Century Culture," the Norman and Jane Geske Lecture (Lincoln: University of Nebraska Press, 1999). Used by permission of the author.

Draw a Straight Line and Follow It: Minimalism in Contemporary Electronic Dance Music

Philip Sherburne

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In the popular imagination, electronic music is often synonymous with spectacle and excess. The EDM superstar Skrillex leaps atop the DJ booth as pyrotechnics rain down around him in a curtain of fire. Jean-Michel Jarre vamps on his laser harp—an instrument with luminous beams in place of strings—while a battery of strobe lights strafes across the Egyptian pyramids behind him.

But the driving impulse in most electronic dance music is far more modest and far more focused: it comes from minimalism. This is particularly true in house, techno, trance, and other forms built around a four-to-the-floor beat; but it is also the case for genres like jungle and drum 'n' bass, where breakbeats are looped into a heavily repetitive, almost trance-inducing churn.

Contemporary electronic dance music has no single point of origin; since the early 1980s, its panoply of styles has arisen out of a vast array of antecedents, including disco, funk, post-punk, synth-pop, industrial, ambient, and krautrock. And in most cases, its evolution has entailed parallel processes of reduction and extension: stripping away extraneous ornament, paring down to only the most salient rhythmic and tonal components, and extending those few elements as far as they can be stretched.

What are some of the characteristics of contemporary electronic dance

music that could be classified as minimalist? Many of them are related to what the critic Kyle Gann has identified as certain fundamentals of the minimalism of the 1960s and 1970s, particularly repetition, static harmony, steady beats, additive processes, static instrumentation, linear transformation, metamusic (overtone phenomena, psychoacoustics, and other aspects related to a focus on timbre and texture over melody), and, finally, the influence of non-Western cultures.¹ Yet this influence is so deeply infused with dance music's DNA as to be all but unrecognizable; they are simply part of the background, as invisible as water to a fish. They often come to the fore only when, for one reason or another, artists or listeners decide to shine a spotlight on them, as in the case of the so-called minimal techno of the 1990s and its progeny, the mid-'00s subgenre known simply as "minimal." (And as we'll see, sometimes that very fetishism of the idea of minimalism is a kind of red herring, paradoxically leading the music away from minimalism's true essence.)

Early minimalism

The minimalist movement, as it is conventionally understood, dates to the 1960s, when a number of composers, including Steve Reich, Terry Riley, Philip Glass, and La Monte Young, began experimenting with the techniques and ideas-repetition, static harmony, etc.-that would come to be recognized as minimalism's essential features. But their experiments hardly took place in a void. Working at a considerable remove from the classical establishment-Reich worked nights as a cabdriver; Young and Marian Zazeela turned their downtown loft into the Dream House, a kind of sanctuary where music and ritual (and sometimes narcotics) converged on a 24/7 timeline—they operated under the influence, whether direct or indirect, of composers such as Henry Cowell, whose work fused musical traditions from around the world; Conlon Nancarrow, whose player-piano pieces constituted an early form of proudly artificial machine music; and Harry Partch, who rejected the strictures of the 12-tone scale and celebrated a "corporeal music" that unified mind, body, and spirit. Above all, they followed the lead of John Cage, whose playful, philosophical spirit had upended classical convention, and Morton Feldman, a composer of slow, quiet, and elegant pieces that seemed to ask, "Why play two notes, when one will do—and why play for one hour when you can play for two?"

But the founding minimalists' work was just as powerfully influenced by ambient forces in pop culture. As Steve Reich told an interviewer in 2010, "In America in the mid-'60s, there was something in the air about harmonic stasis."² Balinese gamelan music, African drumming, and Hindustani classical music were all leading clued-in listeners away from Western harmonic conventions and pointing them in the direction of repetitive structures and pulsing drones. And in pop and jazz, musicians were beginning to dispense with chord changes entirely. That was the organizing principle behind John Coltrane's "Africa," the sixteen-minute A-side to his 1961 album Africa/Brass; Junior Walker & the All Stars' Motown single "Shotgun"; and long stretches of Bob Dylan's "Maggie's Farm," which he played at his infamous "electric" set at the 1965 Newport Folk Festival: one root note, extended as long as the song will bear it. As Reich remarks, in songs like these, there's an implicit tension precisely because the chord doesn't modulate: it leaves listeners on the edge of their seats, waiting for a change that never comes. (It was, in many ways, the exact opposite of the dynamics of the decade itself, in which upheaval was constant.)

By the early 1970s, the ideas that minimalist composers had begun exploring in the previous decade were swirling freely through popular culture, with record companies actively targeting the work of Reich and Riley not only to classical audiences, but also to the counterculture. The 1968 Columbia Masterworks LP Electronics & Percussion: Five Realizations by Max Neuhaus came packaged with a bonus disc, The Wild Sounds of New Music—featuring excerpts of Riley's A Rainbow in Curved Air and Reich's Violin Phase, along with work from Luciano Berio, Conlon Nancarrow, and Harry Partch-that attempted to seduce twentysomething listeners leery of "that square symphony and opera stuff."³ Offering the dubious image of "kids grooving to the sound of Harry Partch or Varèse," the text urged prospective buyers, "There's enough on this record to keep your adrenaline pumping through 1970. Come on, get with it!" Perhaps not coincidentally, in the 1970s, several of the songs that would have the greatest impact on the sound of the electronic dance music to come were also those that owed the most to 1960s minimalism.

In 1975, Kraftwerk opened its fourth album, *Autobahn*, with a twentythree-minute love letter to the German highway system. Over a flickering 4/4 beat that seemed to move at two different tempos at once, like a spinning hubcap, they sang deceptively simple, sing-songy pop melodies with a distinctly Californian air. (The refrain "Fahren, fahren, fahren auf die Autobahn" even punned on the Beach Boys' "Fun Fun Fun.") But in between these refrains, long passages of striking monotony stretch toward the horizon. At times a single pedal tone bounces between octaves, unmodulating, moving like pistons; in other passages, there's nothing but a steady drum-machine beat overlaid with Doppler-effected streaks of synthesized sound. In its sleek, grey modernity, it was as radical as anything pop music had ever produced. And although its slow-fast motorik groove didn't necessarily fire up dancers' engines---"definitely not for boogeying," wrote David McGee in Record World-Kraftwerk would pave a more direct path to the dance floor just two years later with Trans-Europe Express. Over a chugging electronic beat meant to resemble the sound of train wheels clattering along rails, the album's title track is almost all rhythm. Stacking its synthesizers in dizzy fourths, stripping down its "melody" to short, disembodied phrases, and running the spokenword refrain through an alien-sounding vocoder, it's hardly much of a sing-along. This isn't a song to be carried; in its industrial fusion of tone, texture, and rhythm, it carries you. And on "Metal on Metal," which immediately follows, virtually all tonal elements disappear except for some faraway train-whistle effects, leaving a scraping, clanging coda of pure, mechanized pulse. Not long after its release, Kraftwerk's Ralf Hütter found himself at a private, after-hours discothèque in New York City, where he was surprised to hear a DJ extending the two-minute song for 10 tension-filled minutes by juggling identical copies of the record across two turntables. It was an anticipation of the way that, a little more than a decade later, certain strains of techno would evolve into an exercise in pure rhythm stretched endlessly toward the horizon, like train tracks.⁴

The same year that Kraftwerk hit the German high road, the Italianborn, Munich-based songwriter and record producer Giorgio Moroder put a similarly minimalist spin on disco with Donna Summer's "Love to Love You Baby." For nearly seventeen minutes, bass and guitar tease out liquid funk riffs over skeletal hi-hats and splashes of Rhodes keys while Summer sighs, moans, and coos. At its peak, the song is as opulent as any of the era's most extravagant disco, fluffed up with velvety strings and even an extended flute solo. But what tips it toward minimalism is the song's odd structure. For most of its running time, the song toggles between 10-bar passages of a single, unchanging chord and three-bar, three-chord turnarounds. The curious arrangement has the effect of telescoping time: each time the turnaround arrives, it feels like it's come too soon, and its conclusion seems just as rushed. Pop music, by and large, prefers multiples of two and four to ungainly 13-bar chunks, and the effect tips the listener subtly off-balance—a bit of temporal sleight-of-hand that, in comparison, makes a 78-bar stretch of unbroken groove in the song's middle section seem to reach into infinity.

In 1977, the same year that Kraftwerk released *Trans-Europe Express*, Moroder and Summer ventured into even more hypnotic territory with "I Feel Love." While the song isn't as harmonically static as "Love to Love You Baby," the unchanging bass arpeggio, ping-pong delay effects between left and right channels, and stripped-down instrumentation— practically the entire thing is made with a borrowed Moog synthesizer, one of the first ever produced—plunge the listener into an eerie, immersive sound world not too far removed from the pointillist pulsations of *In C* or *Music for 18 Musicians*. By replacing traditional musical instruments with electronics, Moroder had stripped disco to the bone, paving the way for the electronic style that would eventually become known as house music.

Around the time of those early electronic dance landmarks, there was no shortage of minimalist electronic music, both pop and avant-garde. Brian Eno was exploring extreme repetition and generative processes in groundbreaking ambient albums such as Discreet Music (1975), Music for Films (1976), and Music for Airports (1977). On its 1977 debut album, Suicide combined synthesizers and 1950s rock 'n' roll to bang out onechord mantras like "Ghost Rider," reimagining minimalism at its most muscular. (Thanks in large part to the Velvet Underground-John Cale had played in La Monte Young's Theatre of Eternal Music—minimalism was a key shaping force on New York's avant-garde rock music in the late 1970s and early 1980s, as the drone-oriented principles of artists such as Young, Phill Niblock, Tony Conrad, Rhys Chatham, and Charlemagne Palestine filtered into the work of numerous bands in the No Wave scene: Sonic Youth, Swans, James Chance & the Contortions, and Glenn Branca's bands The Static and Theoretical Girls.) At the other end of the spectrum, Laurie Spiegel's pioneering computer music was rendering the bright melodies of Appalachian folk songs with dazzling clarity and hypnotic simplicity.

By the early 1980s, reduction and repetition were everywhere in popular music, from Afrika Bambaataa & the Soulsonic Force's hip-hop cornerstone "Planet Rock," which interpolates the melody of Kraftwerk's

"Trans-Europe Express," to legions of British and European bands such as Depeche Mode, D.A.F., the Normal, and Front 242, all of whom took advantage of the decade's newly affordable synthesizers to extend punk's DIY ethos into the electronic sphere. Many of their songs, such as the mantra-like 1960s pop Reich had observed, did away with chord changes entirely. (As the Normal's Daniel Miller, the founder of Mute Records, has often quipped, synth-pop was even more ripe for democratization than punk rock: would-be punks needed to learn at least three chords, whereas in synth-pop, with just one finger and a sequencer, you were off and running.)

One example in particular serves to show the ways that the experiments of Reich, Riley, and Glass were filtering directly into electronic dance music: *E2-E4*, an hour-long meditation on two chords set to a percolating drum-machine beat. The 1984 album-length track was the work of Manuel Göttsching, a former member of the krautrock bands Ash Ra Tempel and Ashra. Under the influence of Riley's work with organ, the Berlin musician had begun exploring long-form, minimalist compositions on his 1975 solo album Inventions for Electric Guitar, using delays and overdubbing to stretch reverberant electric guitar patterns into a glistening web. (Göttsching has also cited Reich, who lived in Berlin on a DAAD artist-in-residence fellowship in 1974, as a compositional influence.⁵) Organized around a simple machine rhythm and cascading synthesizer arpeggios, E2-E4 marked a break from Göttsching's typical sound and from his typical working method. Improvising, he banged out the hourlong piece in a single session in 1981, in real time, with no overdubs. When Virgin Records founder Richard Branson heard it, he heard the future---"Manuel, you could make a fortune with this music," the millionaire entrepreneur told the musician-but Göttsching wasn't sure. He sat on the material until 1984, finally releasing it on his former bandmate Klaus Schulze's fledgling Inteam label. It didn't sell many copies, but at least a few of those ended up in the hands of the right listeners.

Larry Levan was a fan of the record; he was known to close his sets at the Paradise Garage by playing the album in full.⁶ (Levan is even said to have requested that the record be played at his funeral.⁷) In the UK, the Orb's Alex Paterson played it in ambient techno sets. In 1989, an Italian group called Sueño Latino came calling, asking to record a cover version in Italian (despite the fact that the instrumental track had no lyrics to begin with). The new version, heavily dependent on a sample of Göttsching's original, became "Sueño Latino," a cornerstone of Ibiza's burgeoning Balearic house scene, which had an enormous impact on the development of UK acid house and British rave. And in 1992 Derrick May, one of the architects of Detroit techno, would remix the song. If there were any doubt about 1960s minimalism's direct influence on dance music, *E2-E4* puts it to rest. Like the chess game referenced in Göttsching's title, the record embodies minimalism's zig-zagging path to the domination of dance music in the late twentieth century.

The first wave of minimalist house and techno: 1980s

Listen back to virtually any early house or techno from Chicago or Detroit, and you're likely to be struck by its spaciousness, its leanness, its economy. Partly, that has to do with the way the music was produced. Many early dance musicians worked with a modest kit: no more than a handful of synthesizers accompanied by a lonely drum machine on a fourtrack recorder. House and techno began in bedrooms and basement studios. While big-budget studio creations certainly became more common over the years, much underground dance music remains a genre of modest means and upstart talent; and to many musicians, doing more with less remains an inspiration and an ethos.

That economy is inscribed in what are generally considered the founding songs of Detroit techno: Cybotron's "Alleys of Your Mind" and A Number of Names' "Sharevari," which both came out within weeks of one another in 1981. The history books have never definitively established which came first, but in many ways, it hardly matters. Despite their outward similarities—both songs employ spindly synthesizer riffs, pitter-pat drum machines, and gravelly spoken-word vocals, and both owe a considerable debt to Kraftwerk—the two songs advance subtly different arguments about how dance music should sound.

Riding a slinky, syncopated beat and making the most of their synthesizers' squelchy attack and bluesy tremolo, Cybotron's "Alleys of Your Mind" catapulted black American funk into the future, with bleak, dissociative lyrics that reflected both the barren surroundings of the duo's crumbling hometown and the fragile mind-state of Cybotron's Richard Davis, a veteran of the Vietnam war. (Davis and his partner, Juan Atkins, were also heavily inspired by Alvin Toffler's books *Future Shock* and *The*

Third Wave.)

A Number of Names' "Sharevari" concerned itself with more worldly matters: late-model Porsches, designer chic, fine wine. The song's title paid tribute to a local party that was in turn named after a hip New York boutique. But sonically, and despite its roots in disco, its sound was more radical, with a single synthesizer arpeggio tumbling unceasingly over a snapping four-to-the-floor beat. There were no chord changes, no modulations; and that linearity promised something new. Even when disco cuts stretched six or eight or ten minutes long, they had typically remained *songs*, with verses and choruses and bridges and codas and all the usual trappings of musical structure. But here, the antiquated song form was giving way to something leaner and more purposeful: the *track*.

"Track" has long been a synonym for "song," but in dance music, it means something more specific. There are no hard-and-fast definitions, but you recognize it when you hear it. Boiling down musical information to the bare minimum, and often emphasizing timbre and texture over melody or harmony, tracks tend to be hypnotic, enveloping, and linear rather than cyclical. Tracks, ultimately, exist less as standalone compositions, and more as building blocks expressly for the purpose of layering and mixing within the context of a DJ set. (At the extreme end of this phenomenon are the tracks known as "DJ tools," which may consist of little more than a bare-bones drum groove.)

Not for nothing was one of Chicago's fundamental early house labels called Trax. While much of that label's output retained some connection to more traditional styles of song-form—Marshall Jefferson's "Move Your Body" references blues and gospel—others, like Frankie Knuckles' "Your Love" and Mr Fingers' "Can You Feel It," whittle down their arrangements to two chords that pivot around a single, unchanging arpeggio. Phuture's "Acid Tracks" is notable not only for its pioneering use of Roland's TB-303 bass synthesizer, whose gravelly squelch came to define the sound of acid, but also for its parsimonious approach to melody, stripping it down to a lone undulating synthesizer line whose notes are repeated nearly verbatim from beginning to end. The filter's frequency and resonance knobs, however, are in constant motion, lending to the impression of endlessly morphing textures.

The 1990s saw an explosion of these concentrated, focused bursts of groove in Chicago, Detroit, New York, London, Frankfurt, and almost everywhere that house and techno took root. They weren't the only game

in town, but they were crucial to the development of electronic dance music as a genre that played by rules different than those followed by pop music.

The second wave: Early 1990s

By the early 1990s, minimalist strategies had become deeply ingrained in techno's vanguard. Where Detroit's early techno had been colored by funk and jazz, it was quickly becoming trackier and more repetitive. Its futurism was grounded not only in the still relatively unfamiliar sound of synthesizers and drum machines, but also in musical structures that bore little resemblance to conventional Western notions of song-form.

Techno's nascent minimalism took varying forms. It could be full: Carl Craig was fond of layering loops of contrapuntal synthesizers, breakbeats, and drum machine rhythms into bold, buzzing forms. It could be loud: Underground Resistance tracks like "The Punisher" are as brutal as they are Spartan. It could be elegant: Plastikman-aka Richie Hawtin, who hailed from just across the border from Detroit in Windsor, Ontariospecialized in stripped-down drum tracks and haunting acid lines run through foggy delay. And it could be skeletal, as in the case of "Bleep," a 1993 track by DBX, aka Daniel Bell: a single, syncopated bleep repeats, once per bar, from beginning to end of the track, accompanied by a gravelly, one-note bass synth, a rudimentary boom-tick beat, and a twonote answering pattern on a conga-like synthesizer patch. It is so reduced that the main moments of drama occur when one of the sounds is muted, carving a gaping hole in the middle of what already felt like a nearvacuum. Bell loved titles such as "Bleep," "Blip," "Beep," and "Squelch," onomatopoeic words that summed up the essentially metonymic nature of his tracks, in which bass lines, rhythm tracks, and melodies were represented by avatar-like reductions. He was also fond of titles such as "High Voltage" and "Live Wire," whose simple imagery vividly illustrated the essence of his music. In Bell's approach to minimalism, techno wasn't so much about making music out of electronic materials as it was wringing electricity from musical forms.

Robert Hood helped codify the idea of techno minimalism with his 1994 album *Minimal Nation*. (Though the term "minimalist techno" is more accurate, it's the tag "minimal techno" that stuck.) Rarely do you detect the evidence of more than two synthesizers at once; and many tracks, like

the pinging "Unix," are almost certainly made out of only one. His brittle TR-909 drum patterns, meanwhile, sketch out their syncopated grooves with crisp, mechanical precision. For Hood and his friend Jeff Mills, whose wizardly three-turntable DJ sets and roiling live improvisations on the 909 remain the gold standard of loop-centric techno, minimalism was more than just an abstract concept or an aesthetic ideal. "It's about being black and from Detroit," he told *The Wire* in 2008; it's "about making something from nothing."⁸

In the 1980s and 1990s, Detroit was a shell of its former self: poor, depopulated, pocked with abandoned buildings and urban ruins. To some in the rave scene, Detroit offered an anarchic playground in the form of its many empty warehouses. But for Hood, an African-American whose parents had moved North in the Great Migration, Detroit's decline inspired a more philosophical view, in which aesthetic rigor met the expressive traditions of African-American art. "The main thing was just maximizing the simplicity of, let's say, a hi-hat," he told *The Wire*. "It was so important to me to make a hi-hat sing, to sort of play a melody like a piano, where it's telling you a story, but it's just saying very few words, very few lyrics. And melding that with a minimalistic and simple way of life, where you're only focusing on what's important to you and getting rid of what's complicated."

An unlikely alliance between Detroit and Berlin contributed to some of minimal techno's most fruitful developments in the 1990s. The two cities were closely related: Detroit musicians were frequent guests at Berlin clubs such as Tresor. Moritz von Oswald and Thomas Fehlmann, former members of the post-punk band Palais Schaumburg, collaborated with Juan Atkins and Eddie "Flashin' " Fowlkes in the group 3MB. Mark Ernestus—von Oswald's partner in the duo Basic Channel—traveled to the American city in pursuit of records for Hard Wax, the Kreuzberg record store he had founded in 1989. The two cities celebrated their closeness on 1993's *Tresor II: Berlin Detroit—A Techno Alliance*, a compilation featuring Detroit staples like Jeff Mills' "Changes of Life" and Underground Resistance's "Jupiter Jazz" alongside cuts by Maurizio (one of Basic Channel's many aliases) and fellow Berliner Vainqueur. The Berliners' cuts, particularly a thundering Maurizio remix of Vainqueur's "Lyot," offered a taste of what was just around the corner.

For the first record on their Basic Channel label, Ernestus and von Oswald opted to use a different alias, Cyrus. (Much like their publicity-shy
peers in Detroit's Underground Resistance, von Oswald and Ernestus used obfuscation and anonymity as creative strategies in those pre-Internet years, when information circulated only as fast as a 12-inch record could carry it.) "Enforcement" picks up the baton from Detroit's minimalists and runs with it—in a straight line and at about 100 miles and hour, with a ferocity that the Terminator himself might have envied. Juggling sandpapery, 16th-note synth arpeggios over an ultra-low bass line, it is relentless in its attack. The synthesizer is filtered until it seems to sizzle, and it's hard-panned so that it seems to be coming at you from both sides; the drums, meanwhile, are almost nonexistent, save for an anchoring kick drum and a 16th-note hi-hat pattern that's barely distinguishable from the diamond-tipped blade of the arpeggio. Driving home their less-is-more message, a B-side edit, "Enforcement (Recall)," mutes the drums and leaves only a hint of the A-side's serrated arpeggio, honing in on a previously inaudible counterpoint tumbling away in rapid-fire 16th notes; the effect sounds a little like one of Philip Glass' early, intractable compositions translated into Morse code.

That record alone would have been enough to land Basic Channel in the history books, but what came next revolutionized minimal techno. Their innovation was to bring dub into the mix—a fusion that allowed them to get even more mileage out of the smallest handful of elements. Dub developed independently of classic American minimalism, at roughly the same time; but, with its emphasis on morphing loops and unmodulating chords, there's no doubt that it belongs to the broader canon of minimalism. In the work of Basic Channel and its Chain Reaction label, studio effects like filters and delays become the means to take a rudimentary boom-tick beat and a single chord and stretch them both into infinity.

In Maurizio's "M"-series of 12-inch singles, two-note bass lines underpin arrangements where a lone, unchanging chord hovers like colored vapor; just a few drum sounds—kick drum, hi-hat, the occasional snare—glide in the slipstream of dub echoes, moving forward with a minimum of effort. Every track in the series is a kind of tone poem, a variation upon a theme; and if each track feels like it could go on indefinitely, the aggregate impression of the entire series is of infinity raised to a higher power, an endless succession of parallel lines.

At the ambient extreme of a track like Basic Channel's "Q 1.1/IIII" or Cyrus' "Presence," the fusion of pulse and texture comes to resemble the

elliptical rhythms of Steve Reich's 1968 composition *Pendulum Music*, in which multiple microphones swing back and forth above speakers, feeding back in woozy syncopations.

The third wave: Late 1990s

By the late 1990s, minimalism in electronic dance music had exploded, particularly in Europe. Germany's Oval, a group that eventually became the solo project of Markus Popp, was drawing on CDs with felt-tipped markers and looping the resulting skips into stuttering, hypnotic glitch fantasia. Thomas Brinkmann was using a specially designed, dual-arm turntable to eke disorienting rhythms out of minimal techno records by Wolfgang Voigt and Richie Hawtin. Placing the two styli at different points on the same piece of vinyl, and using rudimentary effects, he channeled strangely syncopated beats into woozy, elliptical grooves. Following those experiments, Brinkmann would embark on his "Klick" project, carving notches into spinning records and using his DJ mixer's onboard delay effect to create wild rhythmic improvisations.

Much of the era's minimalism was similarly materialist in bent. Institut für Feinmotorik did Brinkmann one better, "preparing" their turntables, in the manner of John Cage's prepared piano, with rubber bands, paper clips, and Post-It Notes. With four people playing eight turntables (and additional CD players fed scratched CDs), they ran the resultant plunks through multiple DJ mixers, sculpting dynamic rhythms in real time. Their practice was part of a broader wave of non-traditional DJing that included Christian Marclay's rapid-fire collages of scratched and masking-taped thrift-store records and Otomo Yoshihide's full-on deck assaults, playing empty platters and objects like crash cymbals in place of vinyl. But where those artists' efforts leaned toward free improv and noise, Institut für Feinmotorik's work was notable for its discipline. Its whittled-down polyrhythms traced a straight line back to Steve Reich's *Clapping Music*. Reich has identified minimalism as a subset of process music, and the same holds true for these kinds of minimal techno. They foreground the conditions of their making, and in doing so, call attention to the mechanics of form. At its most extreme, as in a case like Institut für Feinmotorik, the form becomes the content; there is no musical information extraneous to the playback tools themselves.

These were far from the only examples of extreme minimalism on the

European scene in the late '90s and early '00s. Finland's Pan Sonic used custom-designed analog synthesizers and rudimentary tone generators to create brutally reduced, desiccated techno out of thump, buzz, and piercing sine waves; the effect was as bracing as inhaling a breath of subzero air. Similarly stark was the work of Carsten Nicolai, aka Alva Noto, and his Raster-Noton label, whose white-noise bursts and microtonal sine-wave throb fused the pulse minimalism of Reich and Riley with Young, Conrad, and Niblock's interests in alternate tunings. One early, representative project on Raster-Noton, *Mikro Makro*, found Nicolai and Pan Sonic's Mika Vainio working with recordings of both an MRI machine and a radio telescope, conjuring threateningly sterile clicking and buzzing noises from the scientific instruments. At the other end of the spectrum, Jan Jelinek used the looping function on his sampler to isolate suggestive bits of soul and jazz records, which he spun into lush, humid arrays of static harmony and limitless texture.

The idea of theme and variations that Maurizio had broached in its "M" series led to a number of serial projects, including Wolfgang Voigt's dry, dubby Studio 1 series, Richie Hawtin's grey-scale Concept 1 experiments, and Donnacha Costello's *Colorseries*, a set of suggestively stripped-back DJ tools with titles like "Pistachio," "Grape," and "Rubine Red." All of these formalized an idea implicit in all techno of a minimalist bent: at least within the context of DJ culture, the track is but the building block of a larger whole, or even something without any totality at all—an infinitely permutable series, a constantly diverging line.

Even within the far more populist milieu of club culture, minimalism ruled European dance music throughout the late 1990s and early 2000s, even in contexts where the discourse never invoked minimalism at all. Daft Punk's debut album *Homework* (1997) built on the latent minimalism of classic Chicago house by looping and filtering funk and disco to hypnotic extremes, something that Detroit's Moodymann (Kenny Dixon, Jr.) and Theo Parrish would accomplish to even more persuasive effect. Labels such as Germany's Perlon, meanwhile—home to the Chilean-German musician Ricardo Villalobos—discovered that minimalist strategies of reduction and repetition made for the perfect accompaniment to the types of parties favored by their social set, in which clubbers locked into low-impact grooves (and, often, considerably higher-impact chemicals) and danced from midnight well into the following day. It was Villalobos who pioneered the strain of minimal techno that would become

dominant for the next decade: polyrhythmic, hypnotic arrays of loops upon loops upon loops, often drawn out to considerable lengths—tracks lasting twenty or thirty minutes, DJ sets lasting six or eight hours. In his fondness for otherworldly timbres and his refusal to deliver anything like a moment of climax—preferring instead a sensuous and ceaseless aquatic ripple— Villalobos made good on Terry Riley's "All Night Flights," taking minimal techno to its psychedelic extreme.

After "MNML": Post-minimalism

By the middle of the 2000s, much electronic and experimental dance music had become so sparse that it begged the question: How much more minimal can this stuff get? The answer: not much. A funny thing happened in the first decade of the twenty-first century: with minimalism in vogue, its apotheosis reached, the term gradually lost all meaning. "Minimal techno" came to be referred to as "minimal" (sometimes rendered even more economically as "mnml"), a style marked by small, stripped-down sounds, yet lacking most of the formal rigor of actual minimalism. Its loop-based forms went hand-in-hand with nascent production tools like Ableton Live; and its long, steady plateaus made a good fit for certain types of drug consumption, in which the goal is to maintain a steady high for hours on end.

By the end of the decade, minimalism had broadly fallen out of favor, and even the proponents of the style formerly known as "minimal" had turned to other terms like tech-house or deep house, to describe their music. The minimalist impulse prevailed, though—often, far from the places one might expect to find it. One of those genres, Chicago footwork, would seem to be nothing if not maximalist. With tempos running upward of 160 beats per minute, footwork unleashes dizzying streams of stuttering 808 drum beats and tightly looped samples of soul music and movie dialogue. But that sensory overload masks the songs' minimalist essence. In their unceasing churn, they sound like nothing so much as Terry Riley's "You're No Good," a 1967 experiment in which he ran an obscure R&B single, the Harvey Averne Dozen's "You're No Good," through his custom-built "time-lag accumulator," a tape-delay feedback system.

At the beginning of the recording, following an introductory volley of mind-melting Shepard-Risset glissando, Riley lets a verse or two of the song play out in full. But his fingers soon get itchy, and the song's accusatory title phrase is looped in tight, half-bar phrases accompanied by squawking guitar notes. Just like the footwork that accidentally resembles it, it's a reminder that minimalism can be loud and even messy. "Draw a straight line and follow it," read the instructions to La Monte Young's *Composition 1960 #10 (To Bob Morris)*. It's a tempting metaphor for minimalism itself. But the history of minimalism in electronic dance music suggests that even the straightest lines may end up venturing into the most unexpected territory.

Notes

- 1 See Chapter 50, above.
- 2 Steve Reich interviewed by Emma Warren, Red Bull Music Academy, London, 2010, http://www.redbullmusicacademy.com/lectures/steve-reich-the-music-maker
- 3 Various Artists, *Electronics & Percussion/The Wild Sounds of New Music*, Columbia Masterworks MS 7139/BTS 17.
- 4 Tim Lawrence, *Love Saves the Day: A History of American Dance Music Culture,* 1970–1979 (Duke University Press, 2004), 253.
- 5 "Interview: Manuel Göttsching (Ash Ra Tempel & Ashra)," *The Attic*, September 22, 2015.
- 6 D. Strauss, "Manuel Göttsching Revisits Minimalist Classic *E2-E4*," *The Village Voice*, August 12, 2008.
- 7 D. Strauss, "Manuel Göttsching," *Electronic Musician* (March 1, 2006).
- 8 Philip Sherburne, "Robert Hood: Streamlined for Survival," *The Wire*, April 2009, p. 16.
- <u>*</u> Commissioned for this volume.

I foresee a marked deterioration in American music and musical taste, an interruption in the musical development of the country, and a host of other injuries to music in its artistic manifestations, by virtue—or rather by vice—of the multiplication of various music-reproducing machines [...] The ingenuity of a phonograph's mechanism may incite the inventive genius to its improvement, but I could not imagine that a performance by it would ever inspire embryotic Mendelssohns, Beethovens, Mozarts, and Wagners to the acquirement of technical skill, or to the grasp of human possibilities in the art.

— John Philip Sousa (1906)¹

This made-for-phonograph-record-music [*Originalschallplattenmusik*] was accomplished by superimposing various phonograph recordings and live musical performances, by employing variations in speed, pitch, height and acoustic timbre which are not possible in real performance. The result was an original music which can only be recreated by means of the gramophone apparatus.

 Heinrich Burkhard describing Paul Hindemith's and Ernst Toch's phonograph disc performance, "New Music Berlin 1930"²

With a cinematographic flash-forward, Hollywood-style, I see myself surrounded by twelve dozen turntables, each with one note. Yet it would be, as mathematicians would say, the *most general musical instrument possible* [...] Say, an organ with each key linked to a turntable that would have appropriate discs put on it as required; let's suppose that the keyboard of this organ switches on the record players simultaneously or one after the other, at the moment and for the length of time desired, by means of a mixer switch with "n" commands; *in theory* we get, a mother instrument, capable of replacing not only all existing instruments but every conceivable instrument, musical or not, whether or not their notes are at given pitches in the tessitura.

— Pierre Schaeffer³

We all know that a text is not a line of words releasing a single "theological" meaning (the "message" of the Author-God) but a multi-dimensional space in which a variety of writings, none of them original, blend and clash. The text is a

tissue of quotations drawn from innumerable centres of culture [...] The writer can only imitate a gesture that is always anterior, never original. His only power is to mix writings, to counter the ones with the others, in such a way as never to rest on any one of them. Did he wish to *express himself*, he ought at least to know that the inner "thing" he thinks to "translate" is itself only a ready-formed dictionary, its words only explainable through other words, and so on indefinitely [...] Life never does more than imitate the book, and the book itself is only a tissue of signs, an imitation that is lost, infinitely deferred.

- Roland Barthes⁴

It was in Jamaica that a record stopped being a finished thing. Instead, in the studio, it became a matrix of sonic possibilities, the raw material for endless "dubs." Thus the concept of the remix was born (several years before similar ideas would dawn on the disco and hip hop DJs). And when a record was played through a sound system, with a deejay toasting over the top, it was no longer a complete piece of music but had become a tool of composition for a grander performance. This was an important change in the status of recorded music, and again something that wouldn't really occur outside Jamaica until disco and hiphop.

- Bill Brewster and Frank Broughton⁵

I've always had this theory that recorded sound is dead sound, in the sense that it's not "live" anymore. Old records have this quality of time past, this sense of loss. The music is embalmed. I'm trying to bring it back to life through my art.

— Christian Marclay⁶

I think the DJ is an archetypal figure that has been throughout human history. It's anyone that's gonna be combining a social situation with music and then setting up a certain parameter of crowd interaction and response, whether that be a shaman or a Roman priest or even, for that matter, government. It's all about reconfiguring and pulling bits and pieces of other things and putting them together and creating a new text that you then send out. So, to me, [using] language is being a DJ. When you're a child, you're absorbing bits and pieces of language around you. Those sit in your head and you slowly are able to speak your own sentences later. It's the same with DJ-ing: you're absorbing these records, these linguistic units, or whatever, and slowly you're able to reconfigure them and to put them out as a stream of sentences, or stream of mixes. The late 20th-century is all about language, to me: codes of information governing behavior, codes governing this, governing that—it's all about these different codes. But the DJ, to me, is a reality hacker. It's someone that can take these codes—and, again, "phonograph" means

"writing sound"—the turntable to me is the equivalent of the computer keyboard, because you're taking these different codes and then using them to break through these sort of corporate constructs that society wants to really put on you and then breaking them apart and letting people experience a transcendence in the mix.

—DJ Spooky⁷

An artist is now much more seen as a connector of things, a person who scans the enormous field of possible places for artistic attention, and says, What I am going to do is draw your attention to *this* sequence of things.

- Brian Eno⁸

The work of composing is not one of invention but one of arrangement. All materials being both unique and fundamentally connected, the strategy and art of connecting forms creative work.

— David Shea⁹

A DJ's set is not unlike an exhibition of objects that Duchamp would have described as "assisted readymades": more or less modified products whose sequence produces a specific duration.

- Nicolas Bourriaud¹⁰

[Carl Stallings music] implies an openness—a non-hierarchical musical overview —typical of today's younger composers but all too rare before the mid-1960s. All genres of music are *equal*—no *one* is inherently better than the others—and with Stalling, all are embraced, chewed up and spit out in a format closer to Burroughs' cut-ups of Godard's film editing of the '60s, than to anything happening in the 1940s.

— John Zorn¹¹

[On a lot of Miles Davis' records] we would use bits and pieces of cassettes that he would send me and say "Put this in that new album we're working on." I would really shudder. I'd say "Look, where the hell is it going to go? I don't know." He says, "Oh, you know." So he sends me the tape. I listen to it and say, "Oh yeah, maybe we can stick that in here."

— Teo Macero¹²

"The Subliminal Kid" moved in and took over bars cafés and jukeboxes of the world cities and installed radio transmitters and microphones in each bar so that the music and talk of any bar could be heard in all his bars and he had tape recorders in each bar that played and recorded at arbitrary intervals and his agents moved back and forth with portable tape recorders and brought back street sound and talk and music and poured it into his recorder array so he set waves and eddies and tornadoes of sound down all your streets and by the river of all language— Word dust drifted streets of broken music car horns and air hammers—The Word broken pounded twisted exploded in smoke—

— William S. Burroughs¹³

VIII. DJ Culture

Introduction

Maria Chavez sits behind a turntable and a mixing board in a Houston record store.¹ Pulling an LP from its sleeve, she sets it on the platter. "Homer's Odyssey," she notes softly to the small crowd of onlookers. Grabbing shards of broken records from a stack on her left, she places them on top of the spinning disc, grabs the tonearm, and drops it randomly. The needle bounces across the stacked vinyl, a narrator's voice stuttered by percussive thuds and pops. More pieces are added to the pile, the sound now cutting rhythmically between fragments of spoken word, an organ chord, and a jangly guitar, all overlaid with crackles and screeches as the needle struggles to find a groove. Adjusting the anti-skating dial, Chavez allows the needle to drift freely across the pile, creating a pattern of zips and shrieks. The analog continuity of the record is constantly fractured, the needle pulled away from its steady spiral. Flows, cuts, rhythm, noise, collage—all the elements of the DJ's art are there in Chavez's brief but engaging performance, which combines chance procedures, real-time improvisation, and a fondness for the creative potential of cultural detritus.

The term "DJ culture" emerged in the mid-1990s as a way to describe a range of musics centered on the figure of the DJ as artist: disco, hiphop, house, techno, drum 'n' bass, and other musical forms. More broadly, it describes the unique musical domain made possible by the culture of recording, a culture in which music and sound circulate as a network of recorded objects detached from the specificity of time, place, and authorship, and all available to become raw material for creative manipulation.

As a set of musical styles, DJ culture is quintessentially postmodern, emerging in the 1970s with the extended disco mix, the studio distortions of dub reggae, and the birth of hiphop. Yet, in a more general sense, its roots lie much deeper in the history of twentieth-century modernism. Already in the early 1920s, Bauhaus sculptor, photographer, and painter László Moholy-Nagy had imagined the *détournement* of the turntable: its transformation from an instrument of musical reproduction into a musical

instrument in its own right. In the 1930s, John Cage, Paul Hindemith, and Ernst Toch began to realize Moholy-Nagy's vision. On his earliest gramophone study, *Imaginary Landscape, No. 1*, Cage manipulated variable speed turntables and studio test recordings to produce a ghostly composite of sirens, strummed piano strings, and rumbling percussion. Pierre Schaeffer is surely the godfather of sampling composition. Working with magnetic tape in the 1940s, Schaeffer's compositions were assembled entirely from bits of found sound. With its rhythmic loops and sharp juxtapositions of train whistles, screeching brakes, and mechanical clatter, Schaeffer's first *musique concrète* composition, *Étude aux chemins de fer (Railroad Study)*, anticipates hiphop and electronic dance music. In the early 1960s, William S. Burroughs became a DJ of the word, using tape manipulation techniques to cut, splice, and layer his own voice and writing.

From Schaeffer onwards, DJ culture has worked with two essential concepts: *the cut* and *the mix*. To record is to cut, to separate the sonic signifier (the "sample") from any original context or meaning so that it might be free to function otherwise. To mix is to reinscribe, to place the floating sample into a new chain of signification. The mix is the postmodern moment, in which the most disparate of sounds can be spliced together and made to flow. It's exemplified by those musics of flow: disco, house, and techno. But the mix is made possible by the cut, that modernist moment in which sound is lifted and allowed to become something else, or is fractured so that it trips and stumbles around the beat. Its forms are hiphop (particularly in its turntablist guise), dub, drum 'n' bass, footwork, and contemporary experimentalism by DJs such as Christian Marclay, Otomo Yoshihide, Marina Rosenfeld, eRikm, Dieb13, and Maria Chavez.

DJ culture also describes a new modality of audio history and memory. No longer a figure of linear continuity that, ideally, could be recalled in its totality, musical history becomes a network of mobile segments available at any moment for inscription and reinscription into new lines, texts, mixes —musical history no longer as an analog scroll but as digital, random access.

"The battle for the immediate future of music will be fought out through the medium of recording," remarked Chris Cutler in a piece that foreshadowed the Napster controversy by decades.² Writing in 1982 about the culture of recording in general, Cutler's piece can be read as a DJ culture manifesto. For Cutler, the cut and the mix make possible a

profoundly egalitarian music. Not only does the whole world of sound become available for musical use; Cutler also imagines that the culture of recording provides the conditions for a new folk music: an authorless and collective process of musical production that is fluid and ever-changing. For Burroughs, on the other hand, the culture of recording is not so much politically liberatory as politically resistant. It offers neither more nor less than a way to hear critically the voices of dominant culture and to alter and subvert established meanings. Today, one can find advocates of both political positions: on the one hand, in the liberatory imagination of allnight dance culture; and, on the other, in the antinomian practices of Negativland and John Oswald. Whatever one's position, DJ culture clearly marks out a new cultural space. It has altered the very nature of musical production, opened up new channels for the dissemination of music, and activated new modes of listening. It's not surprising, then, that DJ culture has fostered new social practices and operates on the front lines of cultural politics.

Notes

- 1 Chavez' July 25, 2013 performance at Houston's Vinal Edge Records is documented at https://vimeo.com/83175642
- Chris Cutler, "Necessity and Choice in Musical Forms," in *File Under Popular: Theoretical and Critical Writings on Music* (New York: Autonomedia, 1993), 33.
 See also Chapter 24 above.

Production–Reproduction: Potentialities of the Phonograph

László Moholy-Nagy

Hungarian-born artist and theorist László Moholy-Nagy was a central figure in *European modernism. A photographer, sculptor, filmmaker, painter, typographer,* stage designer, and industrial designer, Moholy-Nagy was closely associated with several of the seminal avant-garde art movements of the early twentieth century: Dada, Constructivism, De Stijl, and Bauhaus. It was with the Bauhaus that Moholy-Nagy made his reputation and his lasting contribution as an artist, writer, and teacher. With Bauhaus director Walter Gropius, he shared the view that, in association with technology and industry, art could lead the way to a utopian world of beautiful and useful objects and structures. The following piece is a composite of two texts, "Production–Reproduction" (1922) and "New Form in Music: Potentialities of the Phonograph" (1923), that exemplify Moholy-Nagy's experimental approach to modern technology. Having earlier advocated the use of photography to produce abstract light compositions, Moholy-Nagy suggests here that a similar approach be taken to the phonograph. Instead of using the phonograph simply as a tool of reproduction—a device by which to play recordings—he advocates that it be deployed as a means of musical production. This proposal predates, by several decades, John Cage's experiments with phonographs and phonograph cartridges and, by more than a half century, the turntablist experiments of Grandmaster Flash and Christian Marclay.

[...] Since it is primarily production (productive creation) that serves human construction, we must strive to turn the apparatuses (instruments) used so far only for reproductive purposes into ones that can be used for productive purposes as well. This calls for profound examination of the following questions:

What is this apparatus (instrument) good for?

What is the essence of its function?

Are we able, and if so to what end, to extend the apparatus's use so that it can serve production as well?

Let us apply these questions to [an] example [...]: the phonograph [...]

So far it has been the job of the phonograph to reproduce already existing acoustic phenomena. The tonal oscillations to be reproduced were incised on a wax plate by means of a needle and then retranslated into sound by means of a microphone (correctly: diaphragm, moving cone).

An extension of this apparatus for productive purposes could be achieved as follows: the grooves are incised by human agency into the wax plate, without any external mechanical means, which then produce sound effects which would signify without new instruments and without an orchestra—a fundamental innovation in sound production (of new, hitherto unknown sounds and tonal relations) both in composition and in musical performance.

The primary condition for such work is laboratory experiments: precise examination of the kinds of grooves (as regards length, width, depth etc.) brought about by the different sounds; examination of the man-made grooves; and finally mechanical-technical experiments for perfecting the groove-manuscript score. (Or perhaps the mechanical reduction of large groove-script records.) [...]

Among present-day musical experiments, an important role is played by researches conducted with amplifiers which open up new paths in the production of acoustic phenomena. The aims of the Italian Bruitists [Russolo and others], in constructing new instruments with new sound-formations, have been substantially fulfilled by experiments with the amplification tube as a specific instrument which permits the production of all sorts of acoustic phenomena. However, this alone does not exhaust the potentialities that might be expected as regards the transformation of music [...]

I have already suggested that the phonograph be transformed from an instrument of reproduction into one of production; this will cause the sound phenomenon itself to be created on the record, which carried no prior acoustic message, by the incision of groove-script lines as required.

Since my description of this process served elsewhere as an example to illustrate another idea, I was very brief in specifying the potentialities, without presenting detailed arguments, for the transformation of our musical conceptions along these lines. In speculative terms, the following is clear:

1. By establishing a groove-script alphabet an overall instrument is created which

supersedes all instruments used so far.

- 2. Graphic symbols will permit the establishing of a new graphic and mechanical scale,¹ that is, the creation of a new mechanical harmony, whereby the individual graphic symbols will be examined and their relations formulated within a rule. (We may allude here to an idea that sounds rather utopian as yet; namely, the transposing of graphic designs into music on the basis of strict regularities of relationships.)
- 3. The composer would be able to create his composition for immediate reproduction on the disc itself, thus he will not be dependent on the absolute knowledge of the interpretative artist. So far, the latter was in most cases able to smuggle his own spiritual experience into the composition written in note form. The new potentialities afforded by the phonograph will re-establish the amateurish musical education of our day on a more wholesome basis. Instead of the numerous "reproductive talents," who have actually nothing to do with *real* sound-creation (in either an active or a passive sense), the people will be educated to the *real* reception or creation of music.
- 4. The introduction of this system in musical performances will also facilitate to a significant degree independence from large orchestral enterprises, and the large-scale distribution of original creations by means of a simple instrument.

(The efficiency of the phonograph has been substantially improved lately by certain technical innovations. Among others, there are two important inventions in this field. One is electrical operation, the other a newly invented diaphragm which ensures almost completely friction-free reproduction of recorded compositions. I think that if we regard these as a necessary condition, then we shall have technically perfect apparatuses within the shortest time.)

I consider that the following practical experiments with the phonograph in the realm of musical composition should be initiated:

- 1. Since the grooves on the mechanically produced record are microscopic in size, we shall first have to devise a method for reducing by technological means down to the normal size of a present-day record any large-scale groove-script record that can conveniently be worked on by hand. It would be desirable to make a photograph of a present-day (reproductive) record and to make a photo-cliché or photo-engraving of the photograph by a zincographical or galvanoplastical process. Should such a record prove to be just more or less playable, the basis for subsequent work along these lines will be established.
- 2. Study of the graphic symbols of the most different (simultaneous and isolated)

acoustical phenomena. Use of projectors. Film. (Specialist works on physics already include detailed descriptions thereof.)

- 3. Examination of mechanical, metallic and mineral sounds. From these, attempts to devise—for the time being, in a graphic way—a special language. Special attention to be paid to symbols created by different tonalities.
- 4. Graphic production of the largest contrasting relations. (Before beginning experiments on the wax plate, it is suggested that one trace with a needle the graphic wave lines of music on a [reproductive] phonograph disc; these lines will become well known to the experimenter who will acquire therefrom a sense for graphic representation.)
- 5. Finally, there are improvisations on the wax plate to be considered, the phonetic results of which are theoretically unforeseeable, but which may permit us to expect significant incentives since the instrument is rather unknown to us.

Note

- 1 Our present scale is approximately 1,000 years old, and it is not absolutely necessary to be bound by its inadequacies today.
- From "Production–Reproduction" and "New Form in Music: Potentialities of the Phonograph," in *Moholy-Nagy*, ed. Krisztina Passuth (London: Thames and Hudson, 1985). Used by permission of Corvina Books.

Détournment as Negation and Prelude

The Situationist International

Rooted in libertarian Marxism and the artistic practices of Dada and Surrealism, the Situationist International (SI) emerged in late 1950s Europe as a union of several artistic movements, notably Lettrism, which crafted poems devoid of semantic content and reduced solely to the letter or graphic mark. In their journal, Internationale Situationniste, and through various artistic actions, the SI articulated a critique of contemporary capitalism and devised strategies aimed at enabling capitalist subjects to glimpse liberated ways of living. The group's central theorist, Guy Debord, described late twentieth-century capitalism as a "society of the spectacle," in which alienated social relations characterized not only work but leisure, colonizing every sphere of life, including mass media, advertising, and entertainment culture. Central to the SI was the construction of "situations," that is, consciously organized states of affairs in which a group of people temporarily break from their routines and roles to pursue creative and passionate collective activities. One such activity was the "dérive," a form of aimless wandering that enabled participants to resist established patterns of movement and instead to map the city according to psychological, emotional, and sensory coordinates—smells, sounds, affects, etc. Another activity was "détournement," the appropriation of existing words, images, or sounds in new, often critical configurations. Though it disbanded in 1972, the SI have inspired artistic and political movements ever since. And though the SI had little to say about music and sound, its conception of détournement provides an important antecedent and inspiration for practices of sampling and the creative misuse of technologies characteristic of DJ culture.

Détournement,¹ the reuse of preexisting artistic elements in a new ensemble, has been a constantly present tendency of the contemporary avant-garde, both before and since the formation of the SI [Situationist International]. The two fundamental laws of détournement are the loss of importance of each detourned autonomous element—which may go so far as to completely lose its original sense—and at the same time the organization of another meaningful ensemble that confers on each element its new scope and effect.

Détournement has a peculiar power which obviously stems from the double meaning, from the enrichment of most of the terms by the coexistence within them of their old and new senses. And it is very practical because it's so easy to use and because of its inexhaustible potential for reuse. Concerning the negligible effort required for détournement, we have already noted that "the cheapness of its products is the heavy artillery that breaks through all the Chinese walls of understanding ("A User's Guide to Détournement," May 1956).² But these points would not by themselves justify recourse to this method, which the same text describes as "clashing head-on against all social and legal conventions." Détournement has a historical significance. What is it?

"Détournement is a game made possible by the capacity of *devaluation*," writes [Asger] Jorn in his study *Detourned Painting* (May 1959), and he goes on to say that all the elements of the cultural past must be "reinvested" or disappear. Détournement is thus first of all a negation of the value of the previous organization of expression. It arises and grows increasingly stronger in the historical period of the decomposition of artistic expression. But at the same time, the attempts to reuse the "detournable bloc" as material for other ensembles express the search for a vaster construction, a new genre of creation at a higher level.

The SI is a very special kind of movement, different in nature from preceding artistic avant-gardes. Within culture, the SI can be likened to a research laboratory, for example, or to a party in which we are situationists but nothing that we do can yet be situationist. This is not a disavowal for anyone. We are partisans of a certain future of culture and of life. Situationist activity is a particular craft that we are not yet practising.

Thus the signature of the situationist movement, the sign of its presence and contestation within contemporary cultural reality (since we cannot represent any common style whatsoever), is first of all the use of détournement. Examples of our use of detourned expression include Jorn's altered paintings; Debord and Jorn's book *Mémoires*, "composed entirely of prefabricated elements," in which the writing on each page runs in all directions and the reciprocal relations of the phrases are invariably uncompleted; Constant's projects for detourned sculptures; and Debord's detourned documentary film, *On the Passage of a Few Persons Through a Rather Brief Unity of Time* (1959).³ At the stage of what the "User's Guide" calls "ultra-détournement, that is, the tendency for détournement to operate in everyday social life" (e.g. passwords or the wearing of disguises, belonging to the sphere of play), we might mention, at different levels, Gallizio's industrial painting; Wyckaert's "orchestral" project for assembly-line painting with a division of labor based on color; and numerous détournements of buildings that were at the origin of unitary urbanism. But we should also mention in this context the SI's very forms of "organization" and propaganda.

At this point in the world's development, all forms of expression are losing their grip on reality and being reduced to self-parody. As the readers of this journal can frequently verify, present-day writing invariably has an element of parody. As the "User's Guide" notes: "It is necessary to envisage a parodic-serious stage where the accumulation of detourned elements, far from aiming to arouse indignation or laughter by alluding to some original work, will express our indifference toward a meaningless and forgotten original, and concern itself with rendering a certain sublimity."

This combination of parody and seriousness reflects the contradictions of an era in which we find ourselves confronted with both the urgent necessity and the near impossibility of initiating and carrying out a totally innovative collective action—an era in which the most serious ventures are masked in the ambiguous interplay between art and its necessary negation, and in which the essential voyages of discovery have been undertaken by such astonishingly incapable people.

Notes

- 1 Translator's Note: The French word détournement means deflection, diversion, rerouting, distortion, misuse, misappropriation, hijacking, or otherwise turning something aside from its normal course or purpose. It has sometimes been translated as "diversion," but this word is confusing because of its more common meaning of idle entertainment. Like most other English-speaking people who have actually practiced détournement, I have chosen simply to anglicize the French word. For more on détournement, see Guy Debord, *The Society of the Spectacle*, trans. Ken Knabb (Berkeley: Bureau of Public Secrets, 2014), theses 204–9, http://www.bopsecrets.org/SI/debord/8.htm
- 2 Guy Debord and Gil J. Wolman, "A User's Guide to Détournement," in Situationist International Anthology, ed. and trans. Ken Knabb, Revised and Expanded Edition (Berkeley: Bureau of Public Secrets, 2006), http://www.bopsecrets.org/SI/detourn.htm

3 See Guy Debord, *Complete Cinematic Works*, ed. and trans. Ken Knabb (Chico, CA: AK Press, 2003), http://www.bopsecrets.org/SI/debord.films/passage.htm

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* From *Situationist International Anthology*, revised and expanded edition, ed. and trans Ken Knabb (Berkeley: Bureau of Public Secrets, 2006).

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The Invisible Generation

William S. Burroughs

William S. Burroughs was among the greatest American literary experimentalists of the late twentieth century. He was an heir to the fortune generated by his grandfather, inventor of the adding machine, precursor to the modern computer. Yet despite this privileged upbringing, Burroughs was a self-described "junky" and "queer" (to cite the titles of his first two books) whose career was spent in self-imposed exile from mainstream American society and culture. After graduating from Harvard in 1936, he landed in New York, where he befriended Allen Ginsberg and Jack Kerouac and became associated with the "Beat Generation." Following the publication of his most famous novel, Naked Lunch (1959), Burroughs wrote a trilogy of novels using "the cut-up method." Emulating the techniques of collage in painting and montage in film, Burroughs took a scissors to old and new portions of his writing, and then spliced together the pieces at random to generate new ideas and connections. The technique was not only a tool of literary invention but also a response to Burroughs' view that language is an anonymous force of social control, a mind- and action-controlling virus spread through everyday speech and writing, and most glaringly manifested in the mass media. The cut-up method, then, was a means of subverting, or at least resisting, language's normalizing power. Throughout his later life, Burroughs was a cult figure with a particularly strong standing among musicians. The bands Steely Dan and Soft Machine took their names from Burroughs' novels. Burroughs himself collaborated with Brian Jones (of the Rolling Stones), Ornette Coleman, Laurie Anderson, Throbbing Gristle, Sonic Youth, Ministry, R.E.M., and many others. The following text (the epilogue to his cut-up novel The Ticket that Exploded [1962]), reveals Burroughs as both a founder of "sound poetry" and a precursor to DJ culture. In cut-up form, it describes Burroughs' cut-up experiments with tape recorders and reflects upon the profound effects of sound and recording on our daily experience.

what we see is determined to a large extent by what we hear ... you can verify this proposition by a simple experiment turn off the sound track on your television set and substitute an arbitrary sound track prerecorded on your tape recorder street sounds music conversation recordings of other television programs you will find that the arbitrary sound track seems to be appropriate and is in fact determining your interpretation of the film track on screen people running for a bus in piccadilly with a sound track of machine-gun fire looks like 1917 petrograd you can extend the experiment by using recorded material more or less appropriate to the film track for example take a political speech on television shut off sound track and substitute another speech you have prerecorded hardly tell the difference isn't much record sound track of one danger man from uncle spy program run it in place of another and see if your friends can't tell the difference it's all done with tape recorders consider this machine and what it can do it can record and play back activating a past time set by precise association a recording can be played back any number of times you can study and analyze every pause and inflection of a recorded conversation why did so and so say just that or this just here play back so and so's recordings and you will find out what cues so and so in you can edit a recorded conversation retaining material which is incisive witty and pertinent you can edit a recorded conversation retaining remarks which are boring flat and silly a tape recorder can play back fast slow or backwards you can learn to do these things record a sentence and speed it up now try imitating your accelerated voice play a sentence backwards and learn to unsay what you just said such exercises bring you a liberation from old association locks try inching tape this sound is produced by taking a recorded text for best results a text spoken in a loud clear voice and rubbing the tape back and forth across the head the same sound can be produced on a philips compact cassette recorder by playing a tape back and switching the mike control stop start on and off at short intervals which gives an effect of stuttering take any text speed it up slow it down run it backwards inch it and you will hear words that were not in the original recording new words made by the machine different people will scan out different words of course but some of the words are quite clearly there and anyone can hear them words which were not in the original tape but which are in many cases relevant to the original text as if the words themselves had been interrogated and forced to reveal their hidden meanings it is interesting to record these words literally made by the machine itself you can carry this experiment further using as your original recording material that contains no words animal noises for instance record a trough of slopping hogs the barking of dogs go to the zoo and record the bellowings of Guy the gorilla

the big cats growling over their meat goats and monkeys now run the animals backwards speed up slow down and inch the animals and see if any clear words emerge see what the animals have to say see how the animals react to playback of processed tape

the simplest variety of cut up on tape can be carried out with one machine like this record any text rewind to the beginning now run forward an arbitrary interval stop the machine and record a short text wind forward stop record where you have recorded over the original text the words are wiped out and replaced with new words do this several times creating arbitrary juxtapositions you will notice that the arbitrary cuts in are appropriate in many cases and your cut up tape makes surprising sense cut up tapes can be hilariously funny twenty years ago i heard a tape called the drunken newscaster prepared by jerry newman of new york cutting up news broadcasts i can not remember the words at this distance but i do remember laughing until i fell out of a chair paul bowles calls the tape recorder god's little toy maybe his last toy fading into the cold spring air poses a colorless question

any number can play

yes any number can play anyone with a tape recorder controlling the sound track can influence and create events the tape recorder experiments described here will show you how this influence can be extended and correlated into the precise operation this is the invisible generation he looks like an advertising executive a college student an american tourist doesn't matter what your cover story is so long as it covers you and leaves you free to act you need a philips compact cassette recorder handy machine for street recording and playback you can carry it under your coat for recording looks like a transistor radio for playback playback in the street will show the influence of your sound track in operation of course the most undetectable playback is street recordings people don't notice vesterday voices phantom car holes in time accidents of past time played back in present time screech of brakes loud honk of an absent horn can occasion an accident here old fires still catch old buildings still fall or take a prerecorded sound track into the street anything you want to put out on the sublim eire play back two minutes record two minutes mixing your message with the street waft your message right into a worthy ear some carriers are much better than others you know the ones lips moving muttering away carry my message all over london in our yellow submarine working with street playback you will see your playback find the appropriate context for example i am playing back some of my dutch schultz last word tapes in the street five alarm fire and a fire truck passes right on cue you will learn to give the cues you will learn to plant events and concepts after analyzing recorded conversations you will learn to steer a conversation where you want it to go the physiological liberation achieved as word lines of controlled association are cut will make you more efficient in reaching your objectives whatever you do you will do it better record your boss and co-workers analyze their associational patterns learn to imitate their voices oh you'll be a popular man around the office but not easy to compete with the usual procedure record their body sounds from concealed mikes the rhythm of breathing the movements of afterlunch intestines the beating of hearts now impose your own body sounds and become the breathing word and the beating heart of that organization become that organization the invisible brothers are invading present time the more people we can get working with tape recorders the more useful experiments and extensions will turn up why not give tape recorder parties every guest arrives with his recorder and tapes of what he intends to say at the party recording what other recorders say to him it is the height of rudeness not to record when addressed directly by another tape recorder and you can't say anything directly have to record it first the coolest old tape worms never talk direct

what was the party like switch on playback

what happened at lunch switch on playback

eyes old unbluffed unreadable he hasn't said a direct word in ten years and as you hear what the party was like and what happened at lunch you will begin to see sharp and clear there was a grey veil between you and what you saw or more often did not see that grey veil was the prerecorded words of a control machine once that veil is removed you will see clearer and sharper than those who are behind the veil whatever you do you will do it better than those behind the veil this is the invisible generation it is the efficient generation hands work and go see some interesting results when several hundred tape recorders turn up at a political rally or a freedom march suppose you record the ugliest snarling southern law men several hundred tape recorders spitting it back and forth and chewing it around like a cow with the aftosa you now have a sound that could make any neighborhood unattractive several hundred tape recorders echoing the readers could touch a poetry reading with unpredictable magic and think what fifty thousand beatle fans armed with tape recorders could do to shea stadium several hundred people recording and playing back in the street is quite a happening right there conservative m.p. spoke about the growing menace posed by bands of irresponsible youths with tape recorders playing back traffic sounds that confuse motorists carrying the insults recorded in some low underground club into mayfair and piccadilly this growing menace to public order put a thousand young recorders with riot recordings into the street that mutter gets louder and louder remember this is a technical operation one step at a time here is an experiment that can be performed by anyone equipped with two machines connected by extension lead so he can record directly from one machine to the other since the experiment may give rise to a marked erotic reaction it is more interesting to select as your partner some one with whom you are on intimate terms we have two subjects b. and j. b. records on tape recorder 1 j. records on tape recorder 2 now we alternate the two voice tracks tape recorder 1 playback two seconds tape recorder 2 records tape recorder 2 playback two seconds tape recorder 1 records alternating the voice of b. with the voice of j. in order to attain any degree of precision the two tapes should be cut with scissors and alternate pieces spliced together this is a long process which can be appreciably expedited if you have access to a cutting room and use film tape which is much larger and easier to handle you can carry this experiment further by taking a talking film of b. and talking film of j. splicing sound and image track twenty four alternations per second as i have intimated it is advisable to exercise some care in choosing your partner for such experiments since the results can be quite drastic b. finds himself talking and thinking just like j. j. sees b.'s image in his own face who's face b. and j. are continually aware of each other when separated invisible and persistent presence they are in fact becoming each other you see b. retroactively was j. by the fact of being recorded on j.'s sound and image track experiments with spliced tape can give rise to explosive relationships properly handled of course to a high degree of efficient cooperation you will begin to see the advantage conveyed on j. if he carried out such experiments without the awareness of b. and so many applications of the spliced tape principle will suggest themselves to the alert reader suppose you are some creep in a grey flannel suit you want to present a new concept of advertising to the old man it is creative

advertising so before you goes up against the old man you record the old man's voice and splices your own voice in expounding your new concept and put it out on the office air-conditioning system splice yourself in with your favorite pop singers splice yourself in with newscasters prime ministers presidents

why stop there

why stop anywhere

everybody splice himself in with everybody else yes boys that's me there by the cement mixer the next step and i warn you it will be expensive is programmed tape recorders a fully programmed machine would be set to record and play back at selected intervals to rewind and start over after a selected interval automatically remaining in continuous operation suppose you have three programmed machines tape recorder 1 programmed to play back five seconds while tape recorder 2 records tape recorder 2 play back three seconds while tape recorder 1 records now say you are arguing with your boy friend or girl friend remembering what was said last time and thinking of things to say next time round and round you just can't shut up put all your arguments and complaints on tape recorder 1 and call tape recorder 1 by your own name on tape recorder 2 put all the things he or she said to you or might say when occasion arises out of the tape recorders now make the machines talk tape recorder 1 play back five seconds tape recorder 2 record tape recorder 2 play back three seconds tape recorder 1 record run it through fifteen minutes half an hour now switch intervals running the interval switch you used on tape recorder 1 back on tape recorder 2 the interval switch may be as important as the context listen to the two machines mix it around now on tape recorder 3 you can introduce the factor of irrelevant response so put just anything on tape recorder 3 old joke old tune piece of the street television radio and program tape recorder 3 into the argument

tape recorder 1 waited up for you until two o'clock last night

tape recorder 3 what we want to know is who put the sand in the spinach

the use of irrelevant response will be found effective in breaking obsessional association tracks all association tracks are obsessional get it

out of your head and into the machines stop arguing stop complaining stop talking let the machines argue complain and talk a tape recorder is an externalized section of the human nervous system you can find out more about the nervous system and gain more control over your reactions by using the tape recorder than you could find out sitting twenty years in the lotus posture or wasting your time on the analytic couch

listen to your present time tapes and you will begin to see who you are and what you are doing here mix yesterday in with today and hear tomorrow your future rising out of old recordings you are a programmed tape recorder set to record and play back

who programs you

who decides what tapes play back in present time

who plays back your old humiliations and defeats holding you in prerecorded preset time

you don't have to listen to that sound you can program your own playback you can decide what tapes you want played back in present time study your associational patterns and find out what cases in what prerecordings for playback program those old tapes out it's all done with tape recorders there are many things you can do with programmed tape recorders stage performances programmed at arbitrary intervals so each performance is unpredictable and unique allowing any degree of audience participation readings concerts programmed tape recorders can create a happening anywhere programmed tape recorders are of course essential to any party and no modern host would bore his guests with a straight present time party in a modern house every room is bugged recorders record and play back from hidden mikes and loudspeakers phantom voices mutter through corridors and rooms word visible as a haze tape recorders in the gardens answer each other like barking dogs sound track brings the studio on set you can change the look of a city by putting your own sound track into the streets here are some experiments filming a sound track operations on set find a neighborhood with slate roofs and red brick chimneys cool grey sound track fog horns distant train whistles frogs croaking music across the golf course cool blue recordings in a cobblestone market with blue shutters all the sad old showmen stand there in blue twilight a rustle of

darkness and wires when several thousand people working with tape recorders and filming subsequent action select their best sound tracks and film footage and splice together you will see something interesting now consider the harm that can be done and has been done when recording and playback is expertly carried out in such a way that the people affected do not know what is happening thought feeling and apparent sensory impressions can be precisely manipulated and controlled riots and demonstrations to order for example they use old anti-semitic recordings against the chinese in indonesia run shop and get rich and always give the business to another tiddly wink pretty familiar suppose you want to bring down the area go in and record all the ugliest stupidest dialogue the most discordant sound track you can find and keep playing it back which will occasion more ugly stupid dialogue recorded and played back on and on always selecting the ugliest material possibilities are unlimited you want to start a riot put your machines in the street with not recordings move fast enough you can stay just ahead of the riot surfboarding we call it no margin for error recollect poor old bums caught out in a persian market riot recordings hid under his jellaba and they skinned him alive raw peeled thing writhing there in the noon sun and we got the picture

do you get the picture

the techniques and experiments described here have been used and are being used by agencies official and non official without your awareness and very much to your disadvantage any number can play wittgenstein said no proposition can contain itself as an argument the only thing not prerecorded on a prerecorded set is the prerecording itself that is any recording in which a random factor operates any street recording you can prerecord your future you can hear and see what you want to hear and see the experiments described here were explained and demonstrated to me by ian sommerville of london in this article i am writing as his ghost

look around you look at a control machine programmed to select the ugliest stupidest most vulgar and degraded sounds for recording and playback which provokes uglier stupider more vulgar and degraded sounds to be recorded and play back inexorable degradation look forward to dead end look forward to ugly vulgar playback tomorrow and tomorrow and tomorrow what are newspapers doing but selecting the ugliest sounds for playback by and large if it's ugly it's news and if that isn't enough i quote from the editorial page of the new york daily news we can take care of china and if russia intervenes we can take care of that nation too the only good communist is a dead communist let's take care of slave driver castro next what are we waiting for let's bomb china now and let's stay armed to the teeth for centuries this ugly vulgar bray put out for mass playback you want to spread hysteria record and play back the most stupid and hysterical reactions

marijuana marijuana why that's deadlier than cocaine

it will turn a man into a homicidal maniac he said steadily his eyes cold as he thought of the vampires who suck riches from the vile traffic in pot quite literally swollen with human blood he reflected grimly and his jaw set pushers should be pushed into the electric chair

strip the bastards naked

all right let's see your arms

or in the mortal words of harry j anslinger the laws must reflect society's disapproval of the addict

an uglier reflection than society's disapproval would be hard to find the mean cold eyes of decent american women to tight lips and no thank you from the shop keeper snarling cops pale nigger killing eyes reflecting society's disapproval fucking queers i say shoot them if on the other hand you select calm sensible reactions for recordings and playback you will spread calmness and good sense

is this being done

obviously it is not only way to break the inexorable down spiral of ugly uglier ugliest recording and playback is with counterrecording and playback the first step is to isolate and cut association lines of the control machine carry a tape recorder with you and record all the ugliest stupidest things cut your ugly tapes in together speed up slow down play backwards inch the tape you will hear one ugly voice and see one ugly spirit is made of ugly old prerecordings the more you run the tapes through and cut them up the less power they will have cut the prerecordings into air into thin air From William S. Burroughs, *The Ticket that Exploded* (New York: Grove Press, 1968). Used by permission of Grove/Atlantic, Inc.

Algorithms: Erasures and the Art of Memory

Paul D. Miller

Musician, writer, and artist Paul D. Miller is best known as DJ Spooky That *Subliminal Kid, a producer whose recordings and live performances are firmly* rooted in hiphop, ambient, dub, and drum 'n' bass, but also draw from the history of avant-garde art and literature. His moniker "That Subliminal Kid" is borrowed from a character in William S. Burroughs' cut-up novel Nova Express. Miller has collaborated with composers Iannis Xenakis and Pauline Oliveros; free jazz masters William Parker, Matthew Shipp, and Joe McPhee; dub pioneers Lee "Scratch" Perry and Mad Professor; metal drummer Dave Lombardo (of Slayer); rappers Chuck D. and Kool Keith; Yoko Ono; and many others. In 2004, Miller produced a remix of D.W. Griffiths' classic 1915 film The Birth of a Nation, an unabashedly racist film, the montage techniques of which, however, Miller sees as a precursor to DJ Culture. For Miller, the DJ is not simply an entertainer but an information handler who selects and guides the flow of audio data. The DJ's mix is a composite of fragments drawn from a heterogeneous array of temporal, spatial, and cultural locations. Hence, according to Miller, the DJ regulates not only data but also the construction of time, memory, subjectivity, and experience.

The twentieth century encounter between alphabetic and electronic faces of culture confers on the printed word a crucial role in staying the return to the Africa within...

-Marshall McLuhan, The Gutenberg Galaxy

Gimme Two Records and I'll make you a universe...

—DJ Spooky That Subliminal Kid

One of the first bootleggers, in this case one of the first people to sample music, Lionel Mapleson, used a phonograph recorder given to him by his close personal friend, Thomas Edison, to record extracts of his favorite moments from the various operas that played at New York's Metropolitan Opera House when he was working there during the years 1901–1903. These recordings of various arias comprise the first known texts created by

the recording medium (all puns intended). With his recording-phonograph in hand Lionel Mapleson may just have written himself into history books as the first DJ. His phonograph [...] was a new way of data-handling that allowed the mechanical implementation of a non-sequential form of text, one including associative trails, dynamic annotations, and cross references —a host of characteristics one finds as common features of computers in our modern hypertext-formatted world. A journalist writes of the experience of listening to these recordings [...]:

The sense is one of listening from backstage, through a door that keeps opening and closing, to bits and pieces of performances. The vantage point is at a little distance from the singers, and they seem to be heard through a certain amount of backstage clatter; sometimes they move out of line of hearing, and sometimes the noise obscures the voices. But mostly, they can be heard quite well enough for the listener to get a very definite sense of personalities and occasionally of the full impact of virtuosity, that in terms of the opera house today, is quite beyond the wildest imagination...

Partitioned subjectivity, cross-fades, sonic shock-wave sounds of seismic bass disruption, pitch, tempo, the inertial drag of bass de-tuned, compressed and pitch-shifted down, drums pitched upwards and downwards, sound as a unified field of spatial representation with its own aural logic, ego become a sonic wave form in the chaotic urban landscape of inner city pressure ... these are things that go through my mind when I make music. [I] create electronic hybrids (some people still call them songs) that [...] create a milieu where a previously interior world could be brought to light through methods like keyboard mapping (delineating zones of aural speed) and time stretching words until they become an elemental part of the song, etc. I [...] create music that [...] reflect[s] the extreme density of the urban landscape and the way its geometric regularity contours and configures perception [...] To me, assembly is the invisible language of our time and DJing is the forefront art form of the late twentieth century.

Assemblages are passional, they are compositions of desire. Desire has nothing to do with a natural and spontaneous determination; there is no desire but assembling, assembled, engineered desire [*agençant, agencé, machiné*]. The rationality, the efficiency of an assemblage does not exist without the passions that the assemblage brings into play, without the desires that constitute it as much as it constitutes

them...

DJ culture—urban youth culture—is all about recombinant potential. It has as a central feature a eugenics of the imagination. Each and every source sample is fragmented and bereft of prior meaning—kind of like a future without a past. The samples are given meaning only when represented in the assemblage of the mix. In this way the DJ acts as the cybernetic inheritor of the improvisational tradition of jazz, where various motifs would be used and recycled by the various musicians of the genre. In this case, however, the records become the notes. Also there is the repetitive nature of the music that allows for the unfolding in time of a recursive spatial arrangement of tones whose parallel can be found in the world of architecture, where structural integrity requires the modular deployment of building materials to create a building's framework.

Repeating then is every one, repeating then makes a complete history in every one for someone sometime to realise in that one. Repeating is in them of the most delicate shades in them of being and of feeling and so it comes to be clear in each one the complete nature in each one, it comes to be clear in each one the complete nature in each one and others to make a kind of them, a kind of men and women... —Gertrude Stein, *The Making of Americans*

Triggered by the sensuous touch of the DJ's hands guiding the mix, the spectral trace of sounds in your mind that existed before you heard them, telling your memory that the mixed feelings you get, the conflicting impulses you feel when you hear it are impressions—externalized thoughts that tell you you only know that you have never felt what you thought you were feeling because you have never really listened to what you were hearing. The sounds of the ultra-futuristic streetsoul of the urban jungle shimmering at the edge of perception.

We have also sound-houses, where we practice and demonstrate all sounds, and their generation. We have harmonies which you have not, of quarter sounds and lesser slides of sounds. Divers instruments of music likewise to you unknown, some sweeter than any you have; together with bells and rings that are dainty and sweet. We represent small sounds as great and deep; likewise great sounds extenuate and sharp; likewise divers tremblings and warblings of sounds, which in their original are entire. We represent and imitate all articulate sounds and letters, and the voices and notes of beasts and birds. We have certain helps which set to the ear do further the hearing greatly. We have also divers strange and artificial echoes, reflecting the voice many times, and as it were tossing it: and some that give back the voice louder than it came; some shriller, and some deeper: yea, some rendering the voice, differing in the letters or articulate sound from that they receive. We have also means to convey sounds in tubes and pipes, in strange lines and distances.

-Francis Bacon, New Atlantis (1627 AD)

Sound as an isolated object of reproduction, call it our collective memory bank, is the focal point in my work. Like KRS One said a while back, "See how it sound, a little unrational ..."

Black Americans were sustained and healed and nurtured by the translation of their experience into art above all in the music ... All of the intricacy, all of the discipline. All the work that must go into improvisation so that it appears that you've never touched it. Music makes you hungry for more of it. It never really gives you the whole number. It slaps and it embraces, it slaps and it embraces ... The major things black art has to have are these: it must have the ability to use found objects, the appearance of using found things, and it must look effortless. It must look cool and easy. If it makes you sweat, you haven't done the work. You shouldn't be able to see the seams and stitches.

—Toni Morrison

Beats don't lie and sound is all about flow: don't push the river.

The basic unit of contemporary art is not the idea, but the analysis of and extension of sensations...

—Susan Sontag

I consider the mixes created by a DJ to be mood sculptures operating in a recombinant fashion. Based on the notion that all sonic material can be manipulated with the same ease that computers now generate composite images, the DJ combines the musical expression of other musicians with their own and in the process creates a seamless flow of music. In this light, the sample operates as a kind of synecdoche—a focal/coordinate point in the dramaturgical grid of life. Call the mixes and songs generated by the assembly process of DJing and sequencing etc. the social construction of memory [...] A mix, for me, is a way of providing a rare and intimate glimpse into the process of cultural production in the late twentieth century.

Notions of intellectual property and copyright law are brought into question as the communal reception of music takes on the significances of being the sonic equivalent to alchemy. The mix speaks to you of the bricolage of a place where the "self" exists as a deployed network of personae (the Latin root of personae means "that through which sound enters"), music created out of a particular scene or social grouping; and it shows the inexplicable mutability of sound as different people share the memories brought about by the same songs. It demonstrates the uncanny power to metamorphosize, through audio alchemy, the passage of sound into a kind of unspoken story, that like its predecessor, the oral tradition, can pass on "tales" of songs.

In the electronic milieu that we all move in today, the DJ is a custodian of aural history. In the mix, creator and re-mixer are woven together in the syncretic space of the text of samples and other sonic material to create a seamless fabric of sound that in a strange way mirrors the modern macrocosm of cyberspace, where different voices and visions constantly collide and cross-fertilize one another. The linkages between memory, time, and place, are all externalized and made accessible to the listener from the viewpoint of the DJ who makes the mix. Thus, the mix acts as a continuously moving still frame *camera lucida* capturing moment-events. The mix, in this picture, allows the invocation of different languages, texts, and sounds to converge, meld, and create a new medium that transcends its original components. The sum created from this audio collage leaves its original elements far behind.

As a conceptual artist, my work focuses on what I call "Differentiated Being," and its rapport with the electronically accelerated culture of the late twentieth century. The core elements that comprise my "art" are derived from my experiences as a young African-American male living as an object of history rather than its subject, and the social construction of subjectivity. For me, my world represents an artistic attempt at understanding the role of intersubjectivity and the creation of the art object. My work highlights the tenuous relationship of a youth culture based on rapid change, i.e. extreme cultural velocity, a paradigm in which what Lucy Lippard called "the dematerialized art object" holds sway [over] the static art object of the traditional European museum structure.

He will say, when he wishes to show that I am many, that there are my right parts and my left parts, my front parts and my back parts, likewise upper and lower; all different: for I do, I suppose, partake of multitude.

-Plato, *Parmenides*

I feel that because it is in a state of discrepant engagement with modern electro culture, the conventional museum structure is rapidly moving towards a state of desuetude with regards to modern electronic media's impact on the generation to which I belong. Kinetic potential and its manifestation in cultural production are core tenets of my work. A shorthand way of describing its presence in the art objects (some still call them songs) I create would be to see that they focus on "art as potentiality" with regard to a state of being-as-void, or continuous becoming. There are many problems one encounters in the attempt to reconcile conventional "art" with the culture that I call home. But to me, fragmentation is what all of this is about. My work as a DJ is my prime inspiration; and it is the memories that I have gained from my various experiences as a DJ that fuel my inquiry into the art object as a vessel of cultural representation. I do not call my constructs paintings, but rather "objectiles"—that is, objects imbued with an extreme sense of cultural velocity—object + projectile.

In DJ culture music is carried by shards of time-records, CDs, and most popular amongst the initiates-the "mixed tape." All of the previously listed objects are activated by various electronic appliances, thus the kinetic potential—the movement of a static object into a relation of dynamic movement with regards to a social function of electricity—that lies at the center of my oeuvre. To me, the mixed tape is the ultimate example of a new art object. By using a found object—the cassette—that has the ability to hold replicated information, and in turn can be used to reproduce that very same information whenever it is activated: the cassette arrives at a point where it is the electromagnetic equivalent of the blank canvas, and "all the world is in the mix." The mix of found objects or selfgenerated music that a DJ records to tape, is representative of a style that s/he uses to evoke emotive responses in the listener, thus involving the spectator and creator in a situation where the boundaries dividing the two blur. DJing is also informed by a fluid dialectics of culture that places it at the center of the transition from mimetic to semiotic representation that electronic artforms are highlighting. What these diverse new forms of representation indicate is a migration of human cognitive structures into
the abstract "machinery" of the electronic environment.

"I am you, you are me, with language, we are three"

-Paul D. Miller

Ideas improve, the meaning of words participates in the improvement. Plagiarism is necessary. Progress implies it. It embraces an author's phrase, makes use of his expressions, erases a false idea, and replaces it with the right idea.

—Guy Debord

The style a DJ uses is their imprimatur, their way of appropriating the psychological environment that the people that made the records put into their mix, and sharing it with those who attend the performance. In this way the DJ acts as a cipher, translating thought and sound into functional mood units whose accumulated meanings can be found in the audio equivalent of a paratactic structure of linguistic elements or what I like to call "the body telematic," or what Artaud liked to call "the body without organs." In this sense, the records, samples, and various other sonic material the DJ uses to construct their mix, act as a sort of externalized memory that breaks down previous notions of intellectual property and copyright law that Western Society has used in the past. It is in this singularly improvisational role of "recombinater" that the DJ creates what I like to call a "post symbolic mood sculpture," or the mix: a disembodied and transient text that mirrors the dematerialized art object mentioned earlier. Operating in a manner that is both enantiamorphic and tesselary, the DJ embodies a telematic relationship where "the sign" becomes sound seeking sense, thus the difference between semiotic and mimetic representation that I mentioned earlier. The implications of this style of creating art are three fold: (1) by its very nature it critiques the entire idea of intellectual property and copyright law, (2) it reifies a communal art value structure in contrast to most forms of art in late capitalist social contexts, (3) it interfaces communications technology in a manner that anthropomorphizes it. In this manner, DJing posits music as an extension of a neurolinguistic relationship of human beings to their, as Marx put it, "alienated life elements." Those "elements," seen through the medium of the mix, reveal to us a place where different voices, rhythms, and tones fuse to create a syncretic flow of sound as externalized memory. They become epiphenomena whose central purpose is to act as a mnemonic device: the social construction of subjectivity is informed by the memories

that become the shared text of an attenuated media environment made possible by a variable architecture synthesized from the tones that comprise its forms. C.S. Pierce noted in his idea of semiosis a similar unfolding of human expression, albeit without its cybernetic implications (although they are implicit in his work I believe), when he wrote back in the nineteenth century "that since any thought, there must have been a thought, has its analogue in the fact that, since any past time, there must have been an infinite series of times. To say, therefore, that thought cannot happen in an instant, but requires time, is but another way of saying that every thought must be interpreted in another, or that all thought is in signs."

Memory and temporal structure are the new spaces of art to me. Deleuze and Guattari arrive at a similar point in their critique of late capital and schizophrenia with the rhizome structure, a decentered and nonhierarchical form that perfectly illustrates their metaphor for counter culture. Among philosophers like David Hume, Giordano Bruno, Frantz Fanon, Martin Luther King, Friedrich Hegel, Nietzsche, and Malcolm X, a fixation on multiplicity gives their expression all the more immediacy because of its fragmented nature. This, to me, is almost the equivalent of time travel along psychological association lines that artists and writers as diverse as Brion Gysin, Sun Ra, Alain Robbe-Grillet, William S. Burroughs, Marcel Duchamp, Rammelzee, Samuel Delaney, H.G. Wells, Greg Tate, Tricia Rose, Grand Master Flash, Sol Lewitt, and Yevgeny Zamyatin, to name a few, have based their works on. Adrift etymologically, the word "phonograph" means "sound writing." In literature, the methodologies used to assemble the mix a DJ creates could be called stream of consciousness narratives (roman fleuve), or nonsequential (roman *mallaparte*). The previous meanings, geographic regions, and temporal placement of the elements that comprise the mix, are corralled into a space where the differences in time, place, and culture, are collapsed to create a recombinant text or autonomous zone of expression based on what I like to call "cartographic failure."

Autonomous zones are interstitial, they inhabit the in-between of socially significant constellations, they are where bodies in the world but between identities go: liminal sites of syncretic unorthodoxy ... Autonomous zones may be thought of, in temporal terms, as shreds of futurity. Like "outside", "future" is only an approximation: there are any number of potential futures in the cracks of the

present order, but only a few will actually unfold. Think of autonomous zones in terms of time, but tenseless: time out of joint, in an immanent outside (Nietzsche's untimely).

-Brian Masumi, A Users Guide To Capitalism and Schizophrenia

All I can say is that in this era of hypermodernity, the current message has been deleted. Any sound can be you. It is through the mix and all that it entails—the re-configuration of ethnic, national, and sexual identity that humanity will, hopefully, move into another era of social evolution. I can only hope that the world can shift into this new matrix without too much disruption. The other options: genocide, internecine ethnic strife and warfare, the complete destruction of the environment, and the creation of a permanent underclass that doesn't have access to technology, are what the future holds if humanity can't come to grips with these new and explosive forces technology has released in us all.

From the liner notes to DJ Spooky, *Songs of a Dead Dreamer*, Asphodel ASP0961.
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Replicant: On Dub

David Toop

David Toop (see also Chapter 39) is among the most innovative and wide-ranging writers on contemporary music. His pioneering book on hiphop, Rap Attack, first appeared in 1984. A decade later, Toop published Ocean of Sound (1995), a poetic survey of contemporary musical life from Debussy through ambient, techno, and drum 'n' bass. Since then, Toop has written books on a wide range of marginal musics, most recently a two-volume history of free improvisation. Toop has also been an important presence on the British experimental and improvised music scene. With sound artist Max Eastley, he recorded New and Rediscovered Musical Instruments for Brian Eno's Obscure label in 1975. He has released a number of solo albums and collaborated with an extraordinary variety of musicians, among them John Zorn, Evan Parker, Derek Bailey, Scanner, Flying Lizards, Prince Far-I, Miya Masaoka, and others. In 2001, Toop curated Sonic Boom, the UK's largest-ever exhibition of sound art; in 2002, he curated the double-CD set Not Necessarily English Music: A Collection of Experimental Music from Great Britain, 1960–1977. In this brief excerpt from Ocean of Sound, Toop meditates on the history and mind-altering effects of dub, reggae's ghostly other.

Dub music is like a long echo delay, looping through time. Regenerating every few years, sometimes so quiet that only a disciple could hear, sometime shatteringly loud, dub unpicks music in the commercial sphere. Spreading out a song or a groove over a vast landscape of peaks and deep trenches, extending hooks and beats to vanishing point, dub creates new maps of time, intangible sound sculptures, sacred sites, balm and shock for mind, body and spirit.

When you double, or dub, you replicate, reinvent, make one of many versions. There is no such thing as an original mix, since music stored on multi-track tape, floppy or hard disk, is just a collection of bits. The composition has been decomposed, already, by the technology. Dubbing, at its very best, takes each bit and imbues it with new life, turning a rational order of musical sequences into an ocean of sensation. This musical revolution stemmed originally from Jamaica—in particular, the tiny studio once run by the late Osbourne Ruddock, a.k.a. King Tubby, in Kingston. "This is the heart of Kingston 11," Dave Henley wrote, describing the location of Tubby's studio for a reggae fanzine called *Small Axe*. "A maze of zinc fence, potholed roads and suitably dilapidated bungalows. After dark, the streets become remarkably deserted (by Kingston standards, anyway, considering that loafing on the corner is a favourite Jamaican pastime), giving the impression of an eerie tropical ghost town."

Urban, rural, tropic, aquatic, lo-tech, mystical. This was the source mix from which William Gibson drew (sentimentally, some critics think) when adding the humanising element of Rastafari and dub to his Neuromancer narrative of tech-Gnosis. When King Tubby first discovered dub, the revelation came, like so many technological discoveries, through an accident. There were other Jamaican recording engineers, of course: Sylvan Morris, Errol T. Thompson and Lloyd "Prince Jammy" James helped to created the sound of albums such as Joe Gibbs' African Dub All-Mighty series, or Augustus Pablo's King Tubby's Meets Rockers Uptown and Africa Must Be Free By 1983. But it was Tubby, cutting discs for Duke Reid at Treasure Isle, who first discovered the thrill of stripping a vocal from its backing track and then manipulating the instrumental arrangement with techniques and effects: drop-out, extreme equalisation, long delay, short delay, space echo, reverb, flange, phase, noise gates, echo feedback, shotgun snare drums, rubber bass, zipping highs, cavernous lows. The effects are there for enhancement, but for a dubmaster they can displace time, shift the beat, heighten a mood, suspend a moment. No coincidence that the nearest approximation to dub is the sonar transmit pulses, reverberations and echoes of underwater echo ranging and bioacoustics. No coincidence, also, that dub originated in a poor section of a city on a Caribbean island.

The first moment of dub has been pursued by reggae historian Steve Barrow through numerous conversations with important reggae record producers such as Bunny Lee. In *Dub Catcher* magazine, Lee conjures some of the excitement of those late-1960s, early-1970s sessions when King Tubby began to experiment with what he termed the "implements of sound": "Tubby's, right," recalls Lee. "With all the bass and drum ting now, dem ting just start by accident, a man sing off key, an' when you a reach a dat you drop out everyting an' leave the drum, an' lick in the bass, an' cause a confusion an' people like it … Sometime me an' 'im talk an' me say, 'Drop out now, Tubby!' An' 'im get confuse an' me jus' draw down the whole a the lever ... you hear 'Pluck' an' jus' start play pure distortion. Me say, 'Yes Tubbs, madness, the people dem like it!' an' just push it right back up ... An' then Lee Perry do fe 'im share a dub too, ca' 'im an' Tubby's do a whole heap a ting ... 'im an' Niney [producer nine finger Niney 'the Observer'] an' musician jus' play, an' 'im jus' [makes discordant noises and laughs]. 'Im drunk, drunk yunno—the engineer a go stop 'im an' [he] say, 'You no hear a vibes? Mad sound dat man.' An' when 'im come the people dem like it."

Tubby worked with equipment that would be considered impossibly limited by today's standards, yet his dubs were massive, towering exercises in sound sculpting. Legend records that he cut four dubplates special, one-off mixes—for his Home Town Hi-Fi System at the end of the 1960s. Playing these instrumental versions at a dance, with U Roy toasting verbal improvisations over the music in real time, he was forced to repeat them all night, dubbing them up live as the crowd went crazy. Tubby worked for some of Jamaica's most creative producers: Lee Perry and Augustus Pablo, in particular, were recording increasingly exotic and distinctive music during the 1970s. On albums such as Perry's Super Ape and Pablo's East of the River Nile, the mixing board becomes a pictorial instrument, establishing the illusion of a vast soundstage and then dropping instruments in and out as if they were characters in a drama. Lee Perry was a master of this technique, applying it to all his records, whether vocal, dub, instrumental version or talkover, all of them rich in his dub signature of rattling hand drums and scrapers, ghostly voices, distant horn sections, unusual snare and hi-hat treatments, groans and reptilian sibilations, odd perspectives and depth illusions, sound effects, unexpected noises and echoes that repeat to infinity.

Dub also anticipated remix culture. In 1974 Rupie Edwards, a producer of celebrated Jamaican artists such as I Roy, The Ethiopians and Gregory Isaacs, was the first to compile a "version" album—*Yamaha Skank*, twelve different versions of the rhythm of a song called "My Conversation". Although these were not dubs, they grew out of the idea of dubbing a track, shaping and reshaping its "implements of sound" as if music was modelling clay rather than copyright property.

From David Toop, Ocean of Sound: Aether Talk, Ambient Sound and Imaginary Worlds (London: Serpent's Tail, 1995). Used by permission of the author.

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Post-Rock

Simon Reynolds

Simon Reynolds is among the most articulate and wide-ranging of contemporary pop music critics and theorists. In the 1980s, he was a staff writer at Melody Maker and later became senior editor at Spin before returning to freelance journalism. Among his many books are The Sex Revolts (1995), on gender in rock, co-authored with Joy Press; Generation Ecstasy (1999), on rave culture; Rip It Up and Start Again (2005) on post-punk; Retromania (2011) on nostaglia in pop culture; and Shock and Awe (2016), on glam. In this essay, Reynolds coined the term "post-rock" to refer to the ways that, since the 1990s, DJ culture has infected rock and fundamentally altered some of its defining features.

[...] Post-rock means bands that use guitars but in nonrock ways, as timbre and texture rather than riff and powerchord. It also means bands that augment rock's basic guitar-bass-drums lineup with digital technology such as samplers and sequencers, or tamper with the trad rock lineup but prefer antiquated analog synths and nonrock instrumentation. With its droneswarm guitars and tendency to melt into ambience, post-rock first erodes, then obliterates the song and the voice. By extension, it also parts with such notions as the singer as storyteller and the song as narrative, source of life-wisdom, or site of social resonance. This shift parallels tendencies in the culture (e.g. computer games, virtual reality, designer drugs) that indicate the emergence of a new model of posthuman subjectivity organized around fascination rather than meaning, sensation rather than sensibility.

The more "post" a post-rock band gets, the more it abandons the versechorus-verse structure in favor of the soundscape. A band's journey through rock to post-rock usually involves a trajectory from narrative lyrics to stream-of-consciousness to voice-as-texture to purely instrumental music. In the process, there's a dismantling of trad rock's dramatic mechanisms such as "identification" and "catharsis." Instead the listener is plunged into plateau-states of bliss, awe, uncanny-ness, or prolonged sensations of propulsion, ascension, free fall, immersion. In post-rock, "soul" is not so much abolished as radically decentered, dispersed across the entire field of sound, as in club musics like house, techno, and jungle, where tracks are less about communication and more like engines for "the programming of sensations" (as Susan Sontag said in 1965 of contemporary art from Rauschenberg to the Supremes). Music that's all surface and no "depth," that has skin instead of soul.

Above all, post-rock abandons the notion of rebellion as we know and love it, in favor of less spectacular strategies of subversion—ones closer to psychic landscapes of exile and utopia constructed in dub reggae, hiphop, and rave. At the heart of rock 'n' roll stands the body of the white teenage boy, middle finger erect and a sneer playing across his lips. At the center of post-rock floats a phantasmatic un-body, androgynous and racially indeterminate: half ghost, half machine.

Post-rock has its own sporadic but extensive history, which [post-rockers] draw on as much for the suggestiveness of its unrealized possibilities as for actual achievements. In terms of electric guitar, the key lineage runs from the Velvet Underground, through Germany's kosmic rock (Can, Faust, Neu!, Cluster, et al.) and the guitar-loop mosaics of Eno and Fripp, to such late-1980s neopsychedeliacs as Jesus & Mary Chain, Spacemen 3, and A.R. Kane. The Velvets melded folkadelic songcraft with a wall-of-noise aesthetic that was half Phil Spector, half La Monte Young —and thereby invented dronology, a term that loosely describes 50 per cent of today's post-rock activity.

Post-rock emerges from rock's chrysalis when a band's ambitions begin to chafe at the constraints of song and riff. Take Main, an offshoot of the late-1980s British indie band Loop, a bunch of longhaired acid freaks with a fetish for the wah-wah pedal. The band's desire to go beyond the Stooges-MC5 matrix expressed itself through covers of Can's "Mother Sky" and the Pop Group's "Thief of Fire," but Loop never quite made the break with rock 'n' roll. Forming Main, singer-guitarist Robert Hampson shed both his lank locks and, step by step, every last vestige of rock 'n' roll: first song structure, then backbeat, eventually even distinct chords. Main isn't so much a band as a studio-based research unit dedicated to exploring the electric guitar's spectrum of effects-wracked timbres and tonalities [...]

The other major strand of post-rock endeavor has jettisoned the dronologists' guitar fetish. It also avoids the potential aesthetic backwater of pure ambience by looking outside rock for different forms of kinetic

energy. Some, such as techno-animal and scorn, use the looped beats of hiphop and rave; others merge live funk and programmed rhythm [...]

Although these strands stretch across the Atlantic, there are real and telling differences between British and American post-rock, and most of them revolve around British bohemia's susceptibility to the influence of black music, whether African-American, Caribbean, or homegrown. US post-rock can almost be defined by the absence of dub as a living legacy and by its avoidance of hiphop.

Dub's vast impact on British left-field rock goes back to the late-1970s, to the kinship punk rockers felt with Rastafarian reggae's spiritual militancy and millennial imagery of exile and dread. And so the Clash covered junior Murvin's "Police and Thieves" and Willie William's "Armagideon Time," while Johnny Rotten went from the metallic KO of Sex Pistols to the antirockist Public Image Ltd., whose *Metal Box/Second Edition* introduced a significant segment of his following to Lydon's true loves, dub and Can. Brit-bohemia's enduring openness to the Jamaican soundworld, from ska to dub to ragga, explains so much of what's bubbled up from UK subbakulcha in the last two decades [...]

Nearly as influential as dub on the Brit post-rockers is Brian Eno. From the early 1970s onward, Eno was, in both theory and practice, connecting the dots between the dub of Lee Perry and King Tubby, Teo Macero's labyrinthine production of Miles Davis, Can's fractal funkadelia, Cluster's Op Art guitar tapestries, and so on. Eno's notions—the studio as instrument, recording as the architectonics of "fictional psycho-acoustic space"—are the organizing principles of post-rock. Most rock producers strive for a glossed-up embellished simulation of the band in performance, but following Eno and dub, post-rock uses effects and processes to sever the link between the sound you hear and the physical act (striking a guitar chord, pounding a drum skin) that produced it.

Dub's fluctuating mix makes the band's presence hazy and miragelike; echo and reverb are used to make each strand of sound occur in its own distinct acoustic space. Sampling and a related technique called "hard disk editing" (where sounds are chopped up and rearranged inside the computer's virtual space) dramatically increase the possibilities for disorientation and displacement. With sampling, what you hear could never possibly have been a real-time event, since it's composed of vivisected musical fragments plucked from different contexts and eras, then layered and resequenced to form a time-warping pseudoevent. You could call it "deconstruction of the metaphysics of presence"; you could also call it magic.

Sampling brings us to hiphop and, once again, the contrast between the avidity of its embrace by British underground rock versus the hesitancy of the US post-rockers [...] In Britain, staying unaware and uninfected by hiphop and its homegrown offshoots (triphop, drum 'n' bass) can only be achieved by a strenuous feat of cultural inbreeding [...] But in America, where you'd think it'd be even harder to ward off rap's influence, white bohemians shy away, perhaps feeling hiphop is the cultural property of African Americans, and not to be trespassed upon.

As for techno-rave having any impact on American post-rock, forget it. A cluster of attitudes forms a near impenetrable barrier: the premium on live performance, the lingering legacy of "disco sucks," the hatred of machine rhythms. The upshot of all this is that UK post-rock outfits, influenced by various admixtures of dub, hiphop, and techno, tend to be sound laboratories for whom live performance is irrelevant, whereas American post-rockers remain deeply committed to the band format and playing live. Instead of drawing on contemporary black and club music, they revisit those brinks in rock history when eggheads pushed rock's envelope beyond the bursting point: Krautrock, obviously, but also Tim Buckley circa *Starsailor*; the Canterbury scene (Soft Machine, Robert Wyatt, Henry Cow); Pere Ubu, Suicide and No Wave; and the freeform passages and proto-ambient lulls that punctuate the Velvets, Stooges, and MC5, as later developed further by Glenn Branca and Sonic Youth [...]

On both sides of the Atlantic, popular taste and critical opinion clutch tightly to the certainties and satisfactions of song and singer, and their attendant fictions of community and resistance, while the biz demands "charismatic personalities" [...] as the focus of its marketing schemes. For post-rock to go mainstream would require a Dylan figure—a Stipe or Vedder, say—shocking his folkie audience by appearing onstage with a sampler, as Dylan did when he went electric. And what is the electric guitar now but the new acoustic guitar, signifier of grit and earth and folk-blood?

A final, emotionally ambivalent thought about the difference between rock and its post-. Let's consider the Stones' "Gimme Shelter," described by Greil Marcus as the greatest piece of recorded rock 'n' roll ever (I agree). Consider specifically the all-too-brief instrumental prequel, the way Keith Richards' soliloquy of a solo conjures a shattering pitch of ecstatic anguish and longing. For a multitude of reasons, the historical conditions that made "Gimme Shelter" not just possible, but of oracular significance, are gone; not only has rock's grand narrative petered out into a delta of microcultures, but the possibility of writing a redemptive narrative itself seems to be fading. A post-rock band would take that intro's appalling poignancy, loop it, stretch it out to six minutes or more, turn it into an environment. Because that limbo-land between bliss-scape and paranoia-scape, narcosis and nightmare is where we who live under the sign of the post- find ourselves.

^{*} From *The Village Voice* (August 29, 1995). Used by permission of the author.

A Few Notes on Production and Playback

Marina Rosenfeld

Composer and artist Marina Rosenfeld works at the intersection of modern composition, performance, and installation. Trained as a pianist, she has used the turntable as her primary instrument since the 1990s, composing and improvising using sounds recorded onto dubplates (one-off acetate records) that she employs like the flexible elements of an experimental score. Rosenfeld often composes for large-scale ensembles, including orchestras and choirs. An early project, The Sheer Frost Orchestra (1993–), featured seventeen amateur female musicians who performed with nail polish bottles on electric guitars laid on the floor in front of them. Teenage Lontano (2008) is a "cover version" of György Ligeti's 1967 orchestral work Lontano performed by forty teenagers listening to their parts through earbuds. Exploring relationships between cooperation and conflict, Free Exercise (2014/16) distributes a military band throughout a large space. As a composer and improviser, Rosenfeld has collaborated with experimentalist George Lewis, turntablists Christian Marclay and Otomo Yoshihide, choreographers Merce Cunningham and Ralph Lemon, dancehall singer Warrior Queen, cellist Okkyung Lee, and many others. In this essay, Rosenfeld reflects on the material elements of her turntablist practice and their significance for considerations of recording, media, and memory.

Production

Open the box of blanks and the contents are surprising in their imperfection: the record has no grooves, and has been punched with not one but two holes, like a New York pizza imprinted off-center by the little plastic disc that keeps the cheese and the box apart. Still smooth and purplish under the light, the plate will be impaled on the lathe, an old-fashioned machine calibrated by an expert in the ratios of line-to-surface and signal-to-noise to make a single spiral cut up to the last available rotating millimeter. The expert will figure out the ratios and optimize the disc's surface area in the manner of real estate, maxing it out on a model based on consumption, as all media is.

Object

The line and its noise will be both more and less legible now that it exists in three dimensions, removed from the formal condition "data" and rendered as an object of imagination, only partly material. The medium (aluminum coated in acetate), in its pronounced degree of infidelity, will declare "playback"—a less-fashionable antecedent to "repetition"—as well as "machine," "stylus" and ultimately, "hand." The record—a pun—will be a one-off, a dubplate, an *object of art*—that is, something singular, anomalous in the sea of signs, a copy or multiple that isn't. Its indeterminacy is a function not of its status as data degraded by use and free circulation, but of its failure to advertise its own singularity. It will look like all others of its kind, a machined object, but will really be inbetween, at once generic and *sui generis*. Mainly, it will introduce the sounds of the past into the present. It will seem to actually be *what I think I heard*—a form of cognition similar to memory, delicately degraded by machine noise and without the possibility of validation.

Playback

The record player will turn the record under a passive needle. The stylus's progress along the line is an illusion, as the line itself is on the move. The needle seems to be the tip of a pen—it can be played as if it is a pen or a bow or a stick—but is more like a plow, taking away as it goes, its role as transmitter inexorably linked to destruction. For this reason the ratio of signal-to-noise will be in flux from the first play; the second, third, and hundredth play will seem to flicker, offering shorter and shorter pulses and blips of reproduction offset by noise. Any transmission that results will have to accommodate itself to this basic structure, a kind of détente between production and loss.

Decay

Playback happens in the present; but its constituent elements come to us from the past. Sampling makes the connection to history explicit, which is one of its charms. The presence of sampled material, like a voice that does not convince you of actual presence, has some of the formalism and thematic stiffness of still-life painting, its simultaneous fluidity and awkwardness pointing to mortality and the ephemeral nature of things. That loss or decay of some kind is a feature of all thinking about sound was already known to the ancient Greeks, who personified Syrinx (the first musical instrument) as a kind of victim—she is pursued and cut down by Pan, who destroys his love object and is left with a handful of reeds. Her close kin is Echo, whose lovesickness denies her the agency to produce anything but repetition, and permanently suspends her in a state of inbetween, where she can only repeat the endings of things. The manipulation and bending or quantization of materials, the signal that degrades and blurs, especially when it's preserved in an unstable medium like a dubplate but also in a more pristine digital format, locates the object (or waveform) in a chain of endings, of the echoes of previous sounds. In this sense dubplates-maybe storage media generally-are historical in a way that turns up inside the music, as a structure in and of itself, like a particular form of abstraction that comments on time more than anything else. In this sense—like Echo in her compulsively receptive, involuntarily reiterative condition-this kind of music pictures the condition "artist."

Notation

These thoughts aren't theory. They come from a fifteen- or twenty-year trove of observations—notations, in a way—that were momentarily or temporally generative. They're like algorithms for production, or maybe pre-production, useful insofar as they identify and name some of the tools of a particular trade at their moment of deployment. There is much more to be said about referentiality and abstraction, about sampling, about specific histories and genres of production and performance. The specter of omission looms over the discussion in a funny echo of its subject matter. The listener may be distracted, distressed, consoled or absent altogether; the producer, as such, is in the position of withholding and dispensing, resisting and giving in to a temporal politics that is, effectively and inevitably, musical. Or simply music.

^{*} Commissioned for this volume.

If you're under ninety, chances are that you've spent most of your life listening to electronic music. The experience that used to be called music up until the 1920s—listening to someone sing or play a musical instrument live and unamplified—actually forms an increasingly minor percentage of our listening experiences now. Instead, we listen to records, or we listen to the radio, or we go to see musicians who transmit electronic signals through electronic PA systems. It might seem extreme to include all the products of the recording age under the umbrella term *electronic music*, but I think it's warranted.

-Brian Eno¹

The great benefit [of tools like Cubase] is that they remove the issue of skill, and replace it with the issue of judgment. With Cubase or Photoshop, anybody can actually do anything, and you can make stuff that sounds very much like stuff you'd hear on the radio, or looks very much like anything you'd see in magazines. So the question becomes not *whether* you can do it or not, because any drudge can do it if they're prepared to sit in front of the computer for a few days; the question then is: of all the things you can do now, which do you choose to do? This is a whole issue for which there are not manuals!

—Brian Eno²

"Stockhausen" and "musique concrète" are clearly the two key words of contemporary Techno.

— Emmanuelle Loubet³

Rave music represents a fundamental break with rock, or at least the dominant English Lit and socialist realist paradigms of rock criticism, which focuses on songs and storytelling. Where rock relates an experience (autobiographical or imaginary), rave *constructs* an experience. Bypassing interpretation, the listener is hurled into a vortex of heightened sensations, abstract emotions, and artificial energies [...] Rave provokes this question: is it possible to base a culture around sensations rather than truths, fascination rather than meaning?

— Simon Reynolds⁴

[R]ave is something you immerse yourself into together with other people. There

is no guitar hero or rock star or corresponding musical-structural figure to identify with, you just "shake your bum off" from inside the music. You are just one of many other individuals who constitute the musical whole, the whole ground musical and social—on which you stand. The music is definitely neither melody nor melody plus accompaniment. Nor is it just accompaniment any more than West African polyrhythm, William Byrd's Great Service or Breughel's *Slaughter of the Innocents*. Polarising the issue, you could say that perhaps techno-rave puts an end to nearly four hundred years of the great European bourgeois individual in music, starting with Peri and Monteverdi and culminating with Parker, Hendrix and, Lord preserve us, Brian May, Whitney Houston and the TV spot for Bodyform sanitary towels.

— Philip Tagg⁵

The main culprit in electronic music is the term "music" itself [...] The whole field of electronic music has long since reached a state of pure abstraction and music only survives as a metaphor in software [...] Musical metaphors in software are just providing some means of orientation for people who deal with music as it was [...] I usually don't use the term music too much. I just say "audio".

— Markus Popp of Oval⁶

[We] are on our way to becoming silicon beings—from carbon-based to siliconbased. We're already interfaced with computers and we can't go back [...T]hink of a computer than can download all the music that has ever been done! So then we've got all that as the base for our improvisations. Maybe by then we'll have implants in our ears so that we can hear as low as whales and as high as bats. How's music going to change?

— Pauline Oliveros⁷

The ordering of sound into musical form is now open to every possibility in the world beyond sound. Once governed by pitch relationships, ordered into an evolving harmonic system, sound might now reflect the extra-musical systems of biology, machines, thought, chance, social relations, chemical effect, political models or body movement.

These are some of the possibilities.

Music can be inspired by a beehive, the malfunction of a machine, an ecosystem, the reflex reactions of another musician, a state of consciousness, a digital glitch, robotics, an ancient divinatory book, an historical incident, the pulse of a city,

rhythmic variation, a cinematic mise en scene, a fragment of captured documentation, turbulent water, a particle of speech, a feedback loop, the logic of software, the pattern of the heavens.

Perhaps it starts with a guitar. A sound suddenly exists. A stone in water, over time, furred by green moss. A sheet of metal, over time, mottled and scarred by rust. A slice of bread, over time, growing into a lush forest of mould. A jar of beans, over time, sprouting edible horned crooked limbs.

A crystal garden, the sound grows in reeds and streams, blown like spider web strands, glittering and invisible, pulsing with translucent colour, bubbling and imploding, fraying and powdering. Cloud formations, sound clusters curl and bump, low fat throbs breaking through frost patterns of extruded feedback. Sounds cycle, over time; sounds slither through time, disguised as pitch relationships. Like qualities of air, sounds meet and become each other. The sound seems to rise, to lift, though this is an illusion. Although the sound seems to mirror patterns in the observable world, the sound is learning the order of things. The sound is learning to develop, to think, to live.

- David Toop⁸

IX. Electronic Music and Electronica

Introduction

A low electronic hum. A few seconds later, a series of descending, sustained sine tones accumulates on top of it. For a moment, all the sounds seem to be coalescing toward the sense of a chord, only to fuse together into a drone running parallel to the rumble below. Traversed by a spongy, bent bass tone, the sound falls into a slab of white noise. Karlheinz Stockhausen's *Kontakte* comes to mind; or maybe something by Iannis Xenakis. But when this electronic reverie is broken by a fat and bristling 4/4 throb, we realize that these guesses are decades off, and that we are listening to electronic music in the wake of Techno: Panasonic's 1997 record *Kulma*.¹

Classic electronic music sprung up in Europe, United States, and Japan during the early 1950s, led by avant-garde composers interested in radical innovation and in more finely controlling their musical materials. Yet, despite the pedigree of its early practitioners, electronic music was, at best, barely tolerated by the classical music establishment, and, for decades, remained marginal. Progressive rock drew on many of the latest technological resources; but rarely did it fully explore the aesthetic possibilities implicit in early electronic music. Likewise, within the punk and industrial subcultures, noise was tied to rebellion and transgression, and harnessed to conventional rock forms, leaving its sonic ontology unexplored. Finally, the experimental possibilities of beat-driven club music remained subordinate to its utilitarian purpose: its ability to keep people on the dance floor. Only in the mid- to late-1990s did these musical paths cross, generating what became known as *electronica*. Producers such as Panasonic (eventually Pan Sonic) reached back to Schaeffer and Stockhausen while also drawing from house, techno, and hip hop. Along with Autechre, Oval, Pole, Alva Noto, and others, they represented a new breed of electronic experimentalism that operated outside the academy and the pop mainstream alike.

Pierre Schaeffer's early experiments generated a flurry of excitement about *concrète* techniques and the possibilities of acousmatic listening.

Schooled in these techniques, some of Europe's premier composers turned their ears toward a new and different set of possibilities. Stockhausen, Luigi Nono, Luciano Berio, György Ligeti and others moved away from the referentiality of concrete sounds and began to delight in the abstract possibilities of the electronic signal. Taking advantage of primitive equipment purpose-built for electronic music and recording (parametric equalizers, ring modulators, plate reverb, etc.), they began to explore pure sine tones and the electronic synthesis of sound. The resulting music was highly abstract, having lost all reference to traditional musical timbres and narrative. Above all, this music was driven by the discovery of a new sonic world inhabited by sounds that had never been heard before.

While producing highly virtuosic music, early electronic music composers were nevertheless constrained to construct their pieces via painstaking tape-manipulation techniques, cutting and splicing tiny sections of recorded electronic material. Expensive and enormous, the electronic equipment on which they composed was confined to wellfunded research centers at universities and radio stations. In the mid-1960s, however, Robert Moog and Donald Buchla began to produce small and relatively inexpensive modular synthesizers, opening the world of electronics to rock and jazz. But these early instruments had their limitations. Monophonic keyboards and complex patches made them cumbersome to work with and still painstaking. In reaction, the music industry moved quickly to produce digital synthesizers with polyphonic keyboards and presets in place of patches. Presets may have been useful for rock and jazz musicians; but they effectively thwarted the sonic experimentation and discovery so valuable to the previous generation.

Fast forward to the early 1990s. A technologically adept generation raised on home computers and video games begins to explore the equipment at its disposal: discarded analogue synths and drum machines picked up at junk shops, DJ equipment, the latest computer hardware, and commercial and homemade software. In their own bedrooms and basements, they began to recapitulate the experiments and discoveries of early electronic music. It's not surprising, then, that this generation came to hear the whole history of electronic experimentation as vital and contemporary: to learn from Stockhausen, Pauline Oliveros, and David Tudor as well as Kraftwerk, Afrika Bambaataa, and Juan Atkins, and to draw upon these sources to make experimental music that lands squarely between the concert hall and commercial pop radio.

Note

1 The tracks described are "Luotain" and the opening of "Vapina" on Panasonic's *Kulma*, Mute/Blast First 9032.

Introductory Remarks to a Program of Works Produced at the Columbia-Princeton Electronic Music Center

Jacques Barzun

Renowned historian Jacques Barzun helped to found the discipline of cultural history. His father, Henri-Martin Barzun, was a noted poet who, as early as 1913, composed Dadaist "simultaneous poems" to be performed with phonographs; Guillaume Apollinaire, Marcel Duchamp, and Edgard Varèse were regular visitors to the family's Paris home. In 1919, Jacques Barzun moved to the United States to attend Columbia University, where he also received a doctorate, became a professor, and where he remained until his retirement in 1975. He is the author of more than thirty books of history and criticism, among them Darwin, Marx, Wagner (1941), The House of Intellect (1959), Classic, Romantic, Modern (1961), The Use and Abuse of Art (1974), and From Dawn to Decadence: 1500 to the Present: 500 Years of Western Cultural Life (2000). An early champion of electronic music, Barzun was invited to introduce the inaugural concerts of music at the Columbia-Princeton Electronic Music Center, established in 1959. These concerts, held at Columbia on May 9 and 10, 1961, featured works by Otto Luening, Vladimir Ussachevsky, Milton Babbitt, Mario Davidovsky, Bülent Arel, and Halim El-Dabh. On each night, Barzun delivered this brief address, offering advice for listening to electronic music that, more than forty years later, still seems apt.

Your presence here, at a concert of electronic music, is a compliment to the composers, as well to the Universities that sponsor their work; and while I extend to you a welcome on behalf of the Universities I also wish to convey the composers' hope that you will be as gratified by hearing their works as they are by your willingness to listen.

No doubt your expectations are mixed. You are ready to be surprised, to have your curiosity satisfied, and possibly even to experience snatches of enjoyment as you would at an ordinary concert. If that is your state of mind I am fairly sure you will not be disappointed. But it may be that you are here in a mood of combined trepidation and resistance: this, after all, is the Age of Anxiety ... Or you may be bent on proving that electronic

music is not music—doing this by the most painful test of endurance—or else you may be feeling caught because you have been brought by a friend and friendship is dearer to you than prudence.

If for these or any other reasons you are ill at ease, allow me to suggest a very few considerations which should make you more serene, while leaving you your full freedom of opinion, your entire right to dislike and reject. I suggest, to begin with, that we are not here to like or approve but to understand. And the first step to understanding a new art is to try to imagine why the maker wants it the way it is. That is interesting in itself, even if we ultimately disown the product. To understand in this fashion does not mean to accept passively because someone says that the stuff is new and therefore good, that many believe in it, that it's going to succeed anyway, so it's best to resign oneself to the inevitable. This kind of reasoning has gone on about modern art for some thirty years and nothing has been more harmful to the arts. It is an inverted philistinism, which eliminates judgment and passion just as surely as did the older philistinism of blind opposition to whatever was new.

What then is the decent, reasonable attitude to adopt? Very simple: make the assumption, first, that the old style—whatever it is—has exhausted its possibilities and can only offer repetition or trivial variations of the familiar masterpieces. I do not suggest that you should be convinced that your favorite music is obsolete. I invite you to *assume* that it may be: for by trying to think that it is, as the new composer obviously has done, you will begin to discover what he is up to. By way of encouragement let me remind you that you make this very assumption automatically four or five times in every classical concert, in order to adjust your ear to the changes in style between Bach and Mozart, Mozart and Richard Strauss, and—if you can—between Strauss and Alban Berg. If styles and genres did not suffer exhaustion, there would only be one style and form in each art from its beginnings to yesterday.

But, you may say, electronic music is something else again; it is out of bounds; the jump is too great. There is no semblance of scale, the sounds are new, most of them are in fact noises. Ah noise! Noise is the most constant complaint in the history of music. In the heyday of music it was not only Berlioz and Wagner who were damned as noisy. Mozart before them and Haydn, and even earlier Lully and Handel. I suspect that the reason Orpheus was torn to pieces by women is that he made horrendous noises on his lyre while they were washing clothes at the river in what they thought was melodious silence. The argument of noise is always irrelevant. The true question is: does this noise, when familiar, fall into intelligible forms and impressive contents? To supply the answer takes time. One hearing, two, three, are not enough. Something must change in the sensibility itself, in the way that a foreign language suddenly breaks into meaning and melody after months or years of its being mere noise. As a veteran of the premiere of Stravinsky's *Sacre du Printemps* in Paris, I can testify to the reality of the change. At the end of the piece, the conductor Pierre Monteaux turned around amid the furious howls of the audience and said that since they had liked the piece so much he would play it again. The response was no better and the police had to quell the tumult. But now, fifty years later, the young accept those hammering rhythms and dissonant chords as if they were lullabies. They relish them while dallying in canoes, at the movies to accompany Disney's abstractions, and at the circus, where the music is used for the elephants to dance to.

Associations, in short, and assumptions rule our judgments. They govern our feelings, which we think are altogether spontaneous and truthful. But our sensibility is always more complex and more resourceful that we suppose, and that is why I have ventured to bring to your conscious notice what you knew all the time but might not allow for sufficiently in listening to electronic music for the first time.

The work "electronic" suggests a final objection with which it is will to have come to grips. Most people of artistic tastes share the widespread distrust and dislike of machinery and argue that anything pretending to be art cannot come out of a machine: art is the human product par excellence, and electronic music, born of intricate circuits and the oscillations of particles generated by Con Edison, is a contradiction in terms. Here again the answer is simple: the moment man ceased to make music with his voice alone the art became machine-ridden. Orpheus' lyre was a machine, a symphony orchestra is a regular factory for making artificial sounds, and a piano is the most appalling contrivance of levers and wires this side of a steam engine.

Similarly, the new electronic devices are but a means for producing new materials to play with. What matters is not how they are produced but how they are used. And as to that we are entitled to ask the old questions—do we find the substance rich, evocative, capable of subtlety and strength? Do we, after a while, recognize patterns to which we can respond, with our sense of balance, our sense of suspense and fulfillment, our sense of

emotional and intellectual congruity? Those are the problems, beyond the technical, which our composers have tried to solve. We shall now attend to their handiwork with pleasure and gratitude (I hope) and certainly with a generous fraction of the patience they have themselves invested in their efforts to please us.

From the liner notes to *Columbia-Princeton Electronic Music Center*, Columbia MS 6566 LP (1964). Used by permission of the author.

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Electronic and Instrumental Music

Karlheinz Stockhausen

Karlheinz Stockhausen is the most influential of the European avant-garde composers who emerged after World War II. He quickly rose to prominence in the early 1950s as a proponent of "total serialism," which sought to organize all the parameters of music according to the rules of serial composition. Stockhausen briefly studied at Pierre Schaeffer's Paris studio, but quickly rejected Schaeffer's concrète approach in favor of electronic music generated from scratch. In 1953, along with Herbert Eimert, Stockhausen founded the Westdeutscher Rundfunk (WDR) studio for electronic music in Cologne, where he produced some of the first purely electronic compositions and important works such as Gesang der Jünglinge (1955–1956), Kontakte (1959–1960), Telemusik (1966) and Hymnen (1966– 1967). Concurrent with his early electronic work, Stockhausen composed Klavierstuck XI (1956), among the first and most important examples of "aleatory" composition. In this essay—originally delivered as a lecture in 1958— Stockhausen explains the origins and nature of electronic music, and defends its revolutionary features. The essay hearkens back to Edgard Varèse's call for the "liberation of sound" and to Pierre Schaeffer's call for a pure music freed from traditional instruments, sonorities, and modes of listening.

I

Electronic music has existed since the year 1953. Thanks to Hanns Hartmann, General Director of the West German Radio in Cologne, a Studio for Electronic Music was founded under the direction of Herbert Eimert. Five public presentations in the broadcasting auditorium of the WDR and many radio broadcasts and public presentations in other cities over the past six years have demonstrated the results of our work.

How did this music come about?

Since 1950—setting out from the study of scores that were written in the first half of this century—everything that makes European music what it is has been called into question: not only musical language (its grammar, its

vocabulary) but also the sound material employed until now, the tones themselves. The historical development of instruments was closely tied to a music that is no longer our music. Since the turn of the century the idea of saying something new has existed, but the old sound symbols continued to be used. In this way a contradiction came into being between the physical nature of the heretofore employed instrumental tones on the one hand, and the new musical conceptions of form on the other.

In "harmonic" ("tonal") music the sound material and the mode of construction of the instruments were in intimate agreement with musical form. The harmony between structure of material and form was definitively destroyed by 12-tone music and its broader consequences in the realm of instrumental music. Precisely for this reason the radical 12-tone music of the first half of this century seems "out of tune," because one operated nonfunctionally with traditional sound material. This contradiction has gained for Expressionist music its best results. In 12-tone composition the harmonic and melodic relationships between the fundamental tones have nothing in common with the microacoustic relationships in the interior of instrumental sounds.

What are the consequences?

What constitutes the difference between instrumental tones, between any perceptible sound events whatever—the violin, the piano, the vowel a, the consonant sh, the wind?

In 1952–1953, in the Groupe pour Musique Concrète in Paris, I made many analyses of instrumental sounds—especially percussion sounds, which were recorded on tape in the Musée de l'Homme—of speech sounds and noises of all kinds. The sounds and noises were recorded in various spaces (anechoic chamber, normally damped room, echo chamber). Electro-acoustic apparatuses (filters, oscillographs, etc.) served to determine attributes of sound. What in music is ordinarily called a "tone"—without questioning what it actually is—proved to be a more or less complex vibrating structure that reaches our ear. Acousticians speak of "sound spectra," and describe them by means of a series of factors in a space-time diagram. Sound analysis with electrical filters is comparable to the analysis of light with the aid of prisms. Physicists today are only slightly interested in the investigation of sound. For theoretical studies in this area, the literature of phonetics has been the most prolific for a long time now. So the musician—for whom the question of research in sound had become acute for the first time—had to rely to a large extent upon his own practical investigations. He had to enlarge his *métier* and study acoustics in order to get to know his material better. This will become indispensable for all those composers who are not content to accept the sound phenomena as given, but rather wish to resist the dictatorship of the material and extend their own formal conceptions as far as possible into the sounds in order to arrive at a new concordance of material and form: of acoustical microstructure and musical macrostructure.

The existing instrumental sounds are something already preformed, dependent on the construction of the instruments and the manner of playing them: they are "objects." Did today's composers build the piano, the violin or the trumpet? Did they determine how these instruments ought to be played? What does an architect do when he is to build a cantilever bridge, a skyscraper or an aircraft hangar? Does he still use clay, wood and bricks? New forms require prestressed concrete, glass, aluminium— aluminium, glass, and prestressed concrete make the new forms possible.

So the thought arose of giving up preformed instrumental sounds and composing the sounds themselves for a particular composition: artificially assembling them according to the formal laws of this and no other composition. Composing goes one step further than before. The structure of a given composition and the structure of the material employed in it are derived from a single musical idea: structure of material and structure of the work ought to be one.

In short: it has become technically feasible to realize this aim. Practical analyses and studies led us to the idea: if sound spectra can be analysed, perhaps they can also be synthetically generated. Goeyvaerts wrote to me at the time in Paris, that he had made inquiries in Brussels and learned something about generators of sine waves: By all means I ought to set about assembling sound spectra with the aid of such sine generators. In the Paris Club d'Essai, I made the first experiments in the synthetic composition of a sound spectrum with sine oscillators.

In 1953 my work at the Cologne Radio began. Among the sound sources of the Cologne Studio were first of all electronic performance instruments—a melochord and a Trautonium—which served as sound sources in some experiments but then, soon after the idea of sound-spectrum synthesis was adopted, were no longer used.

Before the particulars of this work are described here, I would like first to refer to some compositions for instruments that came into being at this time. They should act as a reminder that the language of new instrumental music and of electronic music is the same (up to now; however, in the long run it will scarcely be possible to keep electronic music free of vulgarization). When visitors come to the Cologne studio to hear electronic music, they very quickly get over the initial shock caused by the unfamiliar sounds and ask why there is no rhythm (they of course mean regular metres with bars having three or four beats), why no melodies, no repetitions, etc. And so the discussion usually doesn't deal at all with electronic music as such, but rather with the manner in which it is composed—the language. For this reason we first play tape recordings of works by Anton Webern that, for example, he had already composed in the year 1910. Then we play newer instrumental compositions by Edgar Varèse, John Cage, Pierre Boulez, Henri Pousseur.

In some instrumental compositions that I had written shortly before beginning to compose with electronic sounds, I made the attempt to integrate all the characteristics of the material into one uniform musical organization—with the exception of instrumental timbres. I had to accept these timbres as given, and it was not possible to produce a relationship, let alone a continuum, between a clarinet tone and a piano tone. The only option was to arrange these instrumental colours in a succession of contrasts—analogous to a colour succession like red–yellow–blue—or by mixtures, something like composing timbral intervals or timbral chords. It was impossible to have all of the various timbres issue from a common embryo, so that a clarinet tone and a piano tone could appear as two different exemplars within one "sound family"—a more comprehensive sound continuum: what a utopian scheme, as long as one has to write for a classical orchestra.

III

What technique was employed in the sound synthesis for the first electronic studies?

For some decades already there have been electro-acoustic generators, or oscillators, in acoustical laboratories and in the technical divisions of

broadcasting institutions. In the beginning we worked only with sine-tone generators. They are called sine-tone generators because the oscillations produced satisfy the sine function. In comparison with any instrumental tone, which has a certain number and a certain selection of "partials" (also called "overtones") in addition to the "fundamental tone," the "sine tone" is a "pure tone" (without "partials"); each "partial" in a "stationary sound spectrum" is such a "sine tone."

The number of partials in a sound spectrum, the frequency of each partial, the amplitude curve of each partial, the duration of each partial in relation to the other partials in their "onset transient" and "decay": these characteristics enable the differentiation of one sound spectrum from another. A sine tone in the middle register sounds somewhat like a flute, which, amongst the orchestral instruments, has the lowest number of partials. Such sine tones were therefore the first elements with which we "com-posed"—in the literal sense: put together—various spectra according to the structural demands of a particular composition. *Therefore every sound is the product of a compositional act.* The composer determines the various properties (also called "parameters").

Practically, the work with sine tones proceeded as follows (even at present, in Cologne we are still forced to work in this complicated manner due to a lack of more suitable equipment): a sine wave is recorded on tape, a second, third and so on are added. In the process, each sine wave receives its own intensity progression through electrical regulation, and then the intensity progression of the entire wave-complex (the "envelope curve") is adjusted once again. The sound's duration is determined by measuring and cutting the tape in centimetre lengths—proceeding from the tape speed, which is 76.2 or 38.1 centimetres per second. In this way, sound after sound is assembled and archived. When all the sounds for a composition have been prepared on tape, the pieces of tape are spliced together according to the score and, if necessary, copied again superimposed by using several synchronized tape recorders. Once the realization of a piece has been completed, the archived sounds and all intermediate results are erased again; there is therefore no sound catalogue which, after completion of a composition, might perhaps be enriched by some hundred or thousand more sounds "for general use."

It was necessary for the composer of electronic music to have found an adequate form of graphic notation, in order to describe all the details of sound production and assembly.

Obviously, therefore, no instruments—played by some interpreter according to a score—are employed. In electronic music, the interpreter no longer has any function. The composer, in collaboration with some technicians, realizes the entire work. Each working operation can be repeated until the desired precision has been achieved. The first results of the work just described were Eimert's *Glockenspiel*, Goeyvaert's *Composition No. 5*, Pousseur's *Seismogramme*, Gredinger's *Formanten*, and my *Study I* and *Study II*.

This music can only be played back over loudspeakers.

IV

It is clear that a composer of electronic music should not try to imitate timbres of the traditional instrumentarium or familiar sounds and noises. If, exceptionally, a sound of this kind is required, it would be unfunctional to generate it synthetically: it is recorded where it can most easily be found. If a speechlike sound is to be employed, then it is better to record speech rather than to generate it synthetically. In general, one can already recognize a first criterion of quality in an electronic composition in the extent to which it is kept free of all instrumental or other sound associations. Such associations distract the listener's mind from the autonomy of each sound world presented to him, because he is reminded of bells, organs, birds or water-taps. Associations are created through our experiences and fade away again; they say nothing about the form of a piece of music or about the meaning of the sounds or noises in a particular composition. Hence we ought to draw the obvious conclusion that electronic music sounds best only as electronic music, which is to say that it includes as far as possible only sounds and sound relationships that are unique and free of associations, and that make us believe that we have never heard them before.

However, it is also clear that the diversity of sounds that can be produced electronically is not unlimited. Electronic music as a genre has in defiance of all our initial notions of abolishing "genres" in the realm of music and of including all possible sound processes—its own phenomenology of sound, which is conditioned not least by loudspeaker playback.

Let's take as an example *Artikulation* by Ligeti. When this piece is performed, the audience always laughs at three points: at the first point

heartily, at the second somewhat less so and at the third, they roar with laughter. As they were working on the piece in the studio, the composer and his collaborators laughed as well. Also in new instrumental music, unusual sound combinations stimulate laughter—for example, in the works of the American, Cage. Why is this? Certain sound events are associated with the place and circumstances where they ordinarily occur, and the unusual juxtaposition of sounds and noises that have such associations, as ingredients in the same piece of music, seems comical to begin with. The sound of a pea whistle and the sound of a piano—each by itself—doesn't cause any laughter, but piano tones and pea-whistle tones together in one of Cage's compositions create a comical effect for the audience.

V

In the existing compositions of electronic music, sounds with harmonic partial-relationships—which by way of comparison can also be described as "vowel sounds"—have been used much less than noises. In Western music, noises have been employed only rarely, and most musicians regard such consonant-like sound events as musically inferior material. Percussion instruments, which produce sound events with only approximate or entirely indeterminate pitch, have been given very little attention until now. For this reason, they have remained at an extremely primitive level in the development of instrument construction. This is accounted for by the one-sided harmonic-melodic development in the realm of fixed fundamental pitches with harmonic partial-tone relationships. For this reason, it can be said that Western music up to this point has been principally a music of vowel sounds, a "music of pitch." The final stage in this development was 12-tone music.

Schönberg wrote a treatise on harmony that referred only to the relationships of fixed frequencies; in the perspective of his time it was of no consequence to take the "consonantal" sound events into consideration and attend, in inseparable connection with harmony, to the questions of metrics, rhythm and dynamics, much less those of sound colouristics. So he and his school were occupied all their lives with problems of a new composition of pitches, in which new laws of equality of rights were formulated, whereas they carried on being slaves of classical metrics, rhythms, dynamics and colouristics which, in virtue of their hierarchical laws, stand in flagrant contradiction to dodecaphonic harmony and

melody. For this reason Schönberg's allergy to the concept of "atonal music" is understandable. Today one recognizes that this concept is a harbinger of a fundamental alteration of the conception of musical material: namely, that music with "tones" is a special case as soon as sonic events with constant periodic fundamental vibrations and harmonic partials are fitted into the continuum of all "timbres." In an "atonal" music, then, "tones" simply do not occur, but rather sonic events that are described with the comprehensive term "noises"—therefore aperiodic, "complex" vibrations. For us, vowels and consonants—sounds and noises—are in the first instance nothing but material. Neither the one nor the other of these acoustical phenomena is by nature good or bad. The only crucial thing is what one makes out of them.

Already in the first half of the century the compositions *Ionisation* by Edgar Varèse and *Construction in Metal* by John Cage paved the way for a completely new development, independent of music with tones. The beginnings of *musique concrète* were stimulated by Varèse and Cage, as well.

The category of noises is no less subtly differentiated than the category of sound spectra. On the contrary: In some languages, for example, we find a predominance of unvoiced consonants over vowels. It is natural that in the new musical language the *aperiodic phase relationships determine all aspects of the form—in its details as well as on a larger scale*; in this way periodicity becomes an extreme case of the aperiodic. Consonantal—hence noise-like—sonic phenomena play an especially important role in this; and their significance will increase still further.

As an example I might mention *Scambi* by Henri Pousseur. In this piece, only noises of more or less determinable pitch-register are employed. We speak of noises with different frequency bandwidths and call them "coloured noises." For the production of such "coloured noises" we can in each case superimpose sine waves in dense bundles, but generally we choose a more direct method: the initial material is supplied by a so-called noise generator, which produces "white noise" (the concepts of "white" and "coloured" are borrowed from optics). "White noise" can be described as the simultaneity of all audible vibrations: it sounds like the roar of the sea. From this "white noise" we can filter out frequency bands using all sorts of electrical filters—hence "coloured noises" (consonants like *sh*, *f*, *s*, *ch* etc. are such "noise spectra"). The sound continuum between the "pure tone" and "white noise" can—for now—be defined such that the "pure

tone" is the narrowest "noise band" or, vice versa, that "white noise" is the densest superimposition of "pure tones."

VI

Where is electronic music produced?

The first studio, as has been said, was founded at the Cologne Radio. This is characteristic. The present-day acoustical communications media at our disposal—and perhaps we are also at theirs—are in the main radio, tape and gramophone record. Tape, gramophone record and radio have profoundly changed the relationship between music and listener. Most music is heard over loudspeakers.

And what have record and radio producers done up to this point? They have reproduced music which in past ages was written for the concert hall and opera house; exactly as if the cinema had been content only with photographing old stage plays. And the radio attempts to give these concert and opera news-reports such technical perfection that for the listener differentiating between the original and the copy should become ever less possible: the illusion must be complete. This conscious deception has become ever more perfect, just as with modern printing techniques Rembrandt reproductions are made nowadays which not even an expert can tell from the original any longer. All this is heading toward a society that lives, even culturally, out of cans.

Even though radio had now come to resemble a canning factory, something unforeseen happened: electronic music came into play—a music that proceeded completely functionally out of the specific conditions of broadcasting. It is not recorded with microphones on a stage somewhere in order to be preserved and later reproduced, but rather it comes into existence with the aid of thermionic valves, exists only on tape, and can only be heard over loudspeakers.

Exactly what the birth of a legitimate, functional loudspeaker music means can only be appreciated by those who have once looked through the glass window of a radio- or gramophone-record recording studio where, as in an aquarium, the musicians play literally to the walls for hours on end; with great precision and without spontaneity; without any contact with an audience. And what do they play? Music that was written for quite different purposes, without any thoughts about the radio.

Regardless of how electronic music may presently be judged: its

necessity already consists in the sole fact that it shows the way for radiophonic music production. Electronic music no longer employs tape and loudspeaker for reproduction, but rather for production.

The listener at the loudspeaker will sooner or later understand that it makes more sense that music coming from a loudspeaker be music that can be heard only over a loudspeaker and by no other means.

Incidentally, the same problem poses itself today in the case of television. For some time to come we will see television producers employing the new medium unfunctionally, that is to say, wrongly. It will only be used functionally when the camera—which corresponds to the microphone of radio—is used only for topical "live reporting" or not at all, and television-specific electronic-optical compositions are transmitted instead.

VII

Since the founding of the Cologne studio, further studios for electronic music have been set up: at the Milan radio station under the direction of the composer Luciano Berio, who works there together with the composer Bruno Maderna; at Radio Tokyo, where the young Japanese Toshiro Mayuzumi and Makoto Moroi work; at the Philips factory in Eindhoven, where the composers Henk Badings and Edgar Varèse have worked; at the APELAC company in Brussels-which produces electronic equipmentwhere the composer Henri Pousseur works; at the Warsaw radio station, where the composers Kotonsky, Krenz and Serocki work; at the Southwest German Radio, Baden-Baden, where the composer Pierre Boulez has recently started to work; at the French Radio, whose studio for *musique concrète* in recent days has ever more frequently been designating itself as a studio for electronic music; at Columbia University, where the composers Vladimir Ussachevsky and Otto Leuning work. More radio stations are currently preparing studios: Radio Stockholm, Radio Helsinki, Radio Copenhagen and the BBC in London.

All of these studios currently work at a very primitive level with equipment that was built for other purposes—for sound analysis or technical measurement—and which are to be found in all electro-acoustic laboratories and broadcasting institutions. This provisional condition is inhibiting, because the imagination of musicians is far in advance of the possibilities for technical realization, and time and effort do not stand in a reasonable relationship to the result. For purely financial reasons it is still not possible to develop a standardization for studio facilities, even though it is an urgent necessity. In the USA, above all an apparatus has been developed by RCA, the "RCA Mark II Electronic Music Synthesizer," which in my opinion complies very well with the requirements of an electronic music studio. The studio of Columbia University recently obtained the necessary funding and has therefore become the first to have this apparatus at its disposal.

The first experiments with computers (Massachusetts Institute of Technology and the University of Wisconsin, Madison) seem important to me, in that they concentrate composition exclusively on the planning of a work and wish to leave the working out of the realisation, including the automatic production of a structural pattern, to the machines. Perhaps one of the most extreme consequences would be that composers would have to learn to completely change their way of thinking. Whereas heretofore the act of composing in fact consisted in the selection of very specific elements and constellations of elements according to the sonic conception and its presentation in accordance with the material, in the planning for electronic compositional automatons, one would be much less concerned with determining the axioms that define desired results than with determining the axioms of those structures that are not desirable. The electronic automaton is constructed for the purpose of composing pieces from a number of elements and rules for associating all possible combinations defined by the composer; therefore the planning work must eliminate all the undesirable combinations down to a few, or even just one, which are to be employed.

VIII

Does the rise of electronic music foreshadow the end of the era of interpreters? Are performing musicians to be condemned in the future to go on playing only old instrumental music for some "collegium musicum" concerts and in tape-recordings for music museums?

It is a fact that in the evolution of instrumental music the performing musician has been condemned more and more to converting increasingly complicated scores into tones. Musicians became a sort of machine substitute, and finally there no longer remained any room for "free decision," for interpretation in the best sense of the word. It was an entirely natural development that the realization of sounds was finally transferred to electronic apparatuses and machines. These apparatuses produce the desired results exactly according to technical data; and besides, one does not have to persuade them for hours on end in discussions about the meaning of new music before they will produce a single note.

But it is noteworthy that the same composers who had called electronic music to life, *parallel* to this work in the years since 1956–1957, published compositions which present the performing musician with a completely new responsibility. In contrast to electronic music, in which all sonic events are predetermined down to the smallest details and are fixed by technical criteria, in this new instrumental music the performer is granted fields for free, spontaneous decisions, to which machines are not amenable. Human beings have qualities that can never be replaced by a robot; and robots have possibilities that exceed certain limits of human capability, even though—or, more precisely, because—they were invented by humans; they ought to assist humans to obtain ever more time for the properly human, for creative responsibilities.

Directed chance has recently grown in significance for such compositions, which are to be played by people in the presence of the listeners. The uniqueness of a performance (unrepeatable like the performer himself, who is never the same); the various degrees of freedom of action, experienced by the composer and described in a composition (which the performer responds to intellectually, instinctively or intellectually-instinctively); the determination of the performance duration of a work and even the choice of the number of musicians who are to take part in a performance: all of these are criteria that depend on the performing musicians and give them a degree of responsibility that they never have previously had.

Examples are the *Concert for Piano and Orchestra* (1957–58) by John Cage, which made use of "chance operations" in composition for the first time; the *Third Piano Sonata* (1958) by Pierre Boulez; the work for two pianos, *Mobile* (1958), by Henri Pousseur; and my *Klavierstück XI* (1956).

Apropos of this new instrumental music it has often been said that it involves musical improvisation, such as is familiar from the thorough-bass period or from jazz music. In the works just mentioned, however, it is not the case that the instrumentalist invents something to add to some basic scheme or other provided by the composer—like melodies over a figured
bass, like variations on a given basic melody, or like melodic inventions within a given basic rhythmic and harmonic scheme in jazz. The composers of the works mentioned have determined all the elements and the rules of connection. But they have formulated their scores in such a way that at certain points in the course of a work there exists not just one valid option for moving on but rather several equally valid paths are often left open, which can be pursued either during composition or, analogously, in the moment of performance as well (the choice of one path may also be further dependent upon what a simultaneously performing musician is doing, as in Pousseur's piece).

This new kind of instrumental music still must operate with classical instruments. Therefore it momentarily cannot be helped that the initially mentioned contradiction between construction and manner of playing these instruments (as well as the physical structure of their sounds) on the one hand, and the new formal conceptions on the other, now become even more clearly evident than at the time electronic music came into being. This situation is not changed in the least when Cage dismantles classical instruments and has the separate parts blown, knocked, rubbed or bowed. Today it is passé to wish to demonstrate by such methods the "damaging of the world" and "total anarchy." We don't need any more scandals. What we need now more than anything else is a continuum instrument. Through the emergence of a new instrumental music, in fact, it has become meaningful to think about new, suitable instruments, and only now are we slowly realizing how these new instruments might be constructed.

If one believes in the idea of a new instrumental music, one must accept the fact that it will have even more difficulty in prevailing than electronic music. The whole question of whether we are capable of finding and animating a new, irreplaceable form of collective listening through listening to the radio will be dependent exclusively on the composers who work on this new instrumental music. In a way similar to spatial electronic music, some of the new instrumental works functionally incorporate into composition the direction and the movement of the sounds in space. A radio transmission—even a two-channel one, as is already possible today —can only convey an approximate idea of this "three-dimensional" music, and people must go into the space where the musicians are playing, if they really want to experience this music. In this way instrumental music could hold its own alongside electronic music. In every realm one has to work functionally; every device ought to be employed productively: generators, tape recorders, loudspeakers ought to bring forth what no instrumentalist could ever be capable of playing (and microphones should handed over to the news reporters); score, performer and instrument ought to produce what no electronic apparatus could ever bring forth or imitate or repeat.

Composing electronic music means: describing that which sounds in mechanical and electro-acoustical dimensions and thinking only in terms of machines, electrical apparatuses and circuit diagrams; reckoning with one single production and unlimited repeatability of the composition.

Writing instrumental music—now once more—means: inducing the performer's action by means of optical symbols and appealing directly to the living organism of the musician, to his creative, ever-variable capacity for reaction; enabling multifarious production and unrepeatability from performance to performance.

Then electronic and instrumental music would mutually complement one another, distance themselves ever further and faster from each other only to awaken the hope of actually meeting occasionally in one work.

The first works in which electronic and instrumental music are combined were premiered in 1958. The idea is to find—beyond contrast, which represents the most rudimentary kind of form—the higher, inherent laws of a bond.

Delivered as a lecture in October 1958 and published in German in Die Reihe 5 (Vienna: Universal Edition, 1959), translated by Jerome Kohl in collaboration with Suzanne Stephens and John McGuire. Used by permission of the Stockhausen Foundation for Music, 51515 Kürten, Germany, <u>www.karlheinzstockhausen.org</u>. All Stockhausen scores, CDs, and books can be ordered at <u>www.stockhausenverlag.com</u>.

Stockhausen vs the "Technocrats"

Karlheinz Stockhausen, Aphex Twin, Scanner, and Daniel Pemberton

The music of Karlheinz Stockhausen (see Chapter 65) profoundly affected art music in the late twentieth-century. It also became an important influence on the group of electronic music producers who emerged in the 1990s with roots in house and techno. In 1995, Dick Witts, a reporter for BBC Radio 3, sent a package to Stockhausen containing music by Aphex Twin ("Ventolin" and "Alberto Balsam"), Plastikman (Sheet One), Scanner ("Micrographia," "Dimension," and "Discreet") and Daniel Pemberton ("Phoenix," "Phosphine," "Novelty Track," and "Voices"), and asked him to comment on these pieces. In response to Stockhausen's comments, Rob Young, then deputy editor of The Wire magazine, met with Aphex Twin, Scanner, and Pemberton (Plastikman was unavailable) to solicit their views on the compositions Stockhausen had recommended to them. Aphex Twin (a.k.a. Richard D. James) is an English producer of "intelligent techno" and ambient music who runs the influential Rephlex record label. Plastikman (a.k.a. Richie Hawtin) is an acclaimed Canadian DJ and producer of minimalist techno who also runs the Plus 8 and Minus record labels. Englishman Scanner (a.k.a. Robin Rimbaud) made his reputation in the early 1990s by using an airwave scanner to eavesdrop on cellphone conversations that he incorporated into his ambient, electronic musical sets. Daniel Pemberton is an English writer and ambient producer, and soundtrack composer.

I. Advice to clever children: Stockhausen on the "Technocrats"

Can we talk about the music we sent you? It was very good of you to listen to it. I wonder if you could give some advice to these musicians.

I wish those musicians would not allow themselves any repetitions, and would go faster in developing their ideas or their findings, because I don't appreciate at all this permanent repetitive language. It is like someone who is stuttering all the time, and can't get words out of his mouth. I think musicians should have very concise figures and not rely on this fashionable psychology. I don't like psychology whatsoever: using music like a drug is stupid. One shouldn't do that: music is the product of the highest human intelligence, and of the best senses, the listening senses and of imagination and intuition. And as soon as it becomes just a means for ambiance, as we say, environment, or for being used for certain purposes, then music becomes a whore, and one should not allow that really; one should not serve any existing demands or in particular not commercial values. That would be terrible: that is selling out the music.

I heard the piece Aphex Twin of Richard James carefully: I think it would be very helpful if he listens to my work *Song Of The Youth* [*Gesang der Jünglinge*, 1955–1956], which is electronic music, and a young boy's voice singing with himself. Because he would then immediately stop with all these post-African repetitions, and he would look for changing tempi and changing rhythms, and he would not allow to repeat any rhythm if it were varied to some extent and if it did not have a direction in its sequence of variations.

And the other composer—musician, I don't know if they call themselves composers...

They're sometimes called "sound artists"...

No, "Technocrats," you called them. He's called Plastikman, and in public, Richie Hawtin. It starts with thirty or forty—I don't know, I haven't counted them—fifths in parallel, always the same perfect fifths, you see, changing from one to the next, and then comes in hundreds of repetitions of one small section of an African rhythm: duh-duh-dum, etc, and I think it would be helpful if he listened to *Cycle* [*Zyklus*, 1959] for percussion, which is only a fifteen-minute long piece of mine for a percussionist, but there he will have a hell to understand the rhythms, and I think he will get a taste for very interesting non-metric and non-periodic rhythms. I know that he wants to have a special effect in dancing bars, or wherever it is, on the public who like to dream away with such repetitions, but he should be very careful, because the public will sell him out immediately for something else, if a new kind of musical drug is on the market. So he should be very careful and separate as soon as possible from the belief in this kind of public.

The other is Robin Rimbaud, Scanner, I've heard, with radio noises. He is very experimental, because he is searching in a realm of sound which is not usually used for music. But I think he should transform more what he finds. He leaves it too much in a raw state. He has a good sense of atmosphere, but he is too repetitive again. So let him listen to my work *Hymnen* [1966–1967]. There are found objects—a lot like he finds with his scanner, you see. But I think he should learn from the art of transformation, so that what you find sounds completely new, as I sometimes say, like an apple on the moon.

Then there's another one: Daniel Pemberton. His work which I heard has noise loops: he likes loops, a loop effect, like in *musique concrète*, where I worked in 1952, and Pierre Henry and Schaeffer himself, they found some sounds, like say the sounds of a casserole, they made a loop, and then they transposed this loop. So I think he should give up this loop; it is too old fashioned. Really. He likes train rhythms, and I think when he comes to a soft spot, a quiet, his harmony sounds to my ears like ice cream harmony. It is so kitschy; he should stay away from these ninths and sevenths and tenths in parallel: so, look for a harmony that sounds new and sounds like Pemberton and not like anything else. He should listen to *Kontakte* [1958–1960], which has, among my works, the largest scale of harmonic, unusual and very demanding harmonic relationships. I like to tell the musicians that they should learn from works which already gone through a lot of temptations and have refused to give in to these stylistic or to these fashionable temptations...

II. Advice from clever children: The "technocrats" on Stockhausen

Aphex Twin on Song of the Youth

Mental! I've heard that song before; I like it. I didn't agree with him. I thought he should listen to a couple of tracks of mine: "Didgeridoo," then he'd stop making abstract, random patterns you can't dance to. Do you reckon he can dance? You could dance to *Song of the Youth*, but it hasn't got a groove in it, there's no bassline. I know it was probably made in the 1950s, but I've got plenty of wicked percussion records made in the 1950s that are awesome to dance to. And they've got basslines. I could remix it: I don't know about making it better; I wouldn't want to make it into a dance version, but I could probably make it a bit more anally technical. But I'm sure he could these days, because tape is really slow. I used to do things like that with tape, but it does take forever, and I'd never do anything like that again with tape. Once you've got your computer sorted out, it pisses

all over stuff like that, you can do stuff so fast. It has a different sound, but a bit more anal.

I haven't heard anything new by him; the last thing was a vocal record, *Stimmung*, and I didn't really like that. Would I take his comments to heart? The ideal thing would be to meet him in a room and have a wicked discussion. For all I know, he could be taking the piss. It's a bit hard to have a discussion with someone via other people.

I don't think I care about what he thinks. It is interesting, but it's disappointing, because you'd imagine he'd say that anyway. It wasn't anything surprising. I don't know anything about the guy, but I expected him to have that sort of attitude. Loops are good to dance to...

He should hang out with me and my mates: that would be a laugh. I'd be quite into having him around.

Scanner on Hymnen

It's interesting that I've not heard this before, and maybe Thomas Köner hasn't and so on, but you can relate it to our work. I don't know whether it's conscious or not. I was two years old when this was written! Stockhausen says he don't like repetitions: what I like about repetition is it can draw the listener and lull you into a false sense of security, but when it gets too abstract—this is cut-ups—I find it very difficult to digest over a long period of time. He's a lapsed Catholic, and there's the sense that it's meant to be a religious experience passing through these records, like a purging of the system. Whether you like it or not, you're affected in one way or another. I'd like to hear this live.

I prefer the gentler passages. I do find myself irritated by that barrage of sound against sound over a long period of time: an alternative kind of repetition. That's why I like Jim O'Rourke's work, because it works over long periods.

I wonder about him putting himself into the recording; is it a vanity thing, or part of the process? With the scanner, it's like live editing, which is like this as well. When you scan, if you don't like something you flick between frequencies, when you DJ you cut between records, and it is an art form as a form of live editing...

Reminds me of the Holger Czukay LP *Der Osten Ist Rot*, cutting between national anthems, like tuning through a radio: I don't know whether this is actually happening or not. This is very good actually—better than I expected. At the end there's a recording of him breathing. It's

quite uncomfortable—like being inside his head.

I take some of what he said about my music to heart. Part of what I'm interested in is transforming material. Lots of the sounds I use are off the scanner or the shortwave radio. Lots of people wouldn't realise that sometimes a bass sound isn't a keyboard bass sound: it's a little blip on the phone. So I do try and transform the material as much as possible. I disagree about repetition: I think, as John Cage said, repetition is a form of change, and it's a concept you either agree or disagree with. I like repetitions; I like Richie Hawtin's work for that very aspect. In a way it is like a religious experience: if his work is about spirituality, then this is a kind of alternative, non-religious spirituality, where you're drawn in by this block of rhythm; it's an incredible feeling, the way it moves you physically, and moves you in a dancefloor as well.

Things like this are designed to be listened to over long periods of time, and sometimes I think it could do with some editing. Most contemporary sound artists are working within a four- to ten-minute time scale, basically. And to be honest, for most people that's enough.

Daniel Pemberton on Kontakte

At first I expected someone hitting a piano randomly, but there were happenings in there, with stereo panning and effects. I was very impressed considering the time it was done: the 1960s. He was going on about how everyone's stuff was repetitive, but his stuff is the complete opposite: so unrepetitive that it never really got anywhere. Not necessarily a bad thing, but it didn't have any development in it: sounded like an Old School FSOL. When he recommends *Kontakte* for its "very demanding harmonic relationships," it sounds a bit suspect to me: the whole piece seems to be dealing far more with timbre than with harmonic relationship. It's obviously based around sound, and any harmonics on there, to the non-musical ear, sound like a piano hit randomly. It would be very good to put some hiphop breaks under, actually.

What he said about me was quite funny: he accuses me of old hat ... I was born in 1977, twenty-five years after [*Kontakte*], a longer time than I've lived. I'm still learning musical history. If my whole career goes down the pan, at least I've got a future with Mr Whippy! And for him to call eighths, ninths and tenths "kitschy"! The scales I commonly use aren't too adventurous, but that's because they're the ones that sound nice. The stuff I've done which is unlistenable, I haven't released because no one would

enjoy it.

It's good to have other people's views. I ignore them in the sense that I know what I want to do: his criticisms won't make me throw everything away and start working with bizarre new scales and fantastic new instruments. I know what he means about loops though; that's because I haven't got much equipment.

Get a chewn, mate! I think he should develop his music a bit more. Try and repeat some of the ideas, work on them, build them up; you can still change them. He should listen to a track off my forthcoming album, *Homemade*. Stockhausen should experiment more with standard melodies, try and subvert them; he should stop being so afraid of the normal: by being so afraid of the normal he's being normal himself by being the complete opposite. He should try to blend the two together: that would be new and interesting. To me, anyway.

From *The Wire* 141 (November 1995). Used by permission of Richard Witts, Lizzie Jackson for Soundbite Productions Ltd., and Tony Herrington for *The Wire*.

The Mysterious Power of the Infinitesimal

Éliane Radigue

French composer Éliane Radigue is a pioneer of sound installation and a major figure in the history of electronic music and minimalism. In the mid-1950s, she interned for Pierre Henry and, a decade later, became his assistant. To enable her to work at home, Henry loaned Radigue two tape recorders and a mixing desk, with which she began to experiment, at first producing musique concrète and then creating compositions with carefully controlled feedback. In 1969 and 1970, she presented several of these feedback compositions in gallery spaces as sound installations she called "sonic propositions" or "music without end." On trips to the United States, she met James Tenney, John Cage, Morton Feldman, and the New York Minimalists, and, in 1970, shared a studio with Laurie Spiegel at New York University, where she experimented with a Buchla synthesizer. The following year, she acquired an ARP 2500 synthesizer, which became her main instrument and with which she created long compositions of slowly evolving sound. In 1974, Radigue converted to Buddhism, which has marked her work ever since, providing thematic material for compositions such as Songs of Milarepa (1984), Jetsun Mila (1986), and the Trilogie de la Mort (1988–1993), based on the Tibetan Book of the Dead. In 2001, she began composing for acoustic instruments; in 2005, she joined Kaffe Matthews, AGF, and Ryoko Kuwajima in the laptop quartet Lappetites. In the following essay, written upon the completion of the acoustic compositions Naldjorlak I–III (2005–2009), Radigue reflects on her work, situating it within a grand history of sound that reaches back to the origin of the world.

In the beginning, there was the air's powerful breath, violent intimidating tornados, deep dark waves emerging in long pulsations from cracks in the earth, joined *with shooting* fire in a flaming crackling. Surging water, waves streaming into shimmering droplets...

Was it already sound when no ear was tuned to this particular register of *the* wave spectrum in this immense vibrating symphony of the universe? Was there any sound if no ear was there to hear it?

The wind then turns into a breeze, the base of the earth into resonance, the crackling fire into a peaceful source of heat, water, the surf against the bank, cooing like a stream.

Life is there.

Another level, another theme begins.

An organ adapts itself to transformation of a miniscule zone from the immense vibrating *spectrum* decoded into sounds captured, refined, meaningful.

Crackling, roaring, howling and growling, the noises of life cacophony punctuating the deep *ever-present* rhythm of the breath, pulsations, beating...

A few more million years, the noisy emissions organize into coordinated sounds and with reflection, become a language.

But breath, pulsations, and beating remain.

How, why, the sound of the wind, of the rain, the movement of clouds across the sky as they appear and disappear against the blue of space, the crackling of fire, how, why, through what mysterious alchemy will all this turn into a chanted recitative for one of these beings, recently *appeared*; *how*, why does the experience of an impression become sound, music?

An ordering is underway. *Breaths* caught in hollow tubes become tamed sound sources, hollow percussive objects become sources of rhythm, strings stretched over yet other hollow objects, through the stroke of a bow, turn into sound waves.

Haunting recitative. The Voice, the Path is there.

Hollow *tubes* with holes, assembled in different lengths. Hollow objects with a skin stretched over cylinders of various *dimensions*. Strings stretched over *resonating* chambers with more sophisticated shapes, fitted with sound posts that transmit and hear, animated by "arcs" turned into "bows."

And the Path, always more and more the mysterious "Path." Supple and fluid, breath, earth, heat and water, everything at once. The subtle alchemy of sounds becomes, *oh* wonder, understood. One-half, one-quarter, one-third of a string's length reveal their perfect harmony, as later confirmed by images on an oscilloscope. Except for ... the tiny, infinitesimal *difference—when* left to their own *devices*, natural harmonics unfurl into space in their own language.

Temperament...

So many marvels came from it. It had to happen, it was worthwhile.

Then came the electronic Fairy; through the power of magnetic, analog and digital capture, breath, pulsations, beating, and murmurs can now be defined directly in their own spectrum, and thus reveal another dimension of sound—within sound.

The occasional accident, a disrupted relation between recordertransmitter-recorder-playback, and there our medium assumes some independence.

How, *then*, does it behave?

Breath, pulsation, beating, sustained sound, depending on the mood.

So much richness in all this "feedback" and other chance or provoked "interference."

Such a challenge to keep them under control while maintaining the correct distance, the tiny adjustment that makes them develop until a terrible "fit" causes them to self-destruct.

This is when other splicers of four piece *tubes* and surveyors of variably sized strings over resonating chambers decided to take everything back to the primary elements.

The frequencies and everything that ensues. Varying modulations giving rise to new spectra. In short, all so called "electronic" music.

In the beginning, from the beginning, the first generators and all the possible treatments, modulating, filtering, mixing etc ... (cf. Milton Babbitt's studio at Columbia University, those from the time of dear Karlheinz and others). Irascible and unreliable mastodons that required patient taming.

On the other hand, by reducing all this paraphernalia, by "modulating" it...

Another story was beginning. A story where breath, pulsations, beating, murmurs and above all the natural production of these marvelous, delicate and subtle harmonics could be deployed in a differently organized manner.

No acceptable intervals to tolerate or obey. No harmonic progression. No recursion or inverted series, no respect for rules of atonality tending toward "discordant." Forget everything to learn again.

The freedom to be immersed in the ambivalence of continuous modulation with the uncertainty of *being and/or not being* in this or that mode or tonality. The freedom to let yourself be overwhelmed, submerged in a continuous sound flow where *perceptual* acuity is heightened through the discovery of a certain slight beating, there in the background, pulsations, breath.

The freedom of a development beyond temporality in which the instant is limitless. Passing through a present lacking dimension, or past, or future, or eternity. Immersion into a space restrained, or limited by nothing. Simply there, where the absolute beginning is found. Lending a new ear to a primitive and naïve way of listening.

Breath, pulsation, beating, murmur ... continuum.

I dreamt of an unreal, impalpable music appearing and fading away like clouds in a blue summer sky. Frolicking in the high mountain valleys around the wind, and grey rocks and *trees*, *like* white runaways. This particular music, that always eluded me. Each attempt ended in seeing it come closer and closer but remain unreachable, only increasing the desire to try again and yet again to go a bit further. It will always be better the next time....

How can sounds or words transcribe this imperceptibly slow transformation occurring during every instant and that only an extremely attentive and alert eye can sometimes perceive, the movement of a leaf, a stalk, a flower propelled by the life that makes it *grow*? How to know a little, just a very little, simply to try, to train oneself to look better in order to see, to listen better in order to hear and to know these transient moments of being there, only *there*? Like the butterfly emerging naked from its chrysalis, with only small white, blue or grey dots developing imperceptibly into the wings that will take flight.

I have known the enchantment of discovery by forgetting all I had learned, I have of course also encountered doubt, denial, and the feeling of absurdity during long years, alone with my ARP and all of the difficulties "we" had to go through, before perhaps understanding each other ... a little.

Now, it is in the iridescence of these slowly flowing grains of sand that some wonderful musicians have agreed to share what I call my "sound fantasies." Carol Robinson, Charles Curtis, Bruno Martinez and I have just completed the third part of *Naldjorlak*. With their instruments, cello and basset horns, they agreed to explore this subtle, delicate sound world fashioned from breath, pulsation, beating, murmurs and the richness of the natural harmonics that radiate from it. The instruments tuned almost into unison, with just a minuscule interval of a few *commas* to give more freedom to the breaths, beatings, pulsations, murmurs, sustained sounds...

And above all, the wonderful experience of sharing, with the most subtle affinity, complicity. The joy of hearing the music I dreamt of, and that these marvelous musicians make for me, giving all of their talent, their virtuosity, their souls. What a strange experience after so much wandering, to return to what was already there, the perfection of acoustic instruments, the rich and subtle interplay of their harmonics, sub-harmonics, partials, just intonation left to itself, elusive like the colors of a rainbow.

Simply returning to my first loves, those never forgotten. And yet it is clear that this long journey through uncertain lands also enabled me to simply recognize what was already there, buried, hidden.

May it lead to yet others. Further adventures, explorations of this infinite mystery of the transmutation of noise into sound, of sound into music and, as *with* all true questions, to receive in response only a few *"hows,"* never a *"why,"* thus leaving endless freedom to trace one's path, to find one's voice. Pulsations, breaths, beatings...

* From *Leonardo Music Journal* 19 (2009). Used by permission of the author.

The Aesthetics of Failure: "Post-Digital" Tendencies in Contemporary Computer Music

Kim Cascone

Composer Kim Cascone is known for his "microsound" compositions, music that explores the textural details of digital sound and that exists at the intersection of classic electronic music, sound art, and post-Techno. In the 1980s, Cascone worked as a music editor for film director David Lynch and founded Silent Records, which featured ambient recordings by Cascone's own Heavenly Music Corporation (named after an experimental composition by Brian Eno and Robert Fripp). In the mid-1990s, Cascone became a sound designer for pop producer Thomas Dolby and, later, developed sound software for computer games. In 2000, Cascone formed the Anechoic Media label to release his own compositions. In this essay, he explores the aesthetics of what he calls "post-digital" music, which exploits the precariousness of the digital signal and celebrates the sonic effects of digital glitches, bugs, and errors.

The digital revolution is over.

— Nicholas Negroponte (1998)¹

Over the past decade, the Internet has helped spawn a new movement in digital music. It is not academically based, and for the most part the composers involved are self-taught. Music journalists occupy themselves inventing names for it, and some have already taken root: glitch, microwave, DSP, sinecore, and microscopic music. These names evolved through a collection of deconstructive audio and visual techniques that allow artists to work beneath the previously impenetrable veil of digital media. The Negroponte epigraph above inspired me to refer to this emergent genre as "post-digital" because the revolutionary period of the digital information age has surely passed. The tendrils of digital technology have in some way touched everyone. With electronic commerce now a natural part of the business fabric of the Western world and Hollywood cranking out digital fluff by the gigabyte, the medium of digital technology holds less fascination for composers in and of itself.

[...] The medium is no longer the message; rather, specific tools themselves have become the message.

The Internet was originally created to accelerate the exchange of ideas and development of research between academic centers, so it is perhaps no surprise that it is responsible for helping give birth to new trends in computer music outside the confines of academic think tanks [...] Unfortunately, cultural exchange between non-academic artists and research centers has been lacking. The post-digital music that Max, SMS, AudioSculpt, PD, and other such tools make possible rarely makes it back to the ivory towers, yet these non-academic composers anxiously await new tools to make their way onto a multitude of Web sites [...]

The aesthetics of failure

It is failure that guides evolution; perfection offers no incentive for improvement. — Colson Whitehead (1999)²

The "post-digital" aesthetic was developed in part as a result of the immersive experience of working in environments suffused with digital technology: computer fans whirring, laser printers churning out documents, the sonification of user-interfaces, and the muffled noise of hard drives. But more specifically, it is from the "failure" of digital technology that this new work has emerged: glitches, bugs, application errors, system crashes, clipping, aliasing, distortion, quantization noise, and even the noise floor of computer sound cards are the raw materials composers seek to incorporate into their music.

While technological failure is often controlled and suppressed—its effects buried beneath the threshold of perception—most audio tools can zoom in on the errors, allowing composers to make them the focus of their work. Indeed, "failure" has become a prominent aesthetic in many of the arts in the late twentieth century, reminding us that our control of technology is an illusion, and revealing digital tools to be only as perfect, precise, and efficient as the humans who build them. New techniques are often discovered by accident or by the failure of an intended technique or experiment.

I would only observe that in most high-profile gigs, failure tends to be far more interesting to the audience than success.

— David Zicarelli (1999)

There are many types of digital audio "failure." Sometimes, it results in horrible noise, while other times it can produce wondrous tapestries of sound. (To more adventurous ears, these are quite often the same.) When the German sound experimenters known as Oval started creating music in the early 1990s by painting small images on the underside of CDs to make them skip, they were using an aspect of "failure" in their work that revealed a subtextual layer embedded in the compact disc.

Oval's investigation of "failure" is not new. Much work had previously been done in this area such as the optical soundtrack work of László Moholy-Nagy and Oskar Fischinger, as well as the vinyl record manipulations of John Cage and Christian Marclay, to name but a few. What is new is that ideas now travel at the speed of light and can spawn entire musical genres in a relatively short period of time.

Back to the future

Poets, painters, and composers sometimes walk a fine line between madness and genius, and throughout the ages they have used "devices" such as absinthe, narcotics, or mystical states to help make the jump from merely expanding their perceptual boundaries to hoisting themselves into territories beyond these boundaries. This trend to seek out and explore new territories led to much experimentation in the arts in the early part of the twentieth century.

When artists of the early twentieth century turned their senses to the world created by industrial progress, they were forced to focus on the new and changing landscape of what was considered "background."

I now note that ordinarily I am concerned with, focus my attention upon, things or "objects," the words on the page. But I now note that these are always situated within what begins to appear to me as a widening field which ordinarily is a background from which the "object" or thing stands out. I now find by a purposeful act of attention that I may turn to the field as field, and in the case of vision I soon also discern that the field has a kind of boundary or limit, a horizon. This horizon always tends to "escape" me when I try to get at it; it "withdraws" always on the extreme fringe of the visual field. It retains a certain essentially enigmatic character.

— Don Idhe (1976)³

Concepts such as "detritus," "by-product," and "background" (or

"horizon") are important to consider when examining how the current post-digital movement started. When visual artists first shifted their focus from foreground to background (for instance, from portraiture to landscape painting), it helped to expand their perceptual boundaries, enabling them to capture the background's enigmatic character.

The basic composition of "background" is comprised of data we filter out to focus on our immediate surroundings. The data hidden in our perceptual "blind spot" contains worlds waiting to be explored, if we choose to shift our focus there. Today's digital technology enables artists to explore new territories for content by capturing and examining the area beyond the boundary of "normal" functions and uses of software.

Although the lineage of post-digital music is complex, there are two important and well-known precursors that helped frame its emergence: the Italian Futurist movement at the beginning of the 20th century, and John Cage's composition 4'33'' (1952) [...]

Snap, crackle, glitch

Fast-forwarding from the 1950s to the present, we skip over most of the electronic music of the twentieth century, much of which has not, in my opinion, focused on expanding the ideas first explored by the Futurists and Cage. An emergent genre that consciously builds on these ideas is that which I have termed "post-digital," but it shares many names, as noted in the introduction, and I will refer to it from here on out as *glitch*. The glitch genre arrived on the back of the *electronica* movement, an umbrella term for alternative, largely dance-based electronic music (including house, techno, electro, drum'n'bass, ambient) that has come into vogue in the past five years. Most of the work in this area is released on labels peripherally associated with the dance music market, and is therefore removed from the contexts of academic consideration and acceptability that it might otherwise earn. Still, in spite of this odd pairing of fashion and art music, the composers of glitch often draw their inspiration from the masters of twentieth century music who they feel best describe its lineage.

A brief history of glitch

At some point in the early 1990s, techno music settled into a predictable, formulaic genre serving a more or less aesthetically homogeneous market of DJs and dance music aficionados. Concomitant with this development

was the rise of a periphery of DJs and producers eager to expand the music's tendrils into new areas. One can visualize techno as a large postmodern appropriation machine, assimilating cultural references, tweaking them, and then representing them as tongue-in-cheek jokes. DJs, fueled with samples from thrift store purchases of obscure vinyl, managed to mix any source imaginable into sets played for more adventurous dance floors. Always trying to outdo one another, it was only a matter of time until DJs unearthed the history of electronic music in their archeological thrift store digs. Once the door was opened to exploring the history of electronic music, invoking its more notable composers came into vogue. A handful of DJs and composers of electronica were suddenly familiar with the work of Karlheinz Stockhausen, Morton Subotnick, and John Cage, and their influence helped spawn the glitch movement.

A pair of Finnish producers called Pan Sonic—then known as Panasonic, before a team of corporate lawyers encouraged them to change their name—led one of the first forays into experimentation in electronica. Mika Vainio, head architect of the Pan Sonic sound, used handmade sine-wave oscillators and a collection of inexpensive effect pedals and synthesizers to create a highly synthetic, minimal, "hard-edged" sound. Their first CD, titled *Vakio*, was released in the summer of 1993, and was a sonic shockwave compared to the more blissful strains of ambient-techno becoming popular at that time. The Pan Sonic sound conjured stark, florescent, industrial landscapes; test-tones were pounded into submission until they squirted out low, throbbing drones and high-pitched stabs of sine waves. The record label Vainio founded, Sähkö Records, released material by a growing catalog of artists, most of it in the same synthetic, stripped-down, minimal vein.

As discussed earlier, the German project Oval was experimenting with CD-skipping techniques and helped to create a new tendril of glitch—one of slow-moving slabs of dense, flitting textures. Another German group, which called itself Mouse on Mars, injected this glitch aesthetic into a more danceable framework, resulting in gritty low-fidelity rhythmic layers warping in and out of one another.

From the mid-1990s forward, the glitch aesthetic appeared in various sub-genres, including drum 'n' bass, drill 'n' bass, and triphop. Artists such as Aphex Twin, LTJ Bukem, Omni Trio, Wagon Christ, and Goldie were experimenting with all sorts of manipulation in the digital domain. Time-stretching vocals and reducing drum loops to eight bits or less were some of the first techniques used in creating artifacts and exposing them as timbral content. The more experimental side of electronica was still growing and slowly establishing a vocabulary.

By the late 1990s, the glitch movement was keeping pace with the release of new features in music software, and the movement began congealing into a rudimentary form. A roster of artists was developing. Japanese producer Ryoji Ikeda was one of the first artists other than Mika Vainio to gain exposure for his stark, "bleepy" soundscapes. In contrast to Vainio, Ikeda brought a serene quality of spirituality to glitch music. His first CD, entitled +/-, was one of the first glitch releases to break new ground in the delicate use of high frequencies and short sounds that stab at listeners' ears, often leaving the audience with a feeling of tinnitus.

Another artist who helped bridge the gap between delicate and damaging was Carsten Nicolai (who records and performs under the name Noto [and Alva Noto]). Nicolai is also a co-founder of Noton/Rastermusic, a German label group that specializes in innovative digital music. In a similar fashion, Peter Rehberg, Christian Fennesz, and the sound/Net art project Farmers Manual are tightly associated with the Mego label located in Vienna. Rehberg has the distinction of having received one of only two honorary Ars Electronica awards in Digital Music for his contribution to electronic music. Over the past few years, the glitch movement has grown to encompass dozens of artists who are defining new vocabularies in digital media. Artists such as immedia, Taylor Deupree, Nobukazu Takemura, Neina, Richard Chartier, Pimmon, *0, Autopoieses, and T:un[k], to name just a few, constitute the second wave of sound hackers exploring the glitch aesthetic [...]

Power tools

Computers have become the primary tools for creating and performing electronic music, while the Internet has become a logical new distribution medium. For the first time in history, creative output and the means of its distribution have been inextricably linked. Our current sonic backgrounds have dramatically changed since 4'33" was first performed—and thus the means for navigating our surroundings as well. In response to the radical alteration of our hearing by the tools and technologies developed in academic computer music centers—and a distribution medium capable of shuttling tools, ideas, and music between like-minded composers and engineers—the resultant glitch movement can be seen as a natural

progression in electronic music. In this new music, the tools themselves have become the instruments, and the resulting sound is born of their use in ways unintended by their designers. Commonly referred to as sound "mangling" or "crunching," composers are now able to view music on a microscopic level. Curtis Roads coined the term microsound for all variants of granular and atomic methods of sound synthesis, and tools capable of operating at this microscopic level are able to achieve these effects.⁴ Because the tools used in this style of music embody advanced concepts of digital signal processing, their usage by glitch artists tends to be based on experimentation rather than empirical investigation. In this fashion, unintended usage has become the second permission granted. It has been said that one does not need advanced training to use digital signal processing programs-just "mess around" until you obtain the desired result. Sometimes, not knowing the theoretical operation of a tool can result in more interesting results by "thinking outside of the box." As Bob Ostertag notes, "It appears that the more technology is thrown at the problem, the more boring the results" (1998).⁵

"I looked at my paper," said Cage. "Suddenly I saw that the music, all the music, was already there." He conceived of a procedure which would enable him to derive the details of his music from the little glitches and imperfections which can be seen on sheets of paper. It had symbolic as well as practical value; it made the unwanted features of the paper its most significant ones—there is not even a visual silence.

— David Revill (1999)⁶

New music from new tools

Tools now aid composers in the deconstruction of digital files: exploring the sonic possibilities of a Photoshop file that displays an image of a flower, trawling word processing documents in search of coherent bytes of sound, using noise-reduction software to analyze and process audio in ways that the software designer never intended. Any selection of algorithms can be interfaced to pass data back and forth, mapping effortlessly from one dimension into another. In this way, all data can become fodder for sonic experimentation.

Composers of glitch music have gained their technical knowledge through self-study, countless hours deciphering software manuals, and probing Internet newsgroups for needed information. They have used the Internet both as a tool for learning and as a method of distributing their work. Composers now need to know about file types, sample rates, and bit resolution to optimize their work for the Internet. The artist completes a cultural feedback loop in the circuit of the Internet: artists download tools and information, develop ideas based on that information, create work reflecting those ideas with the appropriate tools, and then upload that work to a World Wide Web site where other artists can explore the ideas embedded in the work.

The technical requirements for being a musician in the information age may be more rigorous than ever before, but—compared to the depth of university computer music studies—it is still rather light. Most of the tools being used today have a layer of abstraction that enables artists to explore without demanding excessive technical knowledge. Tools like Reaktor, Max/MSP, MetaSynth, Audiomulch, Crusher-X, and Soundhack are pressed into action, more often than not with little care or regard for the technical details of DSP theory, and more as an aesthetic wandering through the sounds that these modern tools can create.

The medium is no longer the message in glitch music: the tool has become the message. The technique of exposing the minutiae of DSP errors and artifacts for their own sonic value has helped further blur the boundaries of what is to be considered music, but it has also forced us to also to examine our preconceptions of failure and detritus more carefully.

Discussion

Electronica DJs typically view individual tracks as pieces that can be layered and mixed freely. This modular approach to creating new work from preexisting materials forms the basis of electronic music composers' use of samples. Glitch, however, takes a more deconstructionist approach in that the tendency is to reduce work to a minimum amount of information. Many glitch pieces reflect a stripped-down, anechoic, atomic use of sound, and they typically last from one to three minutes.

But it seems this approach affects the listening habits of electronica aficionados. I had the experience of hearing a popular sample CD playing in a clothing boutique. The "atomic" parts, or samples, used in composing electronica from small modular pieces had become the whole. This is a clear indication that contemporary computer music has become fragmented, it is composed of stratified layers that intermingle and defer meaning until the listener takes an active role in the production of meaning.

If glitch music is to advance past its initial stage of blind experimentation, new tools must be built with an educational bent in mind. That is, a tool should possess multiple layers of abstraction that allow novices to work at a simple level, stripping away those layers as they gain mastery. In order to help better understand current trends in electronic music, the researchers in academic centers must keep abreast of these trends [...] In this way, the gap can be bridged, and new ideas can flow more openly between commercial and academic sectors.

We therefore invite young musicians of talent to conduct a sustained observation of all noises, in order to understand the various rhythms of which they are composed, their principal and secondary tones. By comparing the various tones of noises with those of sounds, they will be convinced of the extent to which the former exceeds the latter. This will afford not only an understanding, but also a taste and passion for noises.

— Luigi Russolo (1913)⁷

Notes

- 1 Nicholas Negroponte, "Beyond Digital," *Wired* 6 (12) (1998).
- 2 Colson Whitehead, *The Intuitionist* (New York: Anchor Books, 1999).
- 3 Don Idhe, *Listening and Voice: A Phenomenology of Listening* (Athens, Ohio: Ohio University Press, 1976).
- 4 [See Curtis Roads, *Microsound* (Cambridge, MA: MIT Press, 2001).—Eds]
- 5 Bob Ostertag, "Why Computer Music Sucks." On-line at http://www.l-mc.org/uk/texts/ostertag.html.
- 6 David Revill, The Roaring Silence. John Cage: A Life (New York: Arcade, 1992).
- 7 Luigi Russolo, The Art of Noises. (Hillsdale, New York: Pendragon Press, 2005).
- From Computer Music Journal 24, No. 4 (Winter 2000). Used by permission of the author.

Laptop Intimacy and Platform Politics

Holly Herndon

Composer and electronic musician Holly Herndon spent years in Berlin's minimal techno scene before moving to San Francisco to pursue a Masters degree in electronic music at Mills College, where she studied with John Bischoff, Maggi Payne, James Fei, and Fred Frith. She continued her study of composition in the doctoral program at Stanford University's prestigious Center for Computer Research in Music and Acoustics (CCRMA). In 2012, Herndon released her debut album Movement, which merged her voice with electronic processing and revealed a range of influences, from Pan Sonic to Laurie Anderson and Maryanne Amacher. Chorus (2014) and Platform (2015) involved collaborations with the Dutch design studio Metahaven and conceptual connections with advocates of platform cooperativism and accelerationism, which advocates the use of advanced technologies and infrastructures for radical social change. In this essay, Herndon argues that the laptop is the most intimate of instruments and urges artists and designers to establish genuinely cooperative platforms for the production and distribution of music and culture.

After years of experimenting with acoustic and electronic instruments, I embraced the laptop as my primary instrument in 2008. In the midst of the worst financial crisis since the Great Depression, this was also the time when many of us began carrying a powerful computer in our pockets, the year that Apple launched its app store, and Barack Obama soared to victory on the back of an unprecedented strategy of online social network rallying and big data analytics. It became clear that we had entered a new paradigm of possibilities, pressures, and dependencies around these portable devices.

I quickly realized that the laptop is the most intimate instrument the world has ever seen. It mediates all aspects of our lives, connecting with the good and bad of the world around us. We do our banking on this instrument and use it to connect to our friends and family. Our employer interrupts us as we make art through this instrument. Our view of the world changes in accordance with how we customize it. While this new era of hyperconnectivity and portability represented a significant creative opportunity, it also established a whole new territory through which to navigate and a new cultural politics in which the values and lessons of our foremothers and forefathers may not always translate smoothly. From the recording process to live performance and the distribution and consumption of music, the ubiquitous social Internet and its myriad connections and complications have fundamentally changed music. We need to recalibrate our methods accordingly. Where to begin?

The most immediate impact for me was on the composition process. It started with the simple questions: how do I express my symbiotic coexistence with this machine? How do I make laptop performance more embodied? My earliest inclination was to incorporate my voice, the original instrument, into the digital ecosystem of my computer in ways that were truly integrated, candid, and unpredictable. I liberated my imperfect voice from its limitations in timbre, pitch and duration. I devised custom systems to take vocal input as information and used it to control other aspects of the composition. I took others' voices, created physical and virtual ensembles, and merged them with the live sounds of electromagnetic waves in my computer processor and the fans that cooled it down when I asked too much of it. I experimented with everything I could to try and communicate the messiness and gravity of this new relationship.

My practice increasingly became more collaborative, as I began to mirror the complexity and reality of the inputs and outputs of my day to day. I was trying to find a way to compose directly with the body, hoping that my machine might free me up to communicate humanity in other ways. Placing the body as a central controller and theme, I pushed back against predetermined design decisions. For example, I produced a piece with dancer Cuauhtemoc Peranda in which I recorded the sounds of his choreography, recomposed them into an abstract piece, and then played them back in a spatialized ring using ambisonics, following his movement around the space. His body controlled the spatialization of both the acoustic and the electronic sound, creating an uncanny relationship between the live and pre-recorded body sounds. It revealed to me that our relationship to pre-recorded material was changing (live sets, for example, often consist of performers remixing themselves in a DJ hybrid model) as was our collective idea of what constitutes a performance. In a similar body-centric work Crossing the Interface, I collaborated with philosopher

Reza Negarestani, who wrote the text/logic for the piece. It consisted of a remote soprano singing and speaking over the network. At the premiere, she was performing from a different room; during a later performance she was in a different part of the country. Her body was physically present, again spatialized using ambisonics, and gave the impression that she was stumbling around the space stalking the audience. The crux of this body-centered work was an attempt at augmenting intimacy in highly mediated environments.

If the Internet currently has an aesthetic, it is one of multiplicity. We form new coherences via an incongruous deluge of information from multiple competing applications in an environment where music is rarely privileged from the accompanying imagery and communications around it. I looked to explore this in 2013 with the song "Chorus," where in collaboration with the artist Mathew Dryhurst I used a custom process to surveil and recompose my daily sonic experience of navigating the web. We jokingly referred to this process as "net concrète," in homage to the *musique concrète* principle of abstracting sounds from their origins. These experiments triggered my continued interest in orienting production techniques around the internet, it makes the work richer to *use the internet* to create it, assuming and manipulating its logic to my own creative ends. This principle has come to represent a small but necessary assertion of agency within the chaos.

The question of agency has increasingly become a pivotal concern. Any instrument coaxes us to compose in certain ways and this is no different with the physical and digital design of the laptop, its applications, and the web platforms we contribute and that provide affordances and suggestions towards a predetermined end. I see myself as having a playfully critical collaborative relationship with the engineers and designers who continually augment and refocus our capacity to produce and distribute art with new tools. This question of agency and critique has greater implications beyond music. What is this tool telling me to do, and what does that mean? Where am I in this increasingly automated process?

The Edward Snowden revelations of 2013 challenged my optimism regarding these new tools and points of connectivity. Just as many of us were beginning to develop emotionally dependent relationships with our devices, we received confirmation of just how vulnerable those intimate moments are to state and corporate surveillance, largely *by design*. I had

come to feel more at home in my inbox than in my San Francisco apartment, so this represented a home invasion of sorts. I communicated this in the song "Home," which assumed the form of a break up lament dedicated to a prying agent.

Once you take note of such vulnerabilities, you begin to see them everywhere, and I felt the need to address them head on. For live shows, Mat and I began to experiment with the personal data of attendees in order to grapple with this new social dynamic. In advance of a performance, we would collect personal details about the audience freely available online and factor those into our live sets, speaking to them directly through the walls of the club by congratulating them on their new job or consoling them on a recent heartbreak. Mirroring social media practices, we developed a projected text messaging system to be able to communicate candidly with our audience during a performance, which in turn would be presented to the onlookers' own online audiences through their documentation of the event. While we are always careful not to cross an ethical line or compromise the music, it felt vital to acknowledge the levels of access, vulnerability, and interactivity present within this new cultural moment, and also join in with vulnerable gestures of our own. During a calamitous technical difficulty in Oslo, Mat typed the joke "We are never booking you again" behind us, which became a viral photograph online. Abstracted from its origins, a nervous joke in a vulnerable predicament took on its own life and significance on another platform.

When every gesture has the potential of being captured, every gesture is potentially a performance. We began to see any public gesture as part of a larger body of work, of which the album is just an element. This also required investigating the way music is distributed, released, consumed, and criticized as part of the album itself. Interviews became platforms to highlight the work of others; the press release and the articles surrounding a release became opportunities to occupy magazines with information about the theories, authors, artists, and collaborators that we work with. We wanted to establish that our choices are inherently connected to both musical and extra-musical conversations that we follow and participate in, that music is not the product of individualist expressionism but a response to unfolding and disparate discussions taking place in meeting places we frequent online and in person. It would be dishonest and limiting to represent the field of music as a discrete conversation.

Since my 2015 album *Platform*, I have extended my interest in agency

and creative freedom to the platforms by which we express ourselves. I believe that platform politics and the assertion of principles within and beyond those domains is the next big challenge worth addressing. We may be able to organize our own devices. But how much freedom do we have to experiment within the platforms that organize us? What do these platforms require of music and what do we stand to lose in satisfying those requirements? Is opting out even a possibility?

Advertising-driven monopolies such as Google and Facebook have come to dominate and profit from our expressions and creative work, while artists see smaller and smaller cuts of that revenue. We contribute an enormous amount of free labor and material to these social platforms, and place a great deal of trust in them. It's a situation reminiscent of feudalism: we give up certain rights to be a part of a community, and our digital conduct may be deemed inappropriate and deleted without recourse.¹ Beyond the economics of participating in these structures, I also begin to wonder what impact these shifts are having on music as a medium. As an example: playlist culture, a dominant feature of music-specific platforms like Spotify and Soundcloud, privilege musics that blend seamlessly into one another and accompany a listener through their workday, workout, or dinner party. Just as commercial pop music writing began to conform to the affordances and limitations of advertising-driven radio, we are seeing all forms of music begin to conform to the expectations and demands of a smaller and smaller group of dominant platforms, and in turn begin to witness this expectation of seamlessness and non-intrusiveness blend into the live performance domain.

Design theorist Benedict Singleton writes about "platform dynamics theory," arguing that traditional planning for the future will always fail in the face of complexity, and that we should focus on the design of platforms accordingly—understanding that the affordances and limitations we create open the way to different kinds of futures.² *Platform* asked: what if the album is its own platform, a meeting point of ideas that could point to further work? The laptop, and the music we make on it, is no longer just an extension of ourselves but a multifaceted tool for collective action, if we choose to use it as such. The hope is that through acknowledging the politics of the platform in contemporary music we might begin to experiment with creating dissenting expressions and perhaps even competing platforms of our own design.³ We have a choice; either accept the structures and strictures ordained by the commercial technology

industry, or begin to design and demand our own terms and conditions for the future of music.⁴

Notes

- 1 See Hannes Grassegger, *Das Kapital Bin Ich: Schluss mit der Digitalen Leibeigenschaft* (Berlin: Kein & Aber Verlag, 2014).
- 2 See Benedict Singleton, "Platform Dynamics," a paper given at the "Incredible Machines" conference, March 2014, http://incrediblemachines.info/participants/singleton-2.
- 3 A good example of alternative platform design is my collaborator Mat Dryhurst's *Saga* project: a self-hosted publishing platform that gives artists control over every discrete instance of their work distributed around the web. Saga allows for artists to establish case-by-case terms for the use of their work online, and proposes that each instance of a work shared online can be updated in conversation with its surroundings.
- 4 For further reading on the importance and potential of collective platform design, see: Nick Srnicek and Alex Williams, *Inventing the Future: Postcapitalism and a World Without Work* (London: Verso, 2015), Astra Taylor, *The People's Platform: Taking Back Power and Culture in the Digital Age* (New York: Metropolitan Books, 2014), and Trebor Scholz and Nathan Schneider, ed., *Ours to Hack and to Own: The Rise of Platform Cooperativism* (New York: OR Books, 2016).
- <u>*</u> Commissioned for this volume.

Chronology

1877

• Thomas Edison invents the phonograph.

1912

• Henry Cowell composes *The Tides of Manaunaun*, which utilizes tone clusters.

1912

• Erik Satie's ballet *Parade* performed in Paris, with choreography by Diaghilev, a libretto by Cocteau, set design by Picasso, and music by Satie that includes typewriters, ship's whistles, sirens, and revolvers.

1913

• Luigi Russolo writes "The Art of Noises: Futurist Manifesto."

1914

• Russolo conducts the first public performance of music composed for his *intonarumori* (noise instruments).

1916

• In Zurich, Dada artists open the Cabaret Voltaire and experiment with sound poetry and noise music.

1917

• Edgard Varèse calls for instruments that would open up "a whole new world of unexpected sounds."

1920

- Erik Satie and Darius Milhaud compose *Musique d'ameublement* (furniture music).
- Stephan Volpe employs eight gramophones to play records simultaneously at different speeds.

1922–23

• László Moholy-Nagy calls upon musicians and artists to experiment with phonographs.

1924

• Henry Cowell composes *Aeolian Harp*, which calls for the pianist to brush the piano's strings.

1930

• Paul Hindemith and Ernst Toch employ superimposed phonograph recordings in live

performance.

- Walter Ruttmann composes *Weekend*, an audio-only film that anticipates *musique concrète*.
- Filmmaker Rudolf Pfenniger invents *tönende Handschrift* (sounding handwriting), the first fully functioning technique for the synthetic generation of sound.

1931

• Edgard Varèse composes *Ionisation*, the first European composition written solely for percussion.

1935

• The German corporation AEG introduces the first magnetic tape recorder.

1936

• Carl Stalling begins composing music for Warner Brothers' cartoons, freely mixing classical, jazz, pop, folk, and country music.

1938

• John Cage begins "preparing" the piano by inserting bolts, screws, nuts, and weather stripping into the piano's strings. His most famous "prepared piano" piece, *Sonatas and Interludes*, is composed in 1946.

1939

• John Cage composes *Imaginary Landscape No. 1* for frequency recordings and variable-speed turntables.

1944

• In Cairo, Egyptian composer Halim el-dabh composes *The Expression of Zaar*, the first work of *musique concrète*.

1948

- Pierre Schaeffer debuts his first *musique concrète* compositions in a "Concert of Noises" broadcast over French radio.
- Inspired by Henry Cowell, John Cage, and jazz pianists such as Art Tatum, American-born composer Conlon Nancarrow begins composing his *Studies for Player Piano*, a form of machine music that radically outstripped the abilities of human performers.

1950

• Pierre Schaeffer and Pierre Henry complete *Symphonie pour un homme seul* (*Symphony for a Man Alone*), their *musique concrète* masterpiece.

1951

• John Cage composes two key indeterminate compositions: *Imaginary Landscape No. 4*, for 12 radios, and *Music of Changes*, composed by tossing coins to determine pitch, duration, and attack.

- Schaeffer and Pierre Henry establish a studio at the Radiodiffusion Television Françoise (French Radio-Television) called Groupe de Recherche de Musique Concrète, which soon hosts Pierre Boulez, Karlheinz Stockhausen, Iannis Xenakis and others. (In 1957, the studio would change its name to Groupe de Recherches Musicales [GRM].)
- Werner Meyer-Eppler, Herbert Eimert, and Karlheinz Stockhausen establish an electronic music studio at Westdeutscher Rundfunk (West German Radio) in Cologne. Eschewing concrete sounds for pure electronic synthesis, the studio comes to represent a methodology that rivals *musique concrète*: *elektronische Musik*.

- John Cage composes the famous "silent piece" *4'33*", which calls upon the performer to make no intentional sounds, and *Williams Mix*, which cuts up and splices together more than 500 bits of found sound.
- Earle Brown composes *Folio*, a pioneering set of graphic scores that includes *December 1952*.
- Otto Luening and Vladimir Ussachevsky begin to construct an electronic music studio at Columbia University.

1956

- Stockhausen completes the electronic composition Gesang der Jünglinge.
- Letterists Guy Debord and Gil Wolman write "A User's Guide to Détournement."

1957

• The Situationist International forms in Europe.

1958

• Varèse composes *Poème électronique* and Xenakis composes *Concret P-H* for the Brussels Exposition's Philips Pavilion, designed by Le Corbusier and Xenakis.

1958-60:

- Ornette Coleman and Cecil Taylor invent free jazz with a string of recordings, including Coleman's *The Shape of Jazz to Come*, *Change of the Century*, and *Free Jazz*, and Taylor's *Looking Ahead*, *The World of Cecil Taylor*, and *New York City R&B*.
- Mauricio Kagel composes *Transicion II*, the first piece to call for live tape recorder as part of a performance.
- At Bell Labs, Max Matthews begins experimenting with computer programs to create sound material.
- Dennis Johnson composes *November*, a five-hour piece for solo piano that is the earliest example of musical Minimalism.

1960

- Cage composes *Cartridge Music*, for modified phonograph cartridges and contact microphones.
- Stockhausen completes the electronic composition *Kontakte*.
- The conceptual art movement Fluxus gets underway, counting among its members Yoko Ono and La Monte Young, who composes a series of experimental text pieces under the title *Composition 1960*.
- Takehisa Kosugi and Yasunao Tone form Group Ongaku, Japan's first free improvising ensemble.
- Brion Gysin, Ian Sommerville, and William S. Burroughs begin their "cut-up" experiments with magnetic tape.
- As assistant to Stockhausen, Cornelius Cardew realizes Stockhausen's composition *Carré*.
- Ornette Coleman's double quartet records *Free Jazz*, which coins the term. Independently, Jamaican-born British saxophonist Joe Harriott records *Free Form*, launching European free jazz.
- Joe Meek and the Blue Men release *I Hear a New World*, which fully exploits the resources of the recording studio in an effort to conjure the sounds of extraterrestrial life.

- First concert of works by members of the Columbia-Princeton Electronic Music Center, officially established at Columbia University in 1959 by Luening, Ussachevsky, and Milton Babbitt.
- In Ann Arbor, Michigan, Robert Ashley and Gordon Mumma establish the annual ONCE Festival of experimental music and multi-media performance.
- Terry Riley composes *Mescalin Mix*, an early minimalist composition using overlapping, repeating tape loops.
- Burroughs publishes the second of his "cut-up" novels, *The Ticket that Exploded*, which contains "The Invisible Generation," a primer on his experiments with tape recorders.
- James Tenney composes *Collage No.1 ("Blue Suede")*, a tape collage of Elvis Presley's "Blue Suede Shoes" and perhaps the earliest sampling composition.

1962

• Morton Subotnick, Ramon Sender, and Pauline Oliveros found the San Francisco Tape Music Center, inaugurating electronic music's counter-culture.

1963

• Derek Bailey, Gavin Bryars, and Tony Oxley form the free improvising ensemble Joseph Holbrooke.

- Terry Riley composes In C, the first popular classic of music minimalism.
- La Monte Young, Marian Zazeela, John Cale, Angus MacLise, and Tony Conrad form the Theatre of Eternal Music (or Dream Syndicate), the foundation of drone-based minimalism; and Conrad records *Four Violins*.
- Billed as "The October Revolution In Jazz," Sun Ra, Cecil Taylor, Milford Graves, Bill Dixon and others stage the first festival of free jazz.
- Albert Ayler releases the free jazz classic Spiritual Unity.
- Superstar classical pianist Glenn Gould announces his retirement from public performance, retreating into the studio to produce ideal performances through studio editing.

1965-66

- Pauline Oliveros composes the real-time tape-delay compositions *Bye Bye Butterfly* and *I of IV*.
- Morton Subotnick composes the first electronic tape composition designed specifically for home listening, *Silver Apples of the Moon*, which utilizes Donald Buchla's early modular synthesizer, the Buchla Box.
- Steve Reich produces his tape-recorder compositions *It's Gonna Rain* and *Come Out*, early classics of minimalism and experimental music.
- On the South Side of Chicago, a group of African-American experimentalists found the Association for the Advancement of Creative Music (AACM), whose members include Anthony Braxton, Leroy Jenkins and Leo Smith.
- AACM member Roscoe Mitchell releases his aptly titled record Sound.
- Sun Ra releases free jazz classics *The Magic City* and *The Heliocentric Worlds of Sun Ra, Vols. 1 and 2.*
- John Coltrane goes free jazz with his howling double-quartet record Ascension.
- Fluxus artist Milan Knizak begins his experiments with altered records—scratching them, burning them, painting on them, punching holes in them, cutting them apart and reassembling them, and then playing them back on a turntable.
- Led by Frederic Rzewski, American expatriates in Rome form the improvising electronic ensemble Musica Elettronica Viva (MEV).
- In London, Keith Rowe, Eddie Prévost, Lou Gare and Lawrence Sheaff form the improvising ensemble AMM; joined by Cornelius Cardew the group releases its debut record *AMMusic*, released on the pop music label Elektra and overseen by the producers of Pink Floyd.
- Robert Ashley, Gordon Mumma, David Behrman, and Alvin Lucier form the Sonic Arts Union to perform their experimental compositions.

- Percussionist turned sound artist Max Neuhaus begins LISTEN, a series of audio walks through urban sound environments.
- The Beatles experiment with tape collage on "Tomorrow Never Knows."
- The Beach Boys' Brian Wilson collaborates with Van Dyke Parks on an experimental record to be called *Smile*. The record was never officially released.

- Stockhausen composes *Hymnen*, a tape collage of national anthems from around the world.
- Cornelius Cardew completes his massive graphic score *Treatise*.
- Composer and sound artist Maryanne Amacher produces the first in her *City-Links* series.
- The Velvet Underground releases their debut album *The Velvet Underground and Nico*, featuring minimalist viola drones by John Cale.
- *Musique concrète* pioneer Pierre Henry records *Messe pour le temps présent*, a *concrète* mass based on pop and rock songs.
- The "Tropicalia" exhibition at Rio de Janeiro's Museum of Modern Art launches Tropicalismo, a multi-media art movement that synthesized pop art, psychedelic rock, Cage's indeterminacy, and other European and North American influences with homegrown concrete poetry, samba, and capoeira.
- Max Neuhaus mounts Drive In Music, his first sound installation.

1968

- Derek Bailey, Evan Parker, Hugh Davies, and Jamie Muir form the Music Improvisation Company, a seminal British improvising ensemble.
- German saxophonist Peter Brötzmann releases *Machine Gun*, a founding document of European free jazz.
- Steve Reich writes his minimalist manifesto "Music as a Gradual Process."
- Fred Frith and Tim Hodgkinson form the avant-rock group Henry Cow and play their debut in support of Pink Floyd.
- Stockhausen students Holger Czukay and Irmin Schmidt form the Krautrock quartet Can. Czukay and Rolf Dammers emerge as sampling pioneers on *Canaxis*.
- The Beatles revisit tape collage on "Revolution #9."
- David Tudor composes *Rainforest*, an early masterpiece of live electronic music.
- Frank Zappa releases the rock *concrète* opuses *We're Only In It For the Money* and *Lumpy Gravy*.

1969

• In Tokyo, Fluxus veteran Takehisa Kosugi forms the improvising collective Taj Mahal Travelers.

- Cardew convenes the Scratch Orchestra, a large collective of amateur musicians and non-musicians who perform part of his work-in-progress *The Great Learning*. Among the Orchestra's members are Brian Eno and Gavin Bryars, who founds his own amateur orchestra, the Portsmouth Sinfonia, the same year.
- Frederic Rzewski composes the experimental composition Les Moutons de Panurge.
- Jazz composer George Russell records *Electronic Sonata for Souls Loved by Nature*, in which Russell's sextet improvises over "a tape composed of fragments of many different styles of music, avant-garde jazz, ragas, blues, rock, serial music, etc. treated electronically."
- Captain Beefheart records the experimental rock classic Trout Mask Replica.
- La Monte Young and Marian Zazeela mount their first public Dream House installation at Galerie Heiner Friedrich in Munich.
- Éliane Radigue mounts her first sound installation (which she calls a "*proposition sonore*"—sound proposition) *Usral* at Salon des Artistes Décorateurs in the Grand Palais in Paris.

1971–72

- Due to internal criticism from communist members, The Scratch Orchestra dissolves and Cardew becomes a devoted Marxist-Leninist. Invited by the BBC to introduce a performance by his former teacher and mentor Stockhausen, Cardew delivers a speech titled "Stockhausen Serves Imperialism."
- Frank Zappa writes an article for *Stereo Review* titled "Edgard Varèse: The Idol of My Youth."

1972

- Miles Davis releases *On the Corner*, inspired in equal parts by James Brown and Karlheinz Stockhausen, and assembled in the studio by producer Teo Macero, a student of Varèse.
- King Tubby invents dub (and, in the process, the remix), dropping sounds in and out of the mix and adding reverb and delay to instrumental reggae B-sides.

1973

- Canadian composer R. Murray Schafer publishes *The Music of the Environment*, an early version of his magnum opus *The Tuning of the World* (1977), and releases the LP *The Vancouver Soundscape*.
- Brian Eno and Robert Fripp cross rock guitar with experimental tape music on *No Pussyfooting*.
- Formation of the Dada-inspired proto-industrial trio Cabaret Voltaire, which features Chris Watson on tapes and electronics.
- Lee "Scratch" Perry and King Tubby produce the first dub album, The Upsetters'

Blackboard Jungle Dub.

• Julius Eastman composes *Stay On It*, the first Minimalist composition to show the influence of pop music.

1974

- Michael Nyman publishes *Experimental Music: Cage and Beyond* from inside the British experimental music scene.
- In the early days of disco and HipHop, DJs Kool Herc and Francis Grasso isolate breakbeats and extend them with the use of two turntables.

1975

- Brian Eno launches his Obscure record label to bring experimental music to a wider audience.
- Lou Reed releases *Metal Machine Music*, a double-LP of guitar feedback and distortion.
- The London Musicians Collective is founded to support improvised, experimental, and contemporary music.

1976

- Inspired by the tape cut-ups of William S. Burroughs, British quartet Throbbing Gristle launch Industrial Records and invent industrial music.
- John Zorn composes *Baseball*, the first of his "game pieces."
- Derek Bailey founds Company Week, an annual gathering of free improvisers.
- The Ramones self-titled debut launches punk rock in the United States.

1977

- Kraftwerk releases *Trans-Europe Express*, a masterpiece of electronic popminimalism that foreshadows techno.
- DJ Grandwizard Theodore invents scratching.
- Jacques Attali publishes Noise: The Political Economy of Music.
- The Sex Pistols' *Never Mind the Bollocks* and The Clash's self-titled debut launch punk rock in England.
- The Residents record "Beyond the Valley of a Day in the Life," composed of fragments sampled from Beatles records.
- Max Neuhaus mounts the sound installation *Times Square*.

1978

• Brian Eno produces *No New York*, a compilation that documents New York's experimental No Wave scene, and releases *Music for Airports*, which invents ambient music.

1979

• Art turntablist Christian Marclay begins his early experiments.
- George Lewis releases *Homage to Charles Parker*, featuring key members of the AACM alongside MEV's Richard Teitelbaum.
- The Fatback Band and The Sugar Hill Gang release the first hiphop singles.
- Public Image Ltd releases *Metal Box*, which fuses punk rock, dub, and Krautrock.

1980-81

- Composer and sound artist Maryanne Amacher produces the first of her "Music for Sound-Joined Rooms" installations.
- Glenn Branca's Guitar Army combines punk rock and minimalism, enlisting Thurston Moore and Lee Ranaldo of Sonic Youth, whose debut EP is issued on Branca's Neutral label.
- Sony introduces the Walkman.
- Grandmaster Flash executes the first turntablist masterpiece, "The Adventures of Grandmaster Flash on the Wheels of Steel."
- David Byrne and Brian Eno record *My Life in a Bush of Ghosts*, an album of Fourth World funk built around ethnographic field recordings.
- William S. Burroughs releases a compilation of tape cut-ups, *Nothing Here Now But the Recordings*, on Throbbing Gristle's Industrial Records label.
- Industrial music quintet Einstürzende Neubauten forms in Berlin.
- Under the name Merzbow, Masami Akita begins releasing his noise compositions on cassette.
- Release of the proto-techno singles "Alleys of Your Mind" by Cybotron and "Sharevari," by A Number of Names.

1982

• The first compact discs appear on the market and soon become the most lucrative format the music industry has ever seen.

1983

- House music is born in Chicago with Jesse Saunders and Vince Lawrence's "On and On."
- Herbie Hancock's mega-hit "Rockit" mixes jazz and hiphop turntablism.

1984

- John Zorn composes Cobra, the magnum opus among his "game pieces."
- The Sound Unity Festival marks a resurgence of free jazz activity in New York City.
- Ensoniq produces the Mirage, the first inexpensive digital sampler.

1985

- Under the name Model 500, Juan Atkins releases the seminal techno track "No UFOs" on his new Metroplex label.
- Anthony Braxton's classic quartet tours England and documents the concerts on a

series of key records for the Leo label.

- Yasunao Tone begins modifying CDs with pinhole-punctured Scotch tape.
- Lawrence "Butch" Morris releases *Current Trends in Racism in Modern America*, his first recorded "conduction" (conducted improvisation) featuring John Zorn, Yasunao Tone, Frank Lowe, Christian Marclay, Zeena Parkins, and others.
- Christian Marclay releases Record Without a Cover.

1986

• Miller Puckette develops MAX, which would become a major software tool for live computer improvisation.

1989

- John Oswald releases *Plunderphonic*, a CD containing humorous and inventive manipulations of songs by Dolly Parton, Public Enemy, The Beatles, and Michael Jackson. A year later, threatened by lawyers representing Jackson, Oswald is forced to destroy the remaining copies.
- The data compression format MP3 patented in Germany.

1990

- John Zorn releases *Naked City*, a dizzying mix of jazz, punk rock, film music, heavy metal, lounge music, reggae, country, and other styles.
- Sony introduces the recordable CD.

1992

- Otomo Yoshihide introduces the turntable into free improvisation on Ground Zero.
- Warp Records releases *Artificial Intelligence*, a compilation that establishes the genres of "intelligent Techno" and "electronica."

1993

- Robert Hood releases the *Minimal Nation* EP on Jeff Mills' Axis imprint, signaling the arrival of minimal techno.
- Virgin launches its influential ambient series, beginning with "A Brief History of Ambient," and continuing with compilations that borrow titles from John Cage compositions: "Imaginary Landscapes" and "Music of Changes."

1994

- German trio Oval releases *Systemisch*, assembled from fragments of altered and malfunctioning CDs.
- Aphex Twin releases *Selected Ambient Works Volume 2*, a founding document of ambient electronica.

1995

• Simon Reynolds coins the term "post-rock" in articles for the *Village Voice* and *The Wire*.

- The term "turntablism" is coined by DJ Babu of the Beat Junkies crew.
- San Francisco hiphop label Bomb Hip-Hop releases *Return of the DJ Volume I*, the first album to showcase the work of hiphop turntablists.
- David Toop publishes his groundbreaking book Ocean of Sound.
- The Berlin label Basic Channel releases an influential compilation of its dub-soaked, minimalist house tracks.
- The Internet becomes widely available.
- Albums by Goldie, A Guy Called Gerald, and Spring Heel Jack signal the arrival of jungle (soon rechristened drum 'n' bass)
- Virgin's *Macro Dub Infection* compilation charts dub's influence on drum 'n' bass, post-rock, and hiphop.

1996

- Chicago quintet Tortoise issues the key post-rock record *Millions Now Living Will Never Die.*
- Finnish electronica duo Panasonic release Kulma.
- DJ Spooky releases his full-length debut, *Songs of a Dead Dreamer*, performs with composer Iannis Xenakis, and coins the term "illbient" to refer to his own music and that of Brooklyn DJ outfits Byzar, We, and Sub Dub.
- Derek Bailey releases *Guitar, Drums 'n' Bass*, a collaboration with drum 'n' bass producer DJ Ninj.
- Second-generation minimalist Rhys Chatham records *Hard Edge*, featuring drum 'n' bass rhythms by Apache 61.
- William and Patricia Parker mount the first annual Vision festival, a gathering of free jazz musicians and artists that attracts an avant-rock crowd.

1997

- Debut performances by MIMEO, the live electronic music supergroup featuring electronic musicians from classical composition and free improvisation to post-rock and post-Techno.
- Spanish entomologist and sound artist Francisco Lopez releases La Selva.

1998

- MP3 players appear on the market.
- Marina Rosenfeld records *theforestthegardenthesea*, a solo performance for multiple turntables and dubplates.
- Opening of Tonic, a Lower East Side club that becomes the center of the New York City's experimental music scene.

1999

• Sonic Youth releases Goodbye 20th Century, on which the avant-rock quartet, joined

by Christian Wolff, Takehisa Kosugi, and Christian Marclay, perform experimental compositions by Cage, Oliveros, Wolff, Reich, Ono, Cardew and others.

- To accompany its retrospective of Steve Reich's recorded output, Nonesuch releases *Reich Remixed*, a collection of tracks by electronica artists influenced by Reich's minimalism.
- Launch of the peer-to-peer file sharing service Napster.
- SubPop becomes the first record company to distribute tracks in MP3 format. CD sales begin a steady decline.

2000

- David Toop curates "Sonic Boom," a comprehensive sound art exhibit featuring work by Christian Marclay, Lee Renaldo, Scanner, Brian Eno and others.
- Minoru Hatanaka curates "Sound Art Sound as Media" at the NTT InterCommunication Center in Tokyo.
- The Mille Plateaux label releases *Clicks+Cuts*, an influential compilation of postdigital, minimalist electronica.
- The Australian label Extreme releases *Merzbox*, a 50-CD Merzbow retrospective.
- Free jazz pianist Matthew Shipp inaugurates the Thirsty Ear label's Blue Series, dedicated to merging free jazz and breakbeat music.
- *The New York Times* reports that, in the previous year, music stores sold more DJ turntables than guitars.
- Opening of the Tokyo club Off Site, which becomes the center of Japan's *onkyo* music scene.

2001

- Due to legal troubles, Napster ceases activity.
- Philip Sherburne coins the term "microhouse" to characterize the stripped-down house productions of Vladislav Delay, Jan Jelinek, Thomas Brinkmann, Ricardo Villalobos and others.
- Erstwhile records stages Amplify 01, the first annual summit of the new global Improv.
- Release of *Improvised Music from Japan*, a 10-CD set documenting the burgeoning Japanese Improv scene.
- The laptop quartet Lappetites debuts at Tonic in New York City.
- With the launch of the website Echtzeitmusik.de, the term "Echtzeitmusik" ("realtime music") comes into widespread use as a description of Berlin's improvised music scene.

2003

• The Brattleboro Free Folk Festival showcases the convergence of roots music, free

improvisation, drone music, and psychedelia that comes to be known variously as "free folk," "freak folk," or "The New Weird America."

- The American Post-Concrete label releases *China: The Sonic Avant-Garde*, the first major compilation to document experimental music and sound art from China.
- Dizzee Rascal's album *Boy in da Corner* wins the Mercury Prize, bringing widespread attention to grime, a genre launched the previous year with singles by Wiley and other members of the Roll Deep crew.

2005

- John Zorn founds The Stone, which is quickly established as the center of New York City's improvised and experimental music scene.
- Anne Hilde Neset and Lina Džuverović curate *Her Noise*, an exhibition of music and sound art by women at the South London Gallery.
- Launch of the video sharing website YouTube.

2006

• The self-titled debut by the South London electronic musician Burial brings "dubstep" to widespread attention.

2007

• Launch of the music sharing platform Soundcloud.

2008

- Launch of the music streaming service Spotify.
- Sales of vinyl LPs begin a steady rise.

2009

• Berlin's Haus der Kulturen der Welt hosts "Audio Poverty," a conference and performance series that examines the economic condition of music in the digital age.

2010

- Planet Mu releases *Bangs & Works Vol. 1*, a compilation documenting the music of Chicago's footwork scene.
- Composer and writer Tara Rodgers publishes *Pink Noises*, a compilation of interviews with several generations of women in electronic music.

2012

• "Sound Art: Sound as a Medium of Art," an exhibition curated by Peter Weibel and Julia Gerlach, opens at the ZKM in Karlsruhe, Germany.

2013

- Colgate University hosts "Revolutions Per Minute: Sound Art China," an exhibition and performance series highlighting experimental music and sound art from China.
- The Museum of Modern Art in New York City mounts "Soundings: A Contemporary Score," its first major exhibition of sound art.

2015

- Streaming generates more revenue than digital downloads or CD purchases.
- Artist Matthew Dryhurst launches Saga, which enables artists to control how their work is used online.

2016

• Launch of Resonate, a cooperatively owned music streaming platform.

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- Lewis, George. Voyager. Avant Avan014.
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- Bailey, Derek. Aida. Dexter's Cigar dex5.
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- Brotherhood of Breath. From Bremen to Bridgwater. Cuneiform RUNE 182/183.
- Brötzmann, Peter. Machine Gun. FMP CD 24.
- Coleman, Ornette. Change of the Century. Atlantic 781341.
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- Coltrane, John. Ascension. Impulse 314 543 413.
- Coltrane, John. The Olatunji Concert. Impulse 3145891202.
- Gayle, Charles. Touchin' on Trane. FMP CD 48.
- Halvorson, Mary. Away With You. Firehouse 12 Records FH12–04-01–024.
- Harriott, Joe. Free Form. Polygram POLY 538184.
- Iyer, Vijay. Break Stuff. ECM Records ECM 2420.
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- Lewis, George. Voyager. Avant AVANT 014.
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- Smith, Leo. The Kabell Years, 1971–79. Tzadik TZ 7610–4.
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- Aphex Twin. Icct Hedral. Warp WAP 063 CDP.
- Battles. EP C/B EP. Warp WARP CD141.
- Bitchin Bajas. Bitchin Bajas. Drag City DC 592.
- Branca, Glenn. The Ascension. Acute ACT 002 CD.
- Brinkmann, Thomas. Klick. Max-Ernst MAXE 001CD.
- Brinkmann, Thomas. X100. Supposé LP.
- Budd, Harold. Pavilion of Dreams. Editions EG EEGCD30.
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- Eleh. Location Momentum. Touch TO:80.
- Farben. Textstar. Klang Elektronik KLANG CD 07.
- Flynt, Henry. You are My Everlovin'/Celestial Power. Recorded NAEM01.
- Fullman, Ellen. Body Music. Experimental Intermedia XI 109.
- Gibson, Jon. Two Solo Pieces. New Tone NT6756.
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- Grubbs, David. *Banana Cabbage, Potato Lettuce, Onion Orange*. Table of the Elements TOE-CD-30.
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- Hood, Robert. Minimal Nation. Axis AX-007 2x12".
- Ikeda, Ryoji. Matrix. Touch TO 44.
- Johnson, Dennis. November. Irritable Hedgehog IHM 007M.
- Jlin. Dark Energy. Planet Mu ZIQ356.
- Kraftwerk. Autobahn. Kling Klang/EMI EMI46153.
- Licht, Alan. Rabbi Sky. Siltbreeze SILT076.
- Maurizio. Maurizio M-CD.
- M:I:5. *Maßstab* 1:5. Profan CD 3.
- Mills, Jeff. Waveform Transmission Vol. 1. Tresor 011 CD.
- The Necks. Vertigo. Northern Spy NS 067.
- Neu! Neu! Astralwerks ASW 30780.
- Niblock, Phill. YPGPN. Experimental Intermedia XI 121.
- Nyman, Michael. Decay Music. Virgin CDVE 964.
- Mills, Jeff. Purposemaker Compilation. Purposemaker/Neuton NEUPM01.
- Moore, Anthony. Pieces from the Cloudland Ballroom. Blueprint BP 327 CD.
- Oliveros, Pauline. Accordion & Voice. Important Records IMPREC140.
- O'Rourke, Jim. Happy Days. Revenant 101.
- Palestine, Charlemagne. Four Manifestations on Six Elements. Barooni BAR 014.
- Papa M. "I Am Not Lonely With Cricket." On *Live from a Shark Cage*. Drag City DC170CD.
- Phuture. Acid Tracks. Trax TX142 12".

- Plastikman. Consumed. NovaMute NOMU65CD.
- Radigue, Éliane. Adnos I-III. Table of the Elements TOE-CD-55.
- Reich, Steve. Works 1965–95. Nonesuch 79451.
- Riley, Terry. In C. Columbia COL 94983.
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- Spacemen 3. Dreamweapon. Space Age ORBIT001 CD.
- Studio 1. Studio Eins. Studio 1 STU CD1.
- Suicide. Suicide. Mute/Blast First BFFP133CD.
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- Villalobos, Ricardo. Alcachofa. Playhouse PLAYCD008.
- Young, La Monte. The Well-Tuned Piano 81x25. Gramavision 18-8701.
- Various. Basic Channel. Basic Channel BCD 001.
- Various. Chicago House '86-'91: The Definitive Story. Beechwood Music CHBOXCD1.
- Various. Clicks & Cuts, Vols. I and II. Mille Plateaux MP 79/98.
- Various. Reich Remixed. Nonesuch 79552.
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- Cage, John. *Imaginary Landscape #1*. On Various. *Early Modulations: Vintage Volts*. Caipirinha CAI2027.2.
- Cul de Sac. Death of the Sun. Strange Attractors SAAH011.
- DJ/rupture. *Minesweeper Suite*. Tigerbeat6 MEOW045.
- DJ Screw. June 27. Screwed up Click Entertainment SUC-2018.
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- 4 Hero. Parallel Universe. Selector SEL3.
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- J Dilla. Donuts. Stones Throw STH2126.
- Jeck, Philip. Vinyl Coda 1-III. Intermedium INTER 002.
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- Rosenfeld, Marina. theforestthegardenthesea. Charhizma CHAR003.
- Rosenfeld, Marina. P.A./Hard Love. Room 40 RM452.
- Schaefer, Janek. Skate/Rink. AudiOH! AUDIOH 11.
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- Various. Techno! The New Dance Sound of Detroit. Ten DIXCD75.
- Various. The House That Trax Built. Trax UK TRX UK CD001.
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- Various. *Turntable Solos*. Valve/Amoebic AMO-VA-01 CD.
- X-ecutioners. Built from Scratch. Loud/Columbia 086411.
- Yoshihide, Otomo. Sound Factory. Gentle Giant GG021 CD.

IX. Electronic Music and Electronica

- Alva Noto. *Transform*. Mille Plateaux MP 102.
- Aphex Twin. Classics. R&S RS 95 035CD.
- Autechre. Chiastic Slide. Warp 49.
- Babbitt, Milton. Ensembles for Synthesizer. On New Electronic Music from the Leaders of the Avant-Garde. SONY (Japan) SICC78.
- Becker, Rashad. Traditional Music of Notional Species Vol. 1. Pan PAN 34.
- Cascone, Kim. Residualism. Ritornell RITOR19.
- Ciani, Suzanne. Buchla Concerts 1975. Finders Keepers Records FKR082.
- Fennesz. Endless Summer. Mego 035.
- Fenn O'Berg. The Magic Sound of Fenn O'Berg. Mego 031.
- Halo, Laurel. Quarantine. Hyperdub HDBCD14.
- Herndon, Holly. Platform. 4AD CAD 3503.
- Köner, Thomas. Teimo/Permafrost. Mille Plateaux MP CD 35.
- Kontakt der Jünglinge. 1. Die Stadt DS 34.
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- The Lappetites. *Before the Libretto*. Quecksilber quecksilber 10.
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- More, Ikue. Labyrinth. Tzadik TZ 7068.
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Glossary

- Acousmatic listening Term coined by Pierre Schaeffer to describe a listening experience in which sound has been decoupled from its source (also known as "reduced listening").
- **Acoustic ecology** Term coined by R. Murray Schafer to refer to research into the effects of the acoustic environment on the creatures living within it.
- Additive synthesis Sound construction by means of the addition of sine waves to create a complex timbre.
- Afrofuturism A term that describes a genealogy of musicians, writers, filmmakers, and theorists who reject the association of black identity with "nature," "soul," "authenticity," and "the street," and instead connect it with technology, science fiction, and extraterrestrial existence.
- **Aleatory composition** Roughly synonymous with indeterminacy. The term is often reserved for the less radical forms of indeterminacy preferred by European composers such as Pierre Boulez and Karlheinz Stockhausen.
- **Ambient** A term coined by Brian Eno to describe a compositional and listening practice that strives to "tint" the acoustic environment rather to dominate it. Ambient music can incorporate elements of a number of different styles, including jazz, electronica, new age, modern classical music and even noise. It is chiefly identifiable as having an overarching atmospheric context.
- **Analog synthesizer** A sound-making device that combines various hardware soundgenerating modules (oscillators), sound shaping modules (filters), and time shaping modules (voltage controlled amplifiers) and usually driven by a keyboard.
- Atonality, Atonal music Describes a wide range of compositional styles that do not rely on the conventions of tonal harmony and, specifically, do not organize pitches around a tonal center.
- Avant-rock General term for rock music with an experimental edge. Sometimes also called "outrock."
- **Bauhaus** A modernist school of art, design, and architecture founded in Weimar, Germany in 1919 and closed by the Nazis in 1933. Often driven by utopian social aims, the school encouraged collaborations among the various arts, attempted to dissolve the hierarchy that separated the fine arts from the crafts, and fostered collaborations with industry.
- Beat juggling The turntablist practice of producing intricate beat patterns by using the

crossfader to cut between breakbeats played on each of the two turntables.

- **Breakbeat** The portion of a track in which all the instruments drop out except the drums. Using two copies of the same record, DJs often extend or loop these portions to form the rhythmic basis of new tracks. Often used to describe the variety of musics that make use of breakbeats, e.g. hiphop, triphop, and drum 'n' bass.
- Breakbeat science The art and science of mixing and composing with breakbeats.
- **Charivari** In early modern Europe, a serenade of noisy music played on pots and pans to signal disapproval of certain marriages or sexual unions.
- **Clusters, Sound clusters, Tone clusters** Groups of adjacent notes played simultaneously.
- **Computer music** A compositional practice that uses computer programs to generate sound from scratch, to manipulate existing sounds that have been digitized, or to create sound events in sequential or randomized fashion.
- **Conduction** A term coined by Lawrence "Butch" Morris to name his practice of conducted improvisation.
- **Cross fader** The device on a DJ's mixer that allows him or her to pan the sound from one turntable to the other.
- **Cut** In DJ culture, the practice of extracting sound, detaching it from its source or origin via a tape recorder, sampler, turntable and mixer, computer, or other such device.
- **Dada, Dadaism** A major modernist art movement founded in Zurich and New York in 1915 and remaining active until the early 1920s. Disillusioned by the carnage of World War I, Dada artists lampooned the dominant social and aesthetic values via anarchic theatre, nonsense poems, and the production of collages, photomontages, and ready-mades.
- *Dakou* Chinese term for "cut-out," surplus American and European CDs and cassettes marked by a cut in the plastic case. *Dakou* recordings were sent to China to be recycled but often ended up on the market, significantly influencing the development of rock and experimental music in China.
- **Dancehall** The term originated in the early 1980s as a description of live toasting by a deejay over instrumental reggae tracks. Today's dancehall, sometimes called ragga, features rougher toasting over harsher, more minimal, and often digital beats.
- **Dance Music** General term for musical styles rooted in club culture and intended for dancing: disco, house, techno, hiphop, etc.
- Deejay In reggae terminology, the vocalist, MC, or toaster.
- *Détournement* Literally, to divert or distort. A situationist tactic by which a given text, image, or piece of music is subversively altered by overlaying it with other texts, images, or sounds, or by incorporating it into a new context that undermines or parodies its original intended meaning or function.

- **Digital synthesizer** A sound-making device that combines various software soundgenerating modules (oscillators), sound-shaping modules (filters), and time-shaping modules (voltage controlled amplifiers) and usually driven by a keyboard.
- **DJ** Acronym for "disc jockey." In contemporary music, the term DJ can refer to someone who mixes existing tracks into a set, someone who creates new music with turntables and a mixer, or someone who does both.
- **DJ culture** An umbrella term for musics such as disco, dub, hiphop, house, and techno that are rooted in the art and science of the DJ. More broadly, the term refers to music and sound art that involves the two crucial features of the DJ's art: the cut and the mix.
- **Drum 'n' bass** A genre of dance music originally known as jungle, drum 'n' bass developed in London and Bristol in the early 1990s. Emerging out of house and influenced by dub reggae, hiphop, and techno, it is characterized by rapid digitized breakbeats and a slow bass groove. Among the myriad sub-genres of drum 'n' bass are jump up, techstep, hardstep, and drill 'n' bass.
- **Dub** A term that originally designated the instrumental B-side, or "version," of a reggae single intended as a backing track for a deejay. The term came to be associated with the work of producers such as King Tubby and Lee "Scratch" Perry who, via studio effects, turned these versions into works of art in their own right.
- **Dubplate** A one-off or limited edition vinyl test pressing. In reggae and DJ culture, dubplates are pre-release tracks given to DJs to debut at sound systems or club nights.
- **Dubstep** A genre of electronic music that emerged in London in the early 2000s out of UK garage and 2step. Dubstep tends to be dark, moody, instrumental, and bassy, evidencing the influence of reggae and dub.
- **EDM** Acronym for "electronic dance music," a term largely synonymous with electronica and used to cover a broad range of beat-based electronic musics.
- **Equal temperament** The dominant tuning system of Western music since the eighteenth century in which adjacent notes of the scale are separated by logarithmically equal distances that only approximate the natural harmonic series.
- **Electro-acoustic** Sometimes uses as a synonym for electronic music composition, the term can also describe compositions that combine the resources of electronic music with traditional acoustic instruments.
- **Electronic music** A term designating music made primarily by non-acoustic means such as tape manipulation, analog synthesis, or digital synthesis. More technically, the term names a style of composition that constructs music by additive synthesis instead of by the techniques of *musique concrète*.
- **Electronica** Electronic music that arises within the context of popular rather than classical music, but that is intended for home listening rather than for the dance floor.

- **Epistemology, Epistemological** The theory of knowledge. Study of the origins, presuppositions, nature, extent, and veracity of knowledge. More generally, concerned with the nature of knowledge and experience (as opposed to ontology, which is concerned with the nature of being or existence).
- **Experimental music** A term coined by John Cage to designate musical acts the outcome of which are not known in advance. Composer Michael Nyman broadened the term to designate a range of compositional strategies that emphasize processes of various kinds (i.e. chance, electronic, human), delight in the unique musical moment, new attitudes toward musical time, composer/audience interaction, etc.
- **Field recording** Audio recordings made outside on location in natural or human-made environments. Field recording (phonography or soundscape composition) also names a form of composition built largely or entirely from such recordings.
- **Footwork** A form of electronic music that originated in Chicago in the 1990s to accompany competitive street dance battles. A development of Chicago House and hiphop, footwork (also known as juke) features rapid drum machine beats and vocals that are sharply stuttered, syncopated, and looped.
- **Fourth world** A term coined by composer/trumpeter Jon Hassell to describe an electronic hybrid of ancient and modern, acoustic and digital, composed and improvised, and Eastern and Western musics.
- **Free jazz** A form of jazz improvisation not tied to preset chord progressions. The term was initially coined by Ornette Coleman, who titled his 1960 double-quartet record *Free Jazz*.
- Free improvisation Generally synonymous with "improvised music."
- **Furniture music** A form of "background" music conceptualized by composers Erik Satie and Darius Milhaud. A precursor to Brian Eno's ambient music.
- **Futurism** The first of the major avant-garde art movements of the twentieth century. Launched in 1909 and lasting into the 1920s, Futurism rejected traditional social and aesthetic values and called for a new art that celebrated modern technology, speed, noise, violence, and war. The movement was centered in Italy and Russia, and encompassed painting, sculpture, music, architecture, typography, poetry, cooking, and clothing design.
- **Garage (or garage house)** A form of house developed by DJ Larry Levan in the mid-1980s at the Paradise Garage club in New York City and by DJ Tony Humphries at the club Zanzibar in Newark, New Jersey. Garage was lushly produced with soulful diva vocals, syncopated snares, and ticking hi-hat rhythms, revealing the influences of disco and gospel. Transplanted to England in the mid 1990s, it became UK garage.
- **Glitch, music** Refers to the work of composers and sound artists who focus on the sonic artifacts (noise, blips, and other "unwanted sounds") produced in the digitization and

processing of sound with computers.

- **Global bass** An umbrella term for regional variants and hybrids of electronic dance music that have sprung up all over the world, e.g. Angolan kuduro, Argentinian cumbia electronica, Brazilian baile funk, Egyptian electro chaabi, Mexican trival, South African kwaito and gqom, American moombahton, etc,
- **Graphic score** A musical score that consists of idiosyncratic, non-traditional, indeterminate symbols intended to encourage improvisation.
- **Grime** Like dubstep, grime emerged in London in the early 2000s out of UK garage and drum 'n' bass. Yet grime reflects the strong influence of hiphop, featuring rapid-fire raps over aggressive beats.
- Hermeneutics A philosophical movement premised on the primacy and irreducibility of interpretation in the understanding of human artifacts (texts, laws, institutions, etc.)
- **HipHop** A form of, initially African-American, aesthetic expression that developed in New York in the 1970s. The term originally named three closely-related practices: graffiti, break dancing, and rap music. Today, the term is often used as a synonym for rap MCing and/or DJing.
- **Heavy metal** A form of rock music characterized by aggressive, driving rhythms, highly amplified guitars, and often dark thematic elements. The style began in the late 1960s/early 1970s with groups such as Black Sabbath and Judas Priest and became more prominent in the late 1970s/early 1980s with groups such as Iron Maiden, Motorhead, Megadeth, and Metallica.
- **House** A genre of largely instrumental dance music that, in its early years, extended disco tracks and highlighted their more synthetic elements. It is characterized by a 4/4 kick drum pulse, ticking hi hats, and recurrent synthesizer vamps. The name derives from Chicago's Warehouse Club, where the style was first developed in the early 1980s. Since its inception, the genre has splintered into a host of sub-genres, e.g. deep house, acid house, progressive house, hip house, microhouse, etc.
- **Illbient** A term coined by a group of Brooklyn DJs in 1994 to designate a form of dark, urban ambient music that combines elements of dub, drum 'n' bass, hiphop, and *musique concrète*.
- **Improvised music** A genre of music related to free jazz but arising out of a different cultural and aesthetic milieu. Where free jazz is rooted in jazz and the history of African-American expression, improvised music more fully reflects the influences of Cageian experimental music and the classical avant garde.
- **Indeterminacy** A term that describes the production of musical compositions (1) via chance techniques, or (2) that give performers a great degree of choice as to how to realize them.
- Industrial music A form of punk rock and experimental electronic music characterized

by the use of non-traditional instrumentation ranging from raw materials (glass, metal, wood, etc) to the tools and machines that process these materials (hammers, drills, presses, etc) to the manufactured objects themselves (phones, vacuum cleaners, televisions, radios etc). Industrial music first arose in the mid-1970s with groups such as Cabaret Voltaire, Einstürzende Neubauten, and Throbbing Gristle.

- Intelligent techno, Intelligent Dance Music (IDM) Terms for electronic music rooted in techno and dance music but intended less for the dance floor than for home listening. The "intelligent" tag stems from the *Artificial Intelligence* compilations, released by Warp in the early 1990s. Related to the slightly broader term "electronica."
- **Jungle** The original term for what became known as drum 'n' bass. The term refers to a Kingston, Jamaica club known as the Jungle, referenced in an early jungle track. More recently, jungle has come to name a darker, rougher form of drum 'n' bass influenced by Jamaican dancehall.
- **Just intonation, Just tuned** An ancient system of tuning in which the intervals are determined by the natural harmonic series. Just intonation is preferred by many minimalist composers for its acoustic purity. See equal temperament.
- Krautrock Term that refers to German rock groups the late 1960s and 1970s (Can, Tangerine Dream, Faust, Kraftwerk, Neu! and others) who produced progressive rock influenced by minimalism, experimental music, and the classical avant garde. Sometimes called *"kosmische Musik,"* Krautrock is often characterized by an immersive motoric pulse and the creative use of electronics and studio effects.
- **Mashup** A form of remixing in which two existing songs are laid over one another, often the vocal track of one over the instrumental track of another.
- MC Acronym for "master of ceremonies." In hiphop, the vocalist or rapper.
- **Mesostic** A technique for the composition of texts pioneered by John Cage. A variation on acrostic writing, mesostics employ a name or phrase placed vertically down the middle of a page. A new text, read horizontally, is then composed making use of the letters in the vertical row.
- **Minimalism** A term coined by Michael Nyman in 1968 to refer to the early work of American counter-culture composers La Monte Young, Terry Riley, Philip Glass, and Steve Reich. The term generally describes compositions that display some or all of the following features: repetition, often of short modal musical phrases, subtle variation over long periods of time, harmonic stasis, and a steady pulse.
- Mix The fluid stream of music that a DJ creates by juxtaposing and layering tracks.
- **Mixer** An electronic device for combining several individual signals routed to one or more channels that can then be amplified or recorded.
- Mobile form A principle of musical structure according to which the sequence and/or

makeup of segments of a composition are variable at the time of performance (also known as "open form"). The term was coined by composers who admired the fluidity and indeterminacy of Alexander Calder's mobiles.

- **Modal improvisation** A term applied to the improvisational style of saxophonist John Coltrane during his last years, Miles Davis' groups of the late 1960s and early 1970s, and others whose music moved toward harmonic stasis (or, at least, a marked decrease in the harmonic rhythm associated with BeBop), and its concomitant extended playing on a single chord-scale.
- **Modernism** Though the term has a bewildering range of meanings, modernism often refers to a number of key tendencies in twentieth-century art: abstraction, an emphasis on form rather than meaning or content, a focus on phenomenological experience rather than realism, aesthetic autonomy, utopian progressivism, antipathy to mass culture, etc. The term is also often used as an umbrella term for the group of early twentieth-century avant-garde art movements that includes futurism, cubism, Fauvism, Dada, Bauhaus, etc.
- **Modernity** A broad historical term that generally encompasses Western history since the European Enlightenment of the seventeenth and eighteenth centuries.
- **Modular synthesizer** A synthesizer composed of a series of independent circuits, or modules, that can be connected together in various ways to produce sounds.
- **Monophonic** Literally, "one voice," or an instrument, such as an analog synthesizer, that can only produce one pitch event at a time.
- **MP3** A format for digital audio that enables sound files to be compressed and thus reduced in size by up to 95 per cent. The term is a contraction of MPEG (Moving Pictures Experts Group) Layer 3.
- *Musique Concrète* Music composed by editing recorded sounds. The term was coined Pierre Schaeffer, a French radio broadcaster who pioneered the technique in the late 1940s.
- **No wave** A short-lived musical movement centered in New York's Lower East Side during the late 1970s and early 1980s that merged punk rock with minimalism, experimental music, and performance art. The scene was captured on *No New York*, a compilation produced by Brian Eno in 1978.
- *Objet sonore* (Sonorous object) A term coined by Pierre Schaeffer to describe the smallest self-contained particle of a soundscape. Though it may be referential (i.e. a "bell"), it is to be considered as pure sound, independent of its source and of any semantic content.
- **Onkyo** Literally (in Japanese) "reverberation of sound." The term has come to be applied to an improvisational practice prominent in Japan that explores the fine-grained textural details of acoustic and electronic sound.

- **Ontology, Ontological** The theory of what exists, of what there is. Inquiry into the very nature or being of a thing.
- **Open work** Umberto Eco coined this term in 1959 to refer to works of literature and music that are, in a sense, deliberately unfinished and that call upon performers, readers, or listeners to complete or realize them.
- **Patch** A particular configuration of sound generators and sound modifiers on an analog or digital synthesizer.
- **Phenomenology, Phenomenological** A philosophical methodology founded by Edmund Husserl in the early twentieth century, phenomenology attempts to describe the contents of experience irrespective of the sources, reality, truth or falsehood of this experience. Hence, phenomenological description draws no essential distinction between reality and appearance, perception and phantasy.

Phonography See "field recording" and "soundscape composition."

- **Plunderphonics** A term invented by Canadian composer John Oswald for his practice of sampling and humorously remixing pop music.
- **Polyphonic** Literally, "many voices," or an instrument, such as a digital synthesizer, that can produce more than one pitch event at a time.

Post-digital music see "glitch music."

- **Postmodernism** Generally refers to a new aesthetic sensibility that emerged in the 1960s, characterized by a breakdown of the boundaries between high art and mass culture, the reemergence of explicit political and social concerns in art, the often ironic juxtaposition of references to heterogeneous historical or cultural styles, the rejection of modernism's utopian progressivism, etc.
- **Post-rock** A term coined by critic Simon Reynolds in 1995 to describe a form of music that uses rock instrumentation—guitar, bass, drums—in non-rock ways: to produce timbres and textures rather than power chords or melodies. Post-rock reveals the influence of DJ culture and often supplements rock instrumentation with samplers, sequencers, turntables, and analog synthesizers.
- **Poststructuralism** An umbrella term for a group of (primarily French) philosophers and cultural theorists who emerged in the 1960s, among them Jacques Derrida, Jean Baudrillard, Michel Foucault, Julia Kristeva, Luce Irigaray, Jean-François Lyotard, and Gilles Deleuze. Poststructuralism is characterized by a rejection of metaphysical entities and epistemological foundations, and the insistence on the irreducible plurality of meaning.
- **Post-techno** Any form of electronica genealogically related to techno but departing from it in one way or another. Akin to "intelligent techno" or "intelligent dance music."

Powerbook music Informal designation for a generation of composers and improvisers

whose primary performance instrument is a laptop computer that utilizes various software applications for generating and processing sound.

- **Preset** A pre-programmed electronic timbre that can be called up quickly in performance on an analog or digital synthesizer.
- **Producer** Within electronica and DJ culture, artists are generally termed "producers." The term is deliberately ambiguous, collapsing the traditional distinctions between the "musician" (who plays an instrument), the "composer" (who organizes the overall shape of a piece), the "producer" (who shapes the quality of the recorded sound) and the "engineer" (who handles the technical aspects of recording).
- Ragga Short for raggamuffin. A form closely associated with dancehall reggae.
- **Rave** A party or sound system usually held at a one-off venue (a warehouse, an open field, etc.) and centered around house, techno, or drum 'n' bass music spun, often all-night, by a series of DJs.
- **Rave culture** A term for the general cultural milieu (clothing, graphic design, drugs) surrounding rave and techno.
- **Readerly text** A term coined by literary theorist Roland Barthes to describe a kind of text that presents itself as a finished product with a self-contained range of meanings, and that limits reading to passive consumption. The term is contrasted with the "writerly text" and the "open work."

Reduced listening see "acousmatic listening."

- **Remix** The creation a new musical work from pieces of some existing work or works. The remix usually contains some recognizable element of the original piece, though some more extreme remixes alter the original material beyond recognition.
- **Rhizome** A form of vegetation (such as grass) that has a horizontal, decentralized, connective structure. The term was used more generally by philosophers Gilles Deleuze and Félix Guattari to refer to any entity or collection of entities that exhibits such a structure.
- Sample, sampler, sampling A sample is a digital sound file containing a brief sound event, often taken from a piece of recorded music, that is incorporated into a new piece of music. A sampler is a device for capturing and manipulating samples. Sampling refers to the compositional and performance practice of collecting and utilizing digital sound files. The practice of sampling usually involves digitizing sounds from vinyl records, recording them *in situ*, and/or sharing them with other composers.
- **Semiotics** The science of signs (linguistic, gestural, visual, auditory, etc.) and their contextual meaning. The term is often used synonymously with structuralism and/or poststructuralism.
- Sequencer A piece of hardware or software that allows recorded sound elements to be

played back in the exact sequences and relationships in which they were arranged.

- Serialism Often used as a synonym for 12-tone composition, the term is more properly used to describe a compositional technique that extends Schoenberg's 12-tone methodology to other musical parameters, such as pitch, rhythm, dynamics, register, and even timbre. An order of succession is established for any or all of these elements; and these successions are then repeated throughout the composition.
- Schizophonia A term coined by R. Murray Schafer to refer to the split between an original sound and its electro-acoustic reproduction.
- **Scratching** A turntablist technique originally developed by Grand Wizard Theodore that is performed by moving a vinyl record back and forth under the stylus, creating a distinctive percussive sound that has come to be associated with hiphop. There are many different types of scratch, including the crab, flare, orbit, strobe, twiddle, and others—names that refer to the scratch's sound, the hand motions and equipment set-up required to produce it, or the name of the DJ who developed it.

Selector In reggae culture, the term for a DJ or person who plays records.

- **Signifier** The sensuous, material element of a sign, e.g. the particular sound of a spoken word considered separately from its meaning or reference.
- Situationism An artistic and political movement active in France during the 1960s. Situationists rejected the pervasive, media-dominated, capitalist commodity culture (which they dubbed "the society of the spectacle") and sought to subvert it via art and political action.
- **Soundscape** A term coined by R. Murray Schafer to describe to a sound environment, either in the natural world or in any recorded medium.
- **Soundscape composition** A form of electro-acoustic composition built from field recordings. Soundscape composition derives from *musique concrète* and from the work of acoustic R. Murray Schafer and the World Soundscape Project.
- **Sound art** General term for works of art that are centered on sound and are often produced for gallery or museum installation.
- **Sound system** From Jamaican reggae practice, the term describes a mobile DJ set-up that would provide open-air dance parties. Each sound system was run by a select DJ or group of DJs who developed a particular style and competed with other DJs and sound systems.
- **Stochastic music** A term coined by Iannis Xenakis to describe his use of models from probability theory in the composition of musical works.
- **Structural listening** Diametrically opposed to ambient listening, structural listening is concerned with the overall structure of a musical work and the logical relationship among its parts. The philosopher and music theorist Theodor Adorno considered this the only fully adequate mode of listening to music.

- **Structuralism** An intellectual movement centered in France during the 1950s and 1960s. Structuralism attempted to provide a general methodology for the human sciences based on the model of Saussure's linguistics, according to which language has meaning not by reference to a non-linguistic reality but by reference to differences and oppositions within the linguistic system itself.
- **Techno** An evolution of house developed in Detroit in the early 1980s, Techno is often faster than house and more mechanical, minimalist, dystopian and futuristic. Early techno combined the cyborg futurism of Kraftwerk and Afrika Bambaataa with the funk of George Clinton and Parliament. The term is sometimes used loosely as an umbrella term for contemporary electronic dance music.
- **Texture** Generally, texture refers to the quality of a sound or series of sounds that is a product of its pitch(es), timbre, and loudness. It can also refer to the quality of sound produced by a given combination of instruments, voices, or electronic sounds.
- **Timbre** Term that refers to the subjective qualities of a tone that are a function of its overtone content. Sometimes called "tone color."

Toasting In reggae culture, the term for rapping or MCing.

- **Tonality, Tonal music** A term describing the harmonic conventions of most Western music (classical and popular) from the eighteenth century to the present. Tonal music is music organized around a center, called the "tonic," and the scale of which the tonic is the principal tone. Also known as "functional harmony" and "common-practice" harmony.
- **Total serialism** A term that usually refers to musical composition in which three or more sets of musical parameters are serialized (see "serialism" and "12-tone composition").
- **Track** Within DJ culture, the term "track" means a particular piece of music. This usage derives from the terminology of audio recording, where "tracks" are the particular components of a song (the drum track, the guitar track, etc.) that are recorded independently of one another and then mixed together by the engineer. In DJ culture, the term "track" is preferred to the term "song" because tracks are often seen not as completed entities but as sets of elements to be combined with other such elements by the DJ in the creation of a mix.
- **Triphop** A term coined in the early 1990s to describe the moody, downtempo hiphop of acts such as Massive Attack and Portishead, and releases on the Mo'Wax label.
- **Turntablism, Turntablist** A term first coined in 1995 by DJ Babu to describe a form of music in which turntables are used not merely as a device of reproduction (something with which to play recorded music) but as a device of production (something with which to manipulate sound and create music).
- Twelve-tone composition A compositional technique developed by Arnold Schoenberg

around 1920 as a way of treading a middle ground between traditional tonality and atonal composition. Schoenberg's method permits the composition of a work in which all pitches are related to a fixed ordering of the twelve chromatic tones. This "series" or "row" sets the basic intervallic character of the piece, and any vertical or horizontal construction of pitches will relate to the original row by one of four transformations: transposition, retrograde, inversion, or retrograde inversion.

- **Two-step (or 2-step)** An offshoot of UK garage that eschews the latter's 4/4 pulse for more irregular rhythms influenced by breakbeat.
- **UK garage (or speed garage)** a form of speeded-up garage music that developed in south London in the mid-1990s and later engendered 2step, dubstep, and grime.
- Writerly text A term coined by cultural theorist Roland Barthes to describe a kind of text that discourages the reader from passively consuming it and instead encourages the reader to contribute actively to its production of meaning. (See "readerly text" and "open work".)

Notes to Quotations

I. Music and Its Others: Noise, Sound, Silence

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- 6 John Zorn, liner notes to *Spillane* (Elektra/Nonesuch, 1987).
- 7 John Cage, "Experimental Music," in *Silence: Lectures and Writings by John Cage* (Hanover, NH: Wesleyan University Press, 1961), 8.
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- 10 Jacques Attali, *Noise: The Political Economy of Music*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1985, 26–27.
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II. Modes of Listening

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