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THE POLITICS OF SOUND ART

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Featuring downloadable audio album curated by Lukas Ligeti: **SONIC COMMENTARY: MEANING THROUGH HEARING**

The Politics of Sound Art

I am interested in a political art, that is to say an art of ambiguity, contradiction, uncompleted gestures and uncertain endings, an art (and a politics) in which optimism is kept in check and nihilism at bay.

—WILLIAM KENTRIDGE [1].

IF IN 1968 someone had asked the 14-year-old me to define “sound art” I probably would have pointed to the megaphones that sprouted that spring across the Columbia University campus (see this issue’s cover). They were ubiquitous and frequently mishandled or malfunctioning: words were interlaced with feedback and obscured by distortion. Amplifying one’s voice to address a handful of friendly comrades under a tree seemed more of a conceptual statement than an acoustic necessity.

In that turbulent year the inflection of art by politics seemed natural, and music was one of the most conspicuous vehicles of expression. The first discs to grace my kiddie record player were by the subtly subversive Burl Ives (blacklisted 1950), while Pete Seeger (blacklisted 1957) had provided the musical backdrop in the living room.

But 1968 was also the year I bought Jimi Hendrix’s *Are You Experienced*, and electricity became the central component of my musical world. To an adolescent the artifacts of feedback and distortion seemed as much an anti-authoritarian statement when applied to the guitar as they were when they rang out at a sit-in. These were the sounds of subversion, rather than of protest. While Seeger overlaid timeless, politically neutral chords and melodies with pointed lyric statements, Hendrix reshaped the underlying musical material; his message lay inside the sound itself.

Between the protest song and the protesting megaphone lies the wide swath of political music and sound art, the timely subject matter of this volume of *Leonardo Music Journal*. Half a century after the Sixties we are again living in a world of intense political divisiveness, and activists on both the left and the right have taken up sound as a medium, a weapon, and a subject of study. The time has come to review this landscape.

Many of our contributors addressed aspects of field recording in this issue of *LMJ*. With its quasi-documentary mandate, the emergent field of phonography abounds with political content and implications, from recordings of street protests (Christopher DeLaurenti and Christopher Wood), to ecological advocacy (Tom Kohut, Alison Pezanoski-Browne), to compositions based on the voices of Cuban street vendors (Neil Leonard), to analyses of the genre itself in terms of political agency (Gerald Fiebig, Tullis Rennie).

Political agency begins with access, and several authors focus on the role of new technologies in increasing accessibility to music and sound. Helen R. Mitchell reports on the use of biometric computer games in the diagnosis and treatment of dementia, while Koichi Samuels reviews designs for “open” musical interfaces that can be easily adapted to compensate for various disabilities. Adam Tinkle and Daniel Walzer both discuss novel pedagogies for music education.

The political and social characteristics of technology itself are the subjects of several papers. Andrew Brooks brings glitch into the field of queer studies. Ryan Jordan considers do-it-yourself (DIY) electronics as a form of “literal critical practice.” Shelly Knotts looks at network music as a means of developing nonhierarchical models of communication and power distribution. Karen Collins and Ruth Dockwray analyze the role of sound design as a rhetorical device in public service announcements. Nathan Thompson considers audio feedback as a tool for creating environmentally responsive installations.

Providing an outline of the political topics utilized in his 40 years of work, Richard Lerman discusses his use of piezo contact mikes to make recordings at sites of human rights abuses, while Mo H. Zareei describes his mechatronic sound sculptures in terms of Brutalist design theory. William A. Thompson IV and Jeffrey Albert discuss the role of music production and listening during Thompson’s deployment in Iraq following 9/11.

Jing Wang contributes an overview of the current state

of sound art in China, while Sandra Kazlauskaitė provides insight into similar practices in post-Soviet Lithuania. Tara Rodgers takes a more global view of the political dimensions of electronic music and the possible pathways of sonic activism.

Historical perspective is provided in both Adi Louriya-Hayon's critique of the "sounding body" in the work of Bruce Nauman, and Martyn Hudson's reevaluation of the relation of sound to architecture in Kurt Schwitters's *Merzbau*. For its "political" issue in 1969 *Source* magazine asked 20 composers: "Have you, or has anyone ever used your music for political or social ends?" For this volume of *LMJ* Alyce Santoro put the same question to 20 composers working today, including several who had been included in the earlier *Source*.

Drawing on his peripatetic musical background, Lukas Ligeti curated the downloadable album *Sonic Commentary: Meaning through Hearing* for this volume. In addition Katia Chornik has contributed a short essay and web link

for her extraordinary *Cantos Cautivos* project, an online archive of songs in the context of detention and torture in Chile under the dictatorship of Augusto Pinochet (1973–1990). Finally, Larry Polansky—founding editor of *Leonardo Music Journal*—contributes a rather poignant essay on *LMJ*'s first 25 years.

Art historian Susan Tallman has observed that the idea of "political art" suffers from an innate contradiction: the complexity and ambiguity of good art precludes the pedantic clarity usually needed to incite political action [2]. South African artist William Kentridge has articulated a possible solution to that conundrum: the idea that ambiguity itself can constitute a defiant political statement, which brings us back to where we started: The feedback disrupting the megaphone.

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Endnote

Mark Trayle passed away in February 2015, at the age of 60. Mark was a founding member of The Hub, a beloved faculty member at CalArts, and a contributor to and peer reviewer for *Leonardo Music Journal*. He will be missed by many, and this volume of *LMJ* is dedicated to his memory.

References and Notes

- 1 William Kentridge, in *William Kentridge: Drawings for Projection, Four Animated Films* (Johannesburg: Goodman Gallery, 1992) n.p.
- 2 Conversation with author, June 2015.

A Pentalustral Interlude

IN 1991, when we instantiated the *Leonardo Music Journal*, I wrote a somewhat paradoxical editorial titled “17 Gloomy Sentences (and Commentary) at the turn of the millennium (in the form of an editorial)” [1]. One sentence was hopeful:

16. *LMJ*'s commitment to globalism, to experiment, to stylistic nonboundaries, to allowing musicians to articulate their own work, is a humble beginning.

A quarter of a century later, I remain hopeful, made so by the extraordinary world of music, sound and ideas that the *LMJ* community and the artistic community at large continues to create. As a teacher, composer, performer and editor, I encounter daily something fascinating, new, intriguing and often wonderful that inspires me, most of all, to “get back to work.” *LMJ*, under the visionary and energetic stewardship of Nic Collins, for the past five lustra has remained new, essential to the artistic world, and an important resource.

I'm still cautious, and sometimes a bit gloomy (maybe by nature)—but about different things. The composer Dirk Rodney said that in art, “All is novel, nothing is new.” In my 1991 editorial I decried musical conservatism, non-inclusivity and arbitrarily inhibitive distinctions [2]. I'm less worried about those at the moment and more worried about how artists can continue to work in a turbulent and almost dystopian world in which art seems to be at best a luxury, at worst a dangerously misguided indulgence.

Since I helped launch *LMJ*, and since I left its helm in 1997, the world (inside and out of art) has changed dramatically. The availability, ease of use and power of music-making technology have increased, literally exponentially. At the same time, there are a great many more younger artists, and commensurately more institutions granting degrees in composition, sound art and digital arts and media. It has become harder for younger artists to find their own new voices and to feel that they are making an important contribution, given the enormous quantity of kindred work being done.

But at the same time we continue to make earth's higher

species depauperate on the earth, working our way inexorably toward ourselves. Even in what used to feel like an unassailed United States (admittedly, only from certain perspectives), cataclysm insinuates itself almost daily. Ecologically we see, on a daily basis, the incipience of doom: devastating droughts in my home in California; ever-increasing coastal hurricanes; ecological collapses of both flora and fauna; disasters of every stripe. The world is besieged by continual and pervasive war, genocides, misogynistic violence and oppression. Political and socio-economic decision-making is dominated by corporations and religious fundamentalists, and the increasing maleficence of an out-of-control accelerating-feedback capitalism. Black humor determines where we choose to live: pick your favorite apocalypse. Everywhere on the planet the terrifying disparity in well-being, privilege, wealth, health, freedom and safety is a runaway train headed over a cliff—in fact, maybe already over that cliff.

Given all this, how can or does it make sense to: Learn or teach in an MFA program in new media, composition, sound or digital arts? Be a sound installation or soundscape artist, or sonic geographer? Write new compositional or performance software; fabricate new “DIY” interactive technology or laser-cut your own dulcimer? What license must we self-issue in order to use an Arduino card and Max patch in a college black box theater or a loft in Oakland, Berlin or Brooklyn, in order to call attention to fracking in the Urals, systematic raping of women in India or Brazil, systematic for-profit imprisonment of Black men in the United States?

And, as Gordon Mumma often pointed out long ago, electronic art forms rely heavily on advanced technology, and by extension giant corporate infrastructures. Even software development, once a kind of off-the-grid musical art form, is now often a hunt-and-peck through Google [3]. The term “political art” seems more and more the appropriate subject for a smarmy, satirical YouTube video.

The Internet, with its overwhelmingly flat artistic and knowledge topography, presents new opportunities and new dangers. Lou Harrison used to say that composers

born after Hiroshima had no sense of history, because they no longer had a surety of the future. Entering into a historical musical conversation makes little sense if there won't be any more history. The Web, a nascent technology when we began *LMJ*, not to mention its decades-older progenitor *Leonardo*, has irrevocably transformed the way artists learn, produce, collaborate and think. The Internet is like a planar space-filling curve of fractal dimensionality. Everything seems immediate, proximal, connected and available. The Web's virtue is how easy it has become to get information and instructions and to learn something new (or old). Consequently, the definition of an artist (or scientist)—to be “curious”—takes on new meaning. Artists have always tried, sometimes successfully, to be unsafe in a safe world. Yet increasingly art has become *safe in an unsafe world*. Safe because it poses no threat to the status quo, the corporate, academic and technological infrastructure that easily exploits and pigeonholes it.

So: What to do? Not to sound Panglossian, but I believe that the answer is “pretty much what we've always done.” The artist's assignment is preoccupation with fancy, meaningfully useless ideas. We should devote our full energies to the creation of new apertures into the mind and senses. We are obliged to do these things with all the honesty and humility we can muster.

So my non-gloomy thought on *LMJ*'s 25th anniversary

is that the journal, and artists, are doing what we should be doing: making art and talking about it. We do that in our age-old response to justice and injustice, equality and inequality, sanity and insanity. We should never stop asking hard questions—about art, the world, society, justice, peace and what it means to be a decent human being. We need to, each of us alone, engage in the thorniest of these arguments with *ourselves* alone. We should never let ourselves off the hook about what, why and how we do what we *do*. But we should continue to *do*. For the doing and the asking, we need *LMJ* and things like it.

We can't, in fact, do much else, so we owe it to ourselves to not waste the lottery-pick life we accidentally won. This is good news, I suppose, like getting a mild flu in third grade and having to stay home from school—there's not a heck of a lot you can do about your good fortune, and you're not really hurting anyone else. Most of us can't help being artists. The world's problems are what they are—devastatingly serious—and will worsen or improve without much interference, I'm afraid, from us. I'm sure when the zombie apocalypse comes, I'll even find a few free moments to write a round about it.

LARRY POLANSKY

Leonardo Music Journal

Founding Editor, 1991–1997

References and Notes

- 1 Larry Polansky, “17 Gloomy Sentences (and Commentary) at the turn of the millennium (in the form of an editorial),” *Leonardo Music Journal* 1 (1991) pp. 17–18.
- 2 From a nonmusical standpoint, I also said that humanity desperately needed to leave the planet and saw a glimmer of hope in the
- 3 Full disclosure: In writing this essay I entered “lustrums” in Google to check its plural.

Noise Pollution and the Eco-Politics of Sound: Toxicity, Nature and Culture in the Contemporary Soundscape

TOM KOHUT

ABSTRACT

Sound is a political question of which the antagonisms of noise pollution are a concrete embodiment. The discourses of noise pollution tend to postulate noise as a toxin that is produced by our industrial societies and is difficult either to contain or even define precisely. Composer R. Murray Schafer contrasts this toxin with a sustaining nature, but ecological thought of the past decade suggests that nature is, in fact, unnatural. The field recordings of Chris Watson and Francisco López suggest that this natural perversity can indicate a new mode of sonic ecological sustainability.

TOXIC SOUND

In 1978, former U.S. Surgeon General Dr. William H. Stewart asserted that “calling noise a nuisance is like calling smog an inconvenience. Noise must be considered a hazard to the health of people everywhere” [1]. As with smog, noise is an environmental toxin, measurable in degrees of noxious effects and correlated with urban living, albeit in ways that are hard to relate in terms of direct causation. “Noise” is just “there,” something deleterious to one’s health but, for urban dwellers at least, largely unavoidable. The comparison of noise with smog is instructive, given that noxious sounds and odors are often linked. In her history of noise abatement laws, Karin Bijsterveld notes that these toxins share many similarities in the popular imagination:

Just as with stench, noise was also considered to threaten the social order. If stench became symbolically associated with the depths of hell, noise became characterized as infernal din. Social elites not only considered the lower classes insensitive to smell and bestial odors, but also to be indifferent to noise [2].

As with the difference between a pleasant perfume and an ungodly reek, the difference between melodious sound and a noise is a social difference: *They* are smelly and noisy, while

we are clean and quiet. However, there is a further characteristic that unites odor and noise: Specifically, the difficulty in determining its source and the concomitant difficulty in *making it go away*. Indeed, Bijsterveld’s analysis of the attempts to quantify and regulate the potentially harmful effects of exposure to noise—including laudable ordinances restricting traffic and airport decibel levels or workplace safety regulations concerning hearing protection—is one of failure; the history of noise regulation, according to Bijsterveld, is a “tragic story” of circumstances overwhelming attempts to manage them [3]. Noise as pollution exceeds legal, political, scientific and engineering strategies that attempt to limit it.

To what degree is this a question of noise as such? Since the Western Medieval period, noise has been defined as “unwanted sound,” which renders noise a subjective phenomenon dependent on listeners’ particularities. Attempts to determine a quantifiable, objective definition of noise have tended to prove fruitless, running up against the fact that noise is always in excess of delimitation, even in excess of its own concept. Because of this, attempts to conceptualize noise have forgone ontological questions (on the essence of noise), focusing on noise understood in its phenomenological effects. Thus, the authors of “Noise Pollution: A Modern Plague” note the pathological effects of prolonged noise exposure: hearing impairment, “problems with concentration, fatigue, uncertainty, lack of self-confidence, irritation, misunderstandings, decreased working capacity, disturbed interpersonal relationships and stress reaction” [4], sleep disturbances, cardiovascular disturbances, psychological and emotional disturbances, negative social behavior and physical impairment [5]. We are not given a sense of what kinds of noise (high-pitched sounds? repetitive sounds? infra/ultrasound?) produce these effects, details that we might expect from a medical paper; we are only given the sense that there is “noise,” and whatever it is, it leads to physiological, behavioral and social pathologies. Thus, noise is a form of pollution, as dangerous as tobacco smoke and as recalcitrant to public awareness campaigns. In short, whatever noise might be, it is a contamination or plague.

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THE UTOPIA OF NATURAL SOUND

This is certainly the position held by Canadian composer R. Murray Schafer of the World Soundscape Project. Schafer's rhetoric is bellicose: "Today, as the machines whirl in the hearts of our cities day and night, destroying, erecting, destroying, the significant battleground of the modern world has become the neighbourhood Blitzkrieg" [6]. This blitzkrieg is, for Schafer as for noise abatement activists, a sociopolitical problem: "The general acoustic environment of a society can be read as an indicator of social conditions which produce it and may tell us much about the trending and evolution of that society" [7]. This social situation is a consequence of the industrialization of society: "The sound sewer is much more likely to result when a society trades its ears for eyes, and it is certain to result when this is accompanied by an impassioned devotion to machines" [8]. In contrast to the sound sewer resulting from mechanization, Schafer waxes lyrical about the wonders of the natural soundscape: Water, winds, the sounds appropriate to the four seasons are described with judicious citations from an impressive range of literary resources. That Schafer's stance is profoundly conservative has not escaped notice; musician David Toop dismisses Schafer's desire for "an Edenic state of pure, permanent quietude" [9], and Steve Goodman, in his *Sonic Warfare*, is even more damning:

The politics of silence often assumes a conservative guise and promotes itself as a quasi-spiritual and nostalgic return to the natural. As such, it is often orientalized and romanticizes the tranquillity unviolated by the machinations of technology, which have militarized the sonic and polluted the rural soundscape with noise, polluted art with sonification, polluted the city with industry, polluted attention with marketing, deafens teenagers and so on. Its disposition is almost always reactionary [10].

Against the purity of nature, the contamination of modernity: It does not seem to interest Schafer that living next to a waterfall might expose one to decibel levels comparable to living next to a highway—natural sounds are to be valued precisely because they are natural: "Let nature speak with its own authentic voices" [11].

DENATURALIZED NATURE

In contrast to the above, we might usefully juxtapose the Canadian poet Christopher Dewdney's provocation: "Vinyl is as natural as lichen" [12]. There is no reason to note that city noises are necessarily "toxic" in a way that natural sounds would not be. What Dewdney's remark emphasizes is that the framing of sounds of, say, urban density as toxic because of their source is an illegitimate move insofar as the putative toxicity of a sound is related not to its essential origin but to its effects on organisms. However, the suturing of sound to its source is vital to Schafer; the condition in which this does not occur, the "splitting of sounds from their original contexts" [13], is a *schizophonic* situation, an aberrant condition that results in the development of "a synthetic soundscape in which natural sounds are becoming increasingly unnatural

while machine-made substitutes are providing the operative signals directing modern life" [14]. The creation of this synthetic soundscape *denatures nature*.

This last point might be best refined through a detour through some contemporary developments in ecological thought, in which the concept of *nature* as such has come under scrutiny. Anthony Paul Smith's *Ecologies of Nature*, which imbricates ecological science, theologians Thomas Aquinas and Abû Sulaymân al-Sijistânî and the philosophers Spinoza and François Laruelle, demonstrates that there are at least two ways in which *Nature* has been "weaponized" and is in need of "decommissioning" [15]—as indicated in the work of Timothy Morton, for whom nature is a "transcendent term" that "wavers between the divine and the natural" [16], and as noted by Bruno Latour, for whom the concept of nature secures a fundamentally undemocratic politics by making it "possible to recapitulate the hierarchy of beings in a single ordered series" [17]. For his own part, Smith argues that "while ecology as a science may not require the philosophical concept of nature to function, nature is still a 'good name'" [18]. Nature is not the name of a transcendence, nor is it an ordering system overdetermining its subjects; rather, it is the nomination of an immanence, an always already "there" that exceeds attempts to delimit it. As the title of the first chapter of *Ecologies of Thought* puts it: "Nature Is Not Hidden, but Perverse." In its immanence, nature is radically present in its manifestations (as per Dewdney, both lichen and vinyl), whether these manifestations are dependent on the productive (as well as destructive) forces of weather, genetics, geology or *technology*. The distinction between a natural event (e.g. a rainstorm or bird migration) and a technological event (e.g. the building of a nuclear power station or an electrical grid) loses its conceptual cogency, since nature names what is immanent in both, an immanence that never is where it is expected and never does the work we think it will do.

While space does not permit more complete discussion of Smith's resourceful and complex text, we can at least note that if nature does not have the sort of transcendent qualities that proponents of the natural soundscape assert that it does, then the term *synthetic soundscape* requires recalibration [19]. Specifically, where this term has denoted natural sounds "becoming increasingly unnatural" (either through schizophrenia or through their subsumption into the soundscapes of the technological landscape), we can now assert that there is no "becoming unnatural" for natural sounds: Nature is, qua its perversity, always already unnatural. Here, the work of sound artists Francisco López and Chris Watson is exemplary. In the following sections of this paper, I explore two works in particular: Watson's 2013 release *In St. Cuthbert's Time* [20] and López's 1997 long work *La Selva* [21]. Both works are field recordings of environmental, nonhuman sounds: the sounds of Lindisfarne Island off the Northumberland coast (Watson) and the rainy seasons in the tropical lowlands of Costa Rica (López). These sounds are not conspicuously manipulated; there is no indication of varispeed, layering, the addition of delay or compression, etc. (They are, admittedly, almost certainly equalized to ensure playback fidelity, and

editing has of course been done—one can scarcely produce, let alone listen to, a 3-month piece of sound.) Thus, these works, while certainly a development of *musique concrète*, do not rest easily in that genre. Furthermore, while *musique concrète*, e.g. Pierre Schaeffer's 1948 *Étude aux chemins de fer* [22], regarded itself as the construction of sound objects, that is, as a means of composition and construction using sound as a waiting-to-be-formed medium, the question of the *art* of field recordings (or, rather, the culture of nature) as practiced in the pieces under discussion requires elucidation.

NATURE—CULTURES OF SOUND

Watson's *In St. Cuthbert's Time* comprises four sections corresponding to the seasons (Winter, Lechten, Sumor and Haefest, as per Old English) and was commissioned by Durham University to accompany its exhibition of the early-8th-century Lindisfarne Gospel produced by the monks on the eponymous island. (The island is also known for the hermit St. Cuthbert, whose tenure was contemporaneous with the writing and illumination of the Gospel manuscript. St. Cuthbert is known for his connection to birds, making him a striking point of interest when considered alongside Watson's recordings of birdsong, which go back to the early 1980s [23].) As for the recording itself, Watson was given the instruction to provide a sonic portrait of the environment as it would have been experienced by the monks and hermit of the 8th century, and indeed, with the exception of some distant bells ringing in the middle of "Winter" and at the melancholy close of "Haefest," we are in a hermit's soundscape: birds and other mammals, wind and water, but no sign of human presence. Birdcalls, as befits a work dedicated to St. Cuthbert, predominate, but each of the four sections/movements of *In St. Cuthbert's Time* are quite distinct: "Winter" is dominated by the constant sound of wind; "Lechten" brings the sound of flowing water to the foreground; and birds are almost the only sound source for "Sumor." "Haefest" is in many ways the most complex of the soundscapes offered here; rather than any identifiable sonic signature, we encounter a palpable absence akin to that of a sudden pressure drop or the room tone picked up when recording an empty space. As the piece comes to an end, we hear the distant sound of waves lapping against a shore while birdcalls and the occasional flapping of wings combine with almost inaudible bells.

In contrast with the minimalism of *In St. Cuthbert's Time*, *La Selva* is one continuously dense piece, beginning with a harsh, metallic avian/insect drone at (relatively) high volume. Throughout, there is considerable treble and, again in contrast to Watson, little by way of bass frequency. The impression is one of an absence of background, an absence rectified about 11 minutes into the piece, when the sound of rain on leaves and the ground provides a contextual frame for the rainforest bird and insect trills. In fact, for the next hour or so, the relation between sonic foreground (event) and background (context) oscillates: A sound that starts off as a faint background detail will eventually come to the fore and dominate the aural space before dropping off suddenly. In addition to this dynamism, *La Selva* is also an extremely

busy, if not *noisy*, soundscape; even during the quieter moments, there are at least four or five sonic events occurring. Another important feature to emphasize is the difficulty in identifying the precise nature of the sounds that we hear. This may be more than a question of my admitted unfamiliarity with the Costa Rican rainforest; at the 27:35 moment, for example, a rumbling bass drone (rare enough to be noted as an exception) seems to be produced by no "natural" agency imaginable, human, environmental, animal or insect.

How do these pieces work as a cultural/natural ecology? Both works foreground their natural, or more precisely, their nonhuman, origin. But there is still the question of *culture* here: Watson refers to his works as "sonic portraits," suggesting that the locus of attention, i.e. the listener's ear, is mobile in a way similar to the eye's movement across the surface of a painting. López, a more gregarious artist than Watson in many ways, refers to the "transcendental dimension of the sound matter *by itself*," which manifests an "inner world of sound itself" [24]. This is a crucial difference, from two perspectives. First, as regards the works in and of themselves: On the one hand, sound, for Watson, is a medium of representation, a painting that at the very least evokes the sonic lifeworld of 8th-century Lindisfarne and, by implication, the psychological features of the hermits and monks occupying that time and space. López, on the other hand, explicitly rejects representation: "*La Selva* (the musical piece) is not a representation of *La Selva* (the reserve in Costa Rica)." *La Selva* is a composition of "sound matter." While we may (or may not) identify a particular sound as insect or avian, wind or water, the point is not the representational feature of the sounds but rather their compositional construction as a physical medium in a delimited multiplicity. This is why López can assert that "I consider *La Selva* to be a piece of music, in a very strong and profound sense of the word." Thus, in Watson's case, we have a "portrait," and in López's case, we have a piece of composed music whose representational qualities point directly to itself as a medium.

The second crucial difference, which has to do with the role of the listener in this assemblage of sound, technology and ecology, arises at this point. We have noted the mobility afforded to the listener of *In St. Cuthbert's Time*: as listeners, we contract and dilate our attention on particular moments, with the repetitions of birdcalls etc. allowing us to revisit these particular sonic events in different contexts. Furthermore, the natural reverb and low frequencies captured by Watson's recording (as much a question of technical expertise as anything) provide a proprioceptive sense of distance and proximity, which amplifies the impression of being in a specific spatial location. In contrast, the buzzing trebles of *La Selva* make it much harder for listeners to locate themselves in the context of the piece. Indeed, there are times when listeners might be given the impression that the actual physical properties of the sounds have been transmuted by López's craft into an undifferentiated magma—the "sound matter" itself, which is structured into nonrepresentational forms. This is achieved at the expense of a certain degree of bass and reverb; the foregrounded sounds, in this piece at least,

are rendered with such clarity that they seem at times to be excised from their environment. Thus, the ecology developed in *La Selva* is entirely one of López's design, where Watson's soundscape situates, through proprioceptive reverberation, the listener in the space and time evoked.

CONCLUSION

In her book *The Soundscape of Modernity*, Emily Thompson notes that the architectural priorities for the new concert halls and other performance venues of the early 20th century included a suppression of naturally reverberant space. Thompson interprets this as the technocratic control of the (sonic) environment: "Modern architecture was founded upon an ideology of environmental control, and acoustical materials transformed this ideology into architectural reality" [25]. The perceived need for listeners to control their sonic environment was connected to "new worries about noise, as traditionally bothersome sources of sound like animals, peddlers and musicians were increasingly drowned out by the technological crescendo of the modern city" [26]. And thus we return to the question of noise pollution. At absolutely no point do I intend to suggest that the environmental effects of sounds produced by human beings do not

constitute a social problem; clearly, workplace ordinances concerning hearing protection on the factory floor, for example, are important bulwarks against worker exploitation. However, the danger that we have illuminated in the discussion of noise-abatement rhetoric is the postulation of some pristine, preindustrial utopia of sonic anti-toxins from "Nature" that counteract our self-induced contamination. The work of Watson and López manifests something about the essence of "the soundscape" highlighted by Thompson:

A soundscape is simultaneously a physical environment and a way of perceiving that environment; it is both a world and a culture constructed to make sense of the world. . . . A soundscape, like a landscape, ultimately has more to do with civilization than with nature, and, as such, it is constantly under construction and always undergoing change [27].

We should, then, pay attention to the implications of *In St. Cuthbert's Time* and *La Selva*: The development of a sustainable ecology of sound must ground itself in the perversity of (our embeddedness in) nature; sonic ecology, for which noise pollution remains a concern, must become not a question of conservation or stewardship but one of invention.

References and Notes

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- 3 Bijsterveld [2] p. 234.
- 4 Goines and Hagle [1] p. 290.
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- 10 Steve Goodman, *Sonic Warfare: Sound, Affect and the Ecology of Fear* (Cambridge, MA: MIT Press, 2010) p. 191.
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- 13 Schafer [6] K1868.
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The Tragic Art of Eco-Sound

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ABSTRACT

In this article, the author analyzes the work of two artists, Miki Yui and Jana Winderen, who respond to unprecedented ecological change by using nature field recordings as the foundational element of their compositions and installations. Their works replicate environmental dissolution and dislodge listeners from the habits and assumptions of everyday life. The author draws upon the work of sociologist Henri Lefebvre, defining rhythmanalysis, the everyday, and, in Lefebvre's words, the "dialectical dynamic between tragedy and daily life."

There was and still is in those places [such as Glacier Bay] a sense of openness and space and possibility, as well as danger. These are big places in which we feel very, very small and we realize that we're insignificant. The place doesn't care if we are there or not, and the weather or the bear or the river can rise up at any moment and snuff me out. I find a certain reassurance, a certain profound comfort in that. I was trying to reconnect with the larger, older world that we still inhabit, but that we forget.

—JOHN LUTHER ADAMS, *MEET THE COMPOSER*,
WQXR, NEW YORK, JUNE 24, 2014

ECO-COMPOSERS, RHYTHMANALYSTS AND THE EVERYDAY

When composer John Luther Adams was a young man, his desire for a place to belong spurred him to travel to Alaska in 1975, where he found what he had been looking for. In Alaska, he felt connected to himself in relationship to the place through a heightened sense of his own mortality, and rather than being a source of fear, his mortality provided a sense of comfort. Furthermore, beyond comfort, his experience in Alaska incited action: a career of creating compositions that move and inspire. His music, while standing on

its own merits, also addresses the "delicate and precarious position of we animals in the world" [1].

Since Adams's first sojourn to Alaska in the mid-1970s, environmental loss both there and worldwide has inarguably intensified. As the U.N. Environment Programme issues warnings about unprecedented ecological changes, many observers argue that we are approaching or may have already passed an environmental "tipping point" [2]. A handful of eco-electroacoustic composers and artists are responding to the crisis by dedicating their work to recognizing, replicating and exposing the tragic dissolution of critical environments. Eco-musicology focuses on the ways in which music and sound can reflect, confront and affect ecological issues. Sound informs a "cultural understanding of the environment and help[s] us reflect on humanity's place in nature," notes musicologist Aaron S. Allen [3]. The eco-electroacoustic artist listens to sounds in the world and records, alters and sets them into compositions. Eco-musicologists situate their work within the context of a larger ecological-social movement that is set apart from environmental movements of the past by its greater concern for adaptation and multispecies relationships. At their worst, their efforts threaten to become part of the general social "greenwashing" movement, which is an "attempt to promote the style, but not the substance, of environmentalism as a 'feel good' consumer norm" [4]. At their best, they are as an intervention at the level of the everyday.

In *The Critique of Everyday Life*, sociologist Henri Lefebvre defines everyday life as the way that we construct our lives, which in turn reflects the prominent ideology of our culture rather than any concepts inherently true to the world or to ourselves. In Western society, everyday life is organized around work and consumption, broken occasionally with scheduled periods of leisure and religious and cultural ceremony. Lefebvre aims to expose and transcend this neoliberal ideology, which dictates daily life and masks the real, by advocating for a metamorphosis of everyday life "through action and works—hence through thought, poetry, love" [5].

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One way to transform the everyday, Lefebvre argues, is to reconnect tragedy and day-to-day existence.

The tragic is the non-everyday, the anti-everyday. The irruption of the tragic into daily “life turns it upside down. It is thus possible to make out a dialectical dynamic between tragedy and daily life. . . . Tragedy as an oeuvre reconnects these aspects: it seeks both to transform daily life through poetry and to conquer death through the resurrection of the tragic character” [6]. The term *tragedy* here refers to tragic art, which provides us a way to enact and dispel our fears rather than to reason them away. Just as history tells us what has happened, tragic art tells us what might happen, following a cause-and-effect chain to its grimmest logical conclusion [7]. The power of tragedy is to dislodge an individual from his quotidian life and to remind him of his temporal state.

In his final book, *Rhythmanalysis: Space, Time and Everyday Life*, Lefebvre focuses on the rhythm analyst, an individual who analyzes the rhythms of daily life, by which he means the interaction among time, place and expenditure of energy, in order to perceive what the everyday hides. The rhythm analyst discerns what is real within the constructed and listens to the “world, and above all to what are disdainfully called noises, which are said without meaning, and to murmurs [*rumeurs*], full of meaning—and finally he will

listen to silences” [8]. Among the most crucial external rhythms that the rhythm analyst interprets are those of nature, because nature and the cosmos are the originators of cyclical rhythm. By understanding cyclical rhythm in nature, the rhythm analyst is better able to sense when linear rhythms of society become interruptive or destructive. Contemporary sociologists have used rhythm analysis primarily to dissect the rhythm of urban spaces. One of my aims in this article is to apply rhythm analysis to perhaps its most logical subjects: music and sound. In the words of theorist and musician David Dunn, “the physical act of using our aural sense . . . can become a means to practice and engender integrative behavior” and to create an argument for greater ecological awareness [9]. In this way, eco-composers and artists attempt to transform daily life through tragedy, using field recordings of dissolving or decaying environments and organisms: eroding coral reefs, melting glaciers, rising sea levels, dying species.

AN ECO-POETICS OF ABANDONED SPACES

Deep ecology is the formal poetic technique of imagining an apocalyptic end of nature with the goal that the process of intellectually “ending” the world will prevent exactly such destruction in real life. The reader of deep ecology writings digests the death of nature in order to become more reverent



Fig. 1. Miki Yui, *Island site, six-channel sounds, piezo speakers, Around Sound Festival, Lamma Island, Hong Kong, 2009.* (Photo © Miki Yui)

toward actual nature [10]. This strategy is not without controversy: Eco-critic Timothy Morton, for example, questions the ethics of mourning something that is in the process of dying but is not yet dead. He prefers the terms *melancholia* to *mourning* and *dark ecology* to *deep ecology*, and he argues that “melancholia (letting the dead stick in our throat) is more ethically refined than mourning (allowing them to be digested)” [11]. The ethical way to deal with an ecological death is to love the dying thing, the Frankenstein’s monster-like form of nature, “precisely in [its] artificiality, rather than seeking [its] naturalness and authenticity”—an ecology without nature, nature being a conflicted term in our thoroughly anthropocentric moment in time [12].

In her essay “Mourning and the Melancholia in the Anthropocene,” Margaret Ronda outlines a new form: eco-poetics. Differing from dark ecology, this form “emphasize[s] ecological interrelationality and complicity in environmental destruction, and often explore[s] collective feelings of vulnerability, hopelessness, and dread” [13]. If the intentions of dark ecology are to argue that the ecological crisis is indeed happening and to linger in the resulting melancholic state, then works of eco-poetics constitute a paradigm shift—one lingers in that melancholic state while emphasizing one’s culpability in creating it.

Miki Yui’s *Island* (Fig. 1) embodies these concepts. She describes her works as “small sounds” made up of noises she records in her everyday life, often but not exclusively drawn from nature [14]. Yui installed *Island* in 2009 on Lamma Island in Hong Kong as part of the Around Sound Festival, organized by the nonprofit Sound Pocket, which was created by anthropologist and sound enthusiast Yeung Yang to fill a gap in Hong Kong’s sound-based art scene. Sound Pocket is devoted to increasing awareness of soundscape listening in Hong Kong as well as preserving sonic history in the continually developing metropolis. Participating artists at the festival live together as a temporary community on Lamma Island, working on pieces together.

Lamma Island is the third-largest island in Hong Kong and has developed relatively slowly. Connected to the rest of the city by a single ferry, roughly 6,000 people live here, and the height of all buildings on Lamma is restricted to three floors. Transport on the island includes bicycling, boating and walking. While 7 million people live in Hong Kong and are packed into highrises in most neighborhoods, Lamma Island is tranquil and in many ways surreal—although as more people seek out its quiet lifestyle, it is becoming more developed.

Yui installed her six-channel work in crumbling Lamma houses with vegetation peeking out of their nonexistent roofs, spaces where the sounds of insects, birds, wind and the ocean are easily heard. Yui weaved electronic sounds that she created in and out of the live sounds of these places, often highlighting the environmental noises. At times, her composition was a melodic amalgamation of tones; at others, harsh noises disrupted the tranquility of the island. The noises resembled those of traffic, metallic rain and howling guitar feedback, all of which interrupted the natural tones of the abandoned

homes and of Lamma Island. Listeners maneuvered through the buildings, hearing sounds from various locations.

In an interview, Yui said that while the remnants of clothing and pots seen in the derelict homes suggested tragic occurrences for whoever once lived there, the spaces are peaceful and poetic. Nevertheless, she avoided simply aestheticizing decay by disrupting the composition with occasional discordant noises. She also avoided it by aligning herself with Sound Pocket’s mission to preserve sound and elevate the practice of listening. Within this context, we can say that Yui’s work preserved a transitional space that has been encroached upon by nature and will soon be encroached upon again by development. It allowed the listener to enter an abandoned space and move through it while recognizing that her arrival not only altered the space, but also damaged it. The listener never lost the sense, even within the aesthetically beautiful and aurally evocative installation, that her presence signaled both a human wave coming toward Lamma from the rest of Hong Kong and time passing as development transforms its spaces. *Island* provoked a subtle shift in identification that expanded outward from the listener to include the island’s spaces and its other, nonhuman organisms.

PRESERVATION OF HIDDEN SOUNDS AND SPACES

Before Jana Winderen began to create sound works, she studied mathematics, chemistry and fish ecology—her background endowed her with a deep sense of how organisms interact with one another and with their environments, particularly through sound. Winderen captures sounds from ecosystems that humans usually cannot hear, submerging hydrophones in seawater or in other remote spaces. She records sounds in registers usually imperceptible to human hearing, which she slows to an audible range. For Winderen, listening is of critical importance, and she develops her works by “slowly collaging things together, more like sculpting than writing” [15]. While she creates works in which the sounds of fish, insects, or other living creatures are often unprocessed, Winderen also layers sounds heavily, sometimes processes these layers, and “experiments with “microphone selection, editing techniques, and overlaying techniques with a composer’s ear, not a documentalist’s ear” [16].

Winderen’s project *Silencing of the Reefs* was commissioned by the Thyssen-Bornemisza Art Contemporary Academy in Vienna as part of the TBA21 Academy. The TBA21 Academy included a working voyage to Iceland, Boston, Belize, the Dominican Republic and Panama on the vessel *Dardanella*, on which Winderen was a resident artist from 2011 to 2014. For *Silencing of the Reefs*, Winderen meticulously recorded the soundscapes of reefs and neighboring ecosystems (Fig. 2). Coral reefs are immensely sensitive to changes in water temperature, sound pollution and acidification, and Winderen recorded the sound of their disintegrating environments. She asks, are the “changes too fast to adjust to, and are we just documenting the changes happening without being able to do anything about them? Will the reefs be silenced before we even have had the chance to listen to them and even begin to fully understand these fragile ecosystems?” [17]



Fig. 2. Jana Winderen collecting and recording sounds and samples: steaming, boiling and ice with a SoundField microphone and two hydrophones for *Silencing of the Reefs*, Krisuvik, Iceland, 2013. (Photo © Finnbogi Petursson)

Freeze to Melt is a composition within the *Silencing of the Reefs* project featuring eerie, dark tones and creaking, crashing sounds that crescendo and dip. Layered together, the high-pitched squeaks, screeches, howls and odd chirps begin to morph into the sounds of breathing and yelping creatures, giving the composition a feeling of strange danger and bringing to mind Nietzsche’s argument that music pre-dates appearance and that therefore language cannot touch its symbolic core [18]. Each of Winderen’s sounds is recognizable in nature, yet when combined, they create a sense of mythopoetic horror, with each “pop” accentuating the threat of disappearance. The composition seems to crack under the weight of the end.

Recording under water all over the world over the last 9 years—and at reef sites since 2011—Winderen is committed to exposing the global dissolution of coral reefs. She imbues her pieces with a sense of tragedy, mystery and grief and adopts a decidedly non-human-centric perspective. Through listening and recording unknown spaces and sounds out of the range of normal human perception, she allows listeners to perceive tragic environmental loss from the imagined vantage point of sea creatures. By exposing hidden worlds, she reestablishes wonder and mystery in our own world.

Artists such as Yui and Winderen, who devote themselves to documenting environmental dissolution, perform critical work by documenting the fact that unprecedented ecological

changes are happening, no matter how many people wish to deny it. We can *hear* it in the melting, the bubbling, the cracking, the roaring and, most of all, the silencing. Yet by revealing these truths, mediated through their subjective intentions, these artists create works that move beyond simple reportage.

Winderen’s knowledge of the organisms of the coral-reef ecosystem permits her to interpret and express an environment previously unknown to most of us, and the mythopoetic tone of her work suggests that there are aspects of the ecosystem that we may never know, especially as we actively take part in its destruction. We start to hear a part of our world that is more than us yet at its core speaks of our true essence. Through hearing these works, the listener develops an increased desire to “focus on connectedness, on interdependence, and on relationships” among all living beings as she senses the mystery of how we are intertwined [19].

The contradiction of tragic catharsis is that by experiencing melancholy, grief and fear through art, one releases those very feelings in oneself. The hope is that through tragedy, a listener will begin to recognize the causes of a crisis, leading to positive outcomes even as the art expresses negative ones. When Lefebvre writes about reconnecting tragedy and the everyday, he is advocating for works that ground us in a sense of our mortality and, consequently, a sense of our time/space in the world. So much of the way that Western culture

organizes time and orders space removes the individual from an understanding of himself as a part of an ecosystem. Works of eco-electroacoustic sound and music replicate the sounds of environmental dissolution and, through highlighting these often-overlooked events, shift our conceptualization of daily life. Listeners, by listening deeply, begin to privilege certain

modes of moving through the world. The works of Yui and Winderen, through their affective frame of melancholy and tragedy, reveal a glimmer of hope for change and suggest that we can emphasize our relationships to the ecosystems of which we are a part.

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The Sonic Witness

On the Political Potential of Field Recordings in Acoustic Art

GERALD FIEBIG

ABSTRACT

Contemporary sonic artworks often use field recordings from places of historic or social significance to address political issues. This article discusses relevant works for radio and fixed media by Peter Cusack, Jacob Kirkegaard, Eliška Čilková, Anna Friz and Public Studio, Stéphane Garin and Sylvestre Gobart, Ultra-red, and Matthew Herbert and outlines how they use both audio and visual/textual information to create awareness of the issues inscribed in these places, from current environmental concerns to the memory of genocide and displacement.

In his seminal 1936 essay “The Work of Art in the Age of Mechanical Reproduction,” Walter Benjamin claims that there is one immaterial quality of an artwork that necessarily evades reproduction, and that is its genuineness:

The genuineness of a thing is the quintessence of everything about it since its creation that can be handed down, from its material duration to the historical witness that it bears. . . . We can encapsulate what stands out here by using the term “aura” [1].

John Mowitt [2] has shown how the concept of aura—and its decay—can be applied fruitfully to acoustic art forms. Mowitt’s focus is on *The Sound of Music in the Era of Its Electronic Reproducibility*, but it opens up perspectives for applying Benjamin’s concepts to nonmusical sonic artworks as well. For instance, the aspects of aura quoted above—the genuineness of an artifact bearing witness to a specific time and place—are crucial to the aesthetic of an increasing number of artistic practices that have been emerging across various genres of acoustic art in recent years. These practices share a concern with political issues, and they all address these issues by using field recordings from specific places with particular historical or social significance. The following discussion of some examples of such practices will show how the politics

of the practices are tied to an idea of the genuineness of the documentary recordings they employ, which, as we have seen, also informs Benjamin’s concept of the aura.

Benjamin saw the demise of aura as liberating, with reproduction technology bridging the gap between iconic artworks and “the masses”—a tool for the democratization of culture. Therefore, his text tends to cast aura as something deeply reactionary, if not fascist. In the works I discuss here, however, the contextualized use of field recordings is a means “to politicize art” [3] in a progressive way, as advocated by Benjamin. At first glance, the aura-based strategy of these works would seem to contradict Benjamin’s negative view of aura, but upon closer analysis these works confirm Mowitt’s insight that Benjamin’s terminology must be understood in its historical context, which “implies that the question of aura must always be posed anew, even if the question means something different each time” [4].

The obvious difference between music (and its technological reproduction)—as discussed by Mowitt qua Benjamin—and field recordings is that musical works exist as original human artifacts before they are reproduced. In contrast to this, field recordings are original artifacts themselves, because what ontologically precedes them is not a “more original” artwork but simply acoustic reality. It is only through the act of recording that they become artifacts at all. Only through recording do parts of the sonic continuum acquire the possibility of becoming aesthetic objects to be passed on through time and bear witness to a recordist’s presence at a certain place and time in history.

Bearing witness is also a key factor in Peter Cusack’s practice of “sonic journalism,” exemplified in his project *Sounds from Dangerous Places*:

Sonic journalism is based on the idea that all sound, including non-speech, gives information about places and events and that careful listening provides valuable insights different from, but complementary to, visual images and language. . . . In my view sonic journalism occurs when field recordings are allowed adequate space and time to be

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heard in their own right, when the focus is on their original factual and emotional content, and when they are valued for what they are rather than as source material for further work as is often the case in sound art or music [5].

The reference to “factual content” and the choice of the term “journalism,” with its associated codes of objectivity, veracity and fact-checking, emphasizes Cusack’s trust in sound recording as a “witness” of certain places and conditions. The recordist acts as a reporter gathering information in places of danger, “whether it is pollution, social injustice, military or geopolitical. The project asks, ‘What can we learn by listening to the sounds of dangerous places?’” [6]

The lesson of Cusack’s recordings from the Chernobyl Exclusion Zone in Ukraine and the Caspian Oil Fields in Azerbaijan—the two places that feature most prominently in Cusack’s project—seems to be this: Even when we know that these places are emblematic of the operation of technologies and policies that endanger life on our planet, they “can be both sonically and visually compelling, even beautiful and atmospheric. There is, often, an extreme dichotomy between an aesthetic response and knowledge of the ‘danger’” [7].

Cusack’s sounds encourage listeners to contemplate, in the very act of listening, the network of social and political significations and power structures within which his “dangerous places” are enmeshed. Sound seems ideal for addressing the dependencies and ambiguities related to these places because “listening situates us within a relational frame whose focus, clarity, and directness are endlessly supplemented and displaced by the subtle pulses, mishearings, and fragmentary richness of relating” [8]. The veracity of the “historical witness” presenting these recordings is crucial in getting listeners to engage with this network of associations. After all, why should they follow the artist’s invitation to reflect upon a place he claims he recorded if it turns out he lied to them in the first place?

The peculiar aesthetic quality of dangerous places, particularly the Chernobyl Exclusion Zone, has inspired many other artists. Jacob Kirkegaard has captured the atmosphere of its deserted buildings in *Four Rooms* (Touch Records, 2006) and *Wermutstropfen* (West German Radio, 2011). The latter piece, a collage of field recordings, is closest to Cusack’s documentary approach. *Four Rooms*, on the other hand, employs a Lucier-inspired process of playing the sounds of empty rooms back in the same rooms and re-recording them. The resulting resonant drones heighten the sense of looming danger. In her piece *Zone* (Czech Radio, 2013), Eliška Čílková actively engages with sound sources found onsite, “seeking out the abandoned musical instruments of the Chernobyl Zone in order to visit and record them” [9]. Kirkegaard’s and Čílková’s strategies are not purely documentary as Cusack’s are, yet the integrity of their work equally relies on the aura of the real place: The broken piano one hears in *Zone* gains much of its emotional impact from the knowledge that it was in fact abandoned due to a nuclear disaster.

While an image presents itself as an object that allows the viewer to step back and distance herself from it, sound “is not

the object but the medium of our perception. It is what we hear *in*” [10]. As Tim Ingold argues, the sound of a place enters the listener’s body just like breath, which creates a compelling symbol for the listener’s connection to a place and the bodily presence of others that were there before her. Thus, field recordings are also suitable for alluding to *What Isn’t There*, as in the title of an installation project by Anna Friz and Public Studio. In gathering the sonic materials for *What Isn’t There*, the artists sought out the sites of former Palestinian villages in Israel in March 2014 and would “just simply record whatever we found there” [11], from parking lots to factories to war memorials: “These sorts of things told us a lot about how much things have changed but also just sort of what memories are still retained by the landscape” [12].

A similar attempt at representing absence through field recordings is *Gurs. Drancy. Gare de Bobigny. Auschwitz. Birkenau. Chelmo-Kulmhof. Majdanec. Sobibor. Treblinka* by Stéphane Garin and Sylvestre Gobart (Gruenrekorder/ Bruit Clair, 2011), which captures the sounds from the sites of former concentration camps and other sites related to the Nazi-perpetrated genocide, which are meticulously listed in the title. As in *Sounds from Dangerous Places*, the contrast between the apparent innocuousness of the soundscape and the atrocities committed in the very same places stirs listeners’ imaginations.

A different, yet related, type of political artwork based on field recordings uses the sounds of political demonstrations as source material for electronic music. *La Economía Nueva (Operation Gatekeeper)* by Ultra-red (Fat Cat Records, 2001) or “The Whisper of Friction” by Radio Boy (aka Matthew Herbert) from the album *The Mechanics of Destruction* (Accidental Records, 2001) respectively credit as sound sources a demonstration against the militarization of the U.S./Mexico border at the San Isidro Port of Entry on 10 December 2000 and anti-globalization protests in London on 1 May 2001. By placing the sounds of demonstrations at the heart of their practice, these works encourage political activism on the part of their listeners without indoctrinating them. These works also validate the “agonistic” view that in a living democracy, not only should political differences be negotiated in the sphere of parliamentary politics, they should also be played out in public places “where conflicting points of view are confronted without any possibility of a final reconciliation” [13], thus keeping the process of political engagement in motion. Like the other artists discussed here, the strategy of Ultra-red and Radio Boy relies on the truthfulness of the claim that the source recordings were actually made at the rallies.

As works of sonic art, all of the artworks discussed here rely heavily on the specific experiential quality of listening to their actual sound, but they only become signifiers in a political discourse through the listener’s knowing that they come from places with specific connotations. This knowledge, however, cannot be transmitted by the ear alone. Therefore, the works examined above supplement their sonic elements with additional information in the form of photographs and/or text—as CD liner notes or whole books—to establish a contract of veracity with the listener and to “engage the rich

cultural, technical, social, ontological implications of [the sounds'] origins" [14].

In other words, these works use sound as part of a larger conceptual strategy, as advocated by Seth Kim-Cohen in his book *In the Blink of an Ear*. This differentiates these sound artists' take on field recordings from two major traditions that also draw on recordings of ambient sounds. Much electroacoustic music in the tradition of Pierre Schaeffer uses field recordings as raw materials for the extraction of sonic objects, proposing that audiences should "listen to the *objet sonore* blindly, ignoring who or what might have made it, with what materials, or for what purpose" [15]. Acoustic ecol-

ogy, on the other hand, is predicated on using audio recordings to preserve intact soundscapes of mostly natural origin. This practice often risks turning a deaf ear to the social and political aspects of the acoustic lifeworld, thus "undermining the soundscape in general, for what the soundscape (and the environment in general) teaches us is that place is always more than its snapshot" [16]. In the works presented above, however, enough information about the places is provided to spark a critical discussion of the related issues. By raising issues of origin, context and agenda in relation to field recordings, the concept of aura can help to bring out the political significance of such audio material.

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Power Struggles

The Politics of Composing with Sounds of Protest

TULLIS RENNIE

ABSTRACT

The author challenges perceptions of authorship within the practice of field recording, discussing sonic arts responses to political subject matter and examining the power dynamic among recordist/composer, subject and listener. He considers compositions drawing on recordings of protests as a medium to represent political content without recourse to language.

I have joined a number of politically motivated protests in places where I have lived and worked. Years spent in Barcelona meant I witnessed the birth of Los Indignados [1]. After moving to Belfast to commence a Ph.D., I participated in a “No Silence for Peace” rally during the “flag” riots of late 2012 [2] (Fig. 1). Working recently toward a community sound-art project in Complexo da Maré, Rio de Janeiro [3], I was invited to join a protest against military occupation of the favela (Fig. 2).

In each of these locations I spent time gaining an understanding of some of the contextual issues and established personal connections strong enough to want to participate. However, as an outsider—a migrant, a newcomer, a visitor—to the communities demonstrating, in some senses I held an objective viewpoint. I was not part of any overtly activist group but rather was invited by friends or made aware of events through social media.

As a composer using field recordings as artistic material, I find my ear is drawn to the sound of demonstrations and their rich, powerful sonic messages. I have documented these through field recordings and interviews, shared some sounds online [4] and created compositions based on my experiences [5]. As a participant in such events who works artistically with the sounds, I note that my readings are multiple: I am both protestor and observer, my recordings both documentary and artistic. I am guided by an instinct that

there is something more to discover in participating, listening, recording and active engagement through sound.

A number of complications and quandaries present themselves with this type of activity: Disseminating recordings, composing with them, and the act of recording itself are all politically loaded. Potential problems range from cultural appropriation to exploiting the top-down role of the composer as a self-elected representative of the people. My motivations to compose are equally political and artistic—another problematic balance to strike. Can the field recordist and composer effect positive change with work of this nature? Could engagement with political action through sound alter elements of the cause in which it intervenes? Where does documentation end and artwork begin? And a primary question remains: why sound in isolation?

SOUND AS INFORMATION

Peter Cusack’s concept of sonic journalism is based on the notion that all sound, including nonspeech, transmits important information about places and events [6]. He acknowledges that, although language and visual images give basic information in arguably more explicit form than sound, field recordings “transmit a powerful sense of spatiality, atmosphere and timing. . . . They give a compelling impression of what it might actually be like to be there” [7].

In Cusack’s *Sounds from Dangerous Places* [8], he engages with sites that have suffered major environmental damage or nuclear fallout or are located at the edges of military zones. He elaborates on the title, writing, “The danger is not necessarily to a short-term visitor, but to the people who live there or through the location’s role in geo-political power structures” [9]. He documents as an informed outsider and presents the work in artistic form, in this case as raw field recordings on a CD for personal listening.

Cusack believes that listeners understand field recordings best when “the focus is on their original factual and emotional content, when they are valued for what they are rather than as source material for further work” [10]. This

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Fig. 1. Peace Rally in Belfast, 16 December 2012. (Photo © Tullis Rennie)

approach functions well when recordings are heard alongside illustrative images and texts, for example in the beautifully presented book that accompanies Cusack's CD.

If sonic artists prefer *not* to provide accompanying text, spoken commentary or images, it can be potentially difficult for a listening audience to understand the contextual detail held within many field recordings. Furthermore, the practice of field recording as an art form often distances recordists from the act of recording, separating them from authorial decision-making and editing processes. Unlike Cusack's work, the recordist's active agency within the field is not often taken into account and, in the case of overtly political causes, their connection (or disconnection) with the theme is unaddressed.

I suggest that composition could act as a way of transcending these difficulties, acting as a mediator and translator between field recording and the listening public. Composed sound here acts as a conduit, intended to make clear both the factual and emotional content surrounding the sound and acknowledging the recordist's connection to and interaction with the field and the field recording.

SOCIO-SONIC COMPOSITION

When taking the sounds of protest into the studio I follow a "socio-sonic" approach to composition that combines ethnography, field recording and electroacoustic composition [11]. Recordings and the experiences gained making them are both consciously channeled for compositional use. The resulting works mix unprocessed recordings, interview ma-

terials and composed sounds derived from these. Spectromorphological [12] and sociopolitical properties are given equal importance with the aim to "maintain a creative and analytic relationship to both the materiality and sociality of sound" [13]. The abstracted sounds are intended to support the sociopolitical content of the original field recordings. The process extrapolates the contextual information learned by the recordist/composer while in the field and communicates it through musical means. Here, ethnographic field notes are heard as abstract sound, elaborating and augmenting the original recordings.

The readings of the events in question are subjective, but perhaps no more than when presenting edited field recordings, except that they are more explicit about the presence of the author. The act of field recording includes numerous choices, such as the event, location, time of day and position to record. Subsequent authorial decisions are made when selecting and editing recordings to present. Artists may splice sounds together to create a hyperreal synopsis of events—for example, in Christopher DeLaurenti's "overtly activist" *Protest Symphonies* [14]. Many recordists exert influence over their recordings through EQ, compression and other post-production techniques. The chosen means of public dissemination—whether presented on CD, online, in concert or in a gallery—also influences the listener.

A field recording is often unacknowledged as an equally strong product of the recordist's personality, experience and technique. Considering the inherent subjectivity of any recording, it seems a small and natural step that composed

sound materials could also be added to this process. If unprocessed field recordings and socio-sonic compositions are understood to have similar levels of authorship and subjectivity, both then are struggling with the problematic notion of cultural appropriation in their output. How can either party claim their sonic work is ethically sound? What is the distribution of power among artist, subject matter and listener?

POWER DYNAMICS

Articulating composer intention and position is the most difficult task when combining politically charged sound with idiosyncratic original composition. Text and language are commonly used qualifiers, and while the written word may be seen to have fundamental flaws in communicating content, these are rarely discussed outside academia.

Sound composition is not such a widely shared vocabulary—it is arguably no more flawed than text, but much less familiar to a wider public. Being misinterpreted or simply causing offense are real possibilities for the composer but should not be a deterrent. Variations in the portrayals of public events are common occurrences—for example, the debates surrounding different journalistic accounts of the

same story form a part of daily democratic life and inform our reception and understanding of it.

What if we were to embrace the difficulty and friction that appear between field recordings and composers' interactions with them rather than battling, hiding or ignoring them? Composition might then act as a framework for these internal conflicts to coexist in parallel and begin to engage in dialogue. Artistic responses to field recordings could lead to new and different understandings of the events in question.

Audiences may be similarly undecided about their role within a protest or reception of a composition derived from recordings of it. Audiences are composed of equally multifaceted and independent-minded individuals, however, and sonic art might serve to offer reassurance in the light of their confusion rather than searching to provide concrete answers. Composition, in a move toward a “redistribution of creative agency” [15], could look to provide a fresh way to engage with ideas, a platform for debate, a pause for reflection. It could stress-test the boundaries where activism and observation, the subjective and the impartial intersect [16].

In “Listening, Meaning and Power,” Michael Gallagher presents the audience's role as *making* rather than *receiving*



Fig. 2. Protest in Complexo da Maré, 14 April 2014. (Photo © Tullis Rennie)

meaning when in the act of listening [17]. He writes, “it may be helpful to recognize that listening is more ambiguous (in relation to meaning) and more ambivalent (in relation to power) than is commonly supposed” [18]. This is not to excuse or downplay an overtly political position any composer could take but does allow for the audience to make their own minds up about the artistic intentions of a sound work.

A compositional response to the sound of political protest has further advantages. Hearing these sounds disseminated across concert halls, domestic sound systems and laptop speakers could widen the engagement with the political message or debate in question. Any compositional response to current affairs will be *after* the heat of the moment, purely as a matter of logistics—that is, the time needed to compose. Therefore, there will be a re-interrogation of the issues potentially from a different angle, and simultaneously a reflexive look at the composers’ role in the field. The final composition will be a reflection of that individual’s interaction with the event, but the examples discussed here show value in

making that public. Music can amplify the voices shouting to be heard; composition can add contextual, emotional and personal response to those events; and sonic art can act as a lens and a mirror—to see our lives from a different perspective, and ourselves within that.

CONCLUSION

If sound itself enacts power [19], as the act of listening [20] does equally, we should examine the ethical implications of making, presenting, composing and listening to sociopolitical field recordings. If the act of field recording itself is as politicized as much as the document it produces and the compositions it may inspire, we can conclude that sonic art presents a precarious but potent and valuable medium to represent and communicate political content without recourse to language. Sonic art is an approach in which we “understand ourselves to be part of its soundscape, not at its centre but simultaneous with it” [21].

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Dementia, Music and Biometric Gaming

Rising to the Dementia Challenge

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ABSTRACT

In 2012, the U.K. government launched its Dementia Challenge, authorizing additional funding for dementia research and health care. The search for curative medicines is ongoing, but scientific research reveals evidence that music can play a positive role in general health, and in dementia and Alzheimer's disease in particular. This article considers whether some of the challenges that dementia presents could be addressed through music therapy and proposes that biometric gaming might offer one means of channeling such associated health benefits to sufferers of dementia, even in the final stages of the disease.

In 2012, the U.K. prime minister announced the launch of his government's Dementia Challenge, pledging a significant increase in funding for dementia research [1]. This announcement came one year after a rough-cut excerpt of the film *Alive Inside* [2] was posted on YouTube, which appears to present tangible video documentation of music's transformative power on a man suffering from advanced dementia [3]. Henry, the subject of the film, undergoes a remarkable change: At the start of the clip, he appears largely unresponsive, but by its end, he is highly animated and communicative, capable of answering questions, recalling favorite songs and even singing remembered lyrics. Remarkably, the only evident stimulus for Henry's dramatic reanimation is that he is listening to his favorite music.

The clip has become the focus of numerous online discussions, some advocating the therapeutic power of music [4] and others questioning the true catalyst for Henry's transformation. Developments in brain-imaging techniques and associated research exploring the complex interplay among music, memory, language, cognition, emotion, behavior and related topics are enabling strides toward a better understanding of the brain and its responses to music [5]. The findings of such research could be of direct relevance when

applied practically in the fields of dementia care and music therapy, but might there be other, less-traveled avenues to explore?

The 2014 NeuroGaming Conference and Expo in San Francisco offered a glimpse of the potential of gaming within the context of health and wellness [6]. Discussions there broached the possibility of using games as a means to detect a person's cognitive ability or memory. More particularly, participants mentioned dementia and Alzheimer's disease in relation to gaming, suggesting that biometric games [7] might potentially slow the progression of these diseases or some alleviation of their symptoms. The varied array of gaming hardware and sensors on display added gravitas to these conceptual plans. More generally, recent patent applications for commercial biometric gaming sensors show that the games industry is serious in its intention to explore the possibilities and wider applications of biometric gaming [8].

Perhaps there has never been a better time to explore the true potential of music's transformative power through an interdisciplinary synthesis of scientific and medical research, music therapy and game development. If such a synthesis could be achieved and made accessible to the general public in the shape of biometric games, some of which exploit the positive benefits of music and are designed specifically for sufferers of dementia, it might go some way toward addressing the aims of the government's Dementia Challenge. Admittedly, biometric gaming is unlikely to result in a cure for dementia or Alzheimer's disease, but if it could improve cognitive functioning and well-being or provide some relief of symptoms (even if only temporary), then research into this application surely deserves to be attempted.

ADDRESSING THE DEMENTIA CHALLENGE

In the United Kingdom, approximately 800,000 people suffer from dementia [9]; in the United States, more than 5 million people live with the disease, which accounts for one in three deaths in the elderly population [10]. These sobering statistics demonstrate the scale and prevalence of the problem. Sufferers and caregivers face significant challenges: managing

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changing needs as the disease progresses; coping with the costs of care and associated resources; managing difficult or challenging behavior; avoiding social isolation; and maintaining a decent quality of life.

Music can play a role in addressing some of these challenges. Music therapy reports, case studies and scientific research provide tangible evidence of music's positive benefits in the context of dementia care. For example, such studies have shown reduced levels of agitation, anxiety and depression [11]; amelioration of problematic behavior [12]; and improved social conditioning and mood [13]. Some studies point to improvements in cognitive functioning [14] and specific types of memory recall [15]. Surprising additional health benefits have also been found suggesting that music therapy can result in enhanced parasympathetic activities [16]; reduced congestive heart failure [17]; and improvements in systolic blood pressure, as it has a homeostatic effect and helps to prevent heart and brain diseases [18]. A number of studies have suggested that music therapy can result in increased melatonin levels in the blood [19] and increased "natural killer" lymphocyte cells [20]. One particularly interesting study even proposes that listening to music facilitates neurogenesis—the regeneration and repair of cerebral nerves—by "adjusting the secretion of steroid hormones, ultimately leading to cerebral plasticity" [21].

Clearly a full discussion of such research is beyond the scope of this article, but there is undoubtedly enough evidence to assert that music triggers profound physiological and psychological changes and holds the potential to offer tangible benefits for people suffering from dementia and Alzheimer's disease. Our challenge is not only to research such evidence further but also to apply the research in practical and accessible ways for those living with the debilitating diseases and to intensify music's positive benefits in daily life.

Music therapists have considerable expertise and experience in the therapeutic application of music in dementia care; however, many people do not have access to music therapists, and those who do might have only infrequent or short-term access. For this reason, it is necessary to find additional ways to deliver music therapy's benefits to the general population.

TECHNOLOGICAL DEVELOPMENTS

The popularity and proliferation of digital technologies and computer/video games indicates one route through which these benefits could be channeled. Although the development of enabling technologies to support those with disabilities and progressive medical conditions is not new, interest in health-related gaming is growing.

Recent developments include the Forest Project [22] (a virtual reality video game) and NeuroRacer (a driving simulation game). The Forest Project gives late-stage dementia sufferers interactive control of a naturalistic environment through simple movements and actions. By contrast, NeuroRacer is designed for healthy people between the ages of 60 and 79 and aims to improve memory, focus and attention [23]. Game developments such as these are not isolated; Simon McCallum and Costas Boletis's recent literature review of dementia-related games speaks of "a proliferation of

cognitive training, exercise and social games" targeted toward dementia, but they suggest that the dementia-related gaming field is still "uncharted" [24]. Their latter statement is even more applicable to music-based dementia gaming, a field in which few explorations have been made.

Currently, one of the few video games designed to exploit the health benefits of music or music therapy is MINWii, a simple music therapy tool developed for Alzheimer's and dementia sufferers. It allows users to play predefined songs and to improvise on a virtual keyboard, and its objective is to reduce behavioral symptoms that can lead to institutionalization. The developers claim that the game improves self-image, encouraging "renarcissization" [25]. Although interesting, the range of benefits offered by the game is limited in scope when compared to those detailed in the scientific literature on music therapy in general. Furthermore, the game also requires a certain amount of control and so might not be suitable for late-stage sufferers—yet the potential for other therapeutic biometric game applications increases exponentially for such patients, whose movements are uncontrolled, concentration is limited and normal interactions are difficult.

BIOMETRIC GAMING

In the context of dementia-related games, a synthesis of music therapy and biometric gaming has yet to be attempted. If appropriately developed, however, such a synthesis might offer the possibility of interaction, emotional expression or communication without the necessity of physical movement, speech, physical game controllers, technological know-how, prior gaming experience or the ability to learn and remember new skills. In cases of advanced dementia, simple wearable devices might be used to provide some indication of stress, engagement, mood or emotional state, and caregivers could use such biometric data to offer customized music therapy treatments, improving well-being, quality of life and ultimately health. Wearable haptic [26] technologies might further enhance such treatments by providing tactile feedback based on the biometric data that the gaming system receives.

To realize such goals, developers and other researchers might explore a number of possible directions, ranging from passive approaches that require minimal active, conscious or creative user input to highly interactive systems requiring significant levels of physical interaction, active control and creativity.

Passive Systems

For people with advanced dementia, biometric gaming apps could be linked to streaming music services or large pre-loaded sound or music banks, possibly organized by genre or sound classification. Devices such as smart watches or headphones with integrated sensors could capture biometric data and send it wirelessly to gaming apps, which could then use the data to control evolving and adaptive playlists that are designed to prolong positive reactions while minimizing negative responses. Over time, the app would create an increasingly personalized profile to govern the playback probabilities of audio assets. Ideally, music therapists, and/or family members would first input audio preferences or other

relevant data to inform the first playlist selections—but this would not be an absolute requirement for an adaptive system, since it could customize initial randomized playlists on the basis of biometric data alone.

Developers might extend such an approach to incorporate the use of visual stimuli, ranging from familiar and personally significant images to more general ones or to generated media, both ideally linked to corresponding audio assets. They could incorporate eye-tracking technology as a supplementary indicator of preference, perhaps through the addition of smart glasses [27].

Active Systems

Developers could create active systems for less-impaired users. For example, music therapy sessions often place great emphasis on improvisation and the creation of music or sound through interaction with the patient or client. Active gaming systems could allow similar opportunities for audio creation within responsive and interactive gaming environments. Developers could create gaming systems for supplementary use by music therapists in therapy sessions; alternatively, stand-alone applications might capture some of the benefits of music therapy without the presence of a therapist.

In either scenario, the application might use biometric data to inform the therapist or the game engine of the player's physiological response to stimuli. Negative physiological responses might then be countered through appropriate therapeutic changes in the musical stimuli or game environment. Similarly, positive physiological responses could be reinforced. The application or therapist could also interpret biometric data as an indicator of audio preference or even map data to specific audio parameters such as pitch, volume, tempo, timbre, texture, harmony and so on, allowing physiological changes to shape musical outcomes within a game environment based on music therapy principles.

Additional inputs, such as motion sensors, built-in microphones or standard game controllers, could provide more opportunities for active and conscious interaction or improvisation, particularly if they are reinforced by the game's visual environment through audiovisual mapping. For example, an application could link pitch tracking to position coordinates, or speed of motion to tempo. Such approaches would allow the reciprocal manipulation of sound and image and generate a continuous feedback loop in which changing audiovisual stimuli could generate new biometric data, triggering further audiovisual changes in the game environment and generating new stimuli in turn.

In active systems that combine various types of sensors, the influence of particular sensors' inputs might be weighted

hierarchically according to the patient's level of impairment. For example, the therapist or application could give greater precedence to biometric data to accommodate significant levels of mental or physical impairment.

THE BIOMETRIC DATA CHALLENGE

Despite the potential of such systems, the numerous challenges of interpreting and implementing biometric data within game play cannot be overstated [28]. How, for example, would an industry geared toward entertainment gain sufficient understanding of the complexities of physiological and psychophysiological responses to create systems that accurately interpret biometric data and implement meaningful changes via appropriate real-time feedback and interaction? Challenges such as these are further compounded by the fact that scientific studies examining physiological and psychophysiological responses to various stimuli can yield contradictory results. Nor are test subject responses universal—one shoe does not fit all. When developers seek to create biometric games for those with specific health conditions or diseases, such challenges are amplified still further: Ethical considerations take on new significance, and research, design and development must be adapted to the needs of those with physical or psychological impairments.

Nevertheless, if such developments were successful, biometric sensors and data might offer tangible and measurable ways to detect an individual's response to aural and visual stimuli in the absence of other indicators, and these systems could provide caregivers and therapists with custom interactive treatments through the use of music and images—even in the final stages of disease. Such targeted treatments, or “gaming entertainments,” could also offer transferable health benefits to the general population, piggy-backing on the development of biometric technologies designed for commercial gaming applications.

CONCLUSION

We conclude where we began: with the remarkable transformation of Henry, a man brought vividly to life through his love of music, momentarily freed in mind and enlivened in body. Imagine if we could extend such experiences by adding unobtrusive biometric devices that measure responses to inform playlist preferences or by delivering customized, “on-tap” music therapy treatments in response to changing needs. Achieving these goals depends upon our political will, research funding and interdisciplinary collaboration, and some of these necessary pieces are now falling into place. The challenges are significant for those at the coal face of such developments, but so, too, are the potential rewards.

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The Meanings in Making

Openness, Technology and Inclusive Music Practices for People with Disabilities

KOICHI SAMUELS

ABSTRACT

Digital musical instruments and interfaces can be designed to enable people with disabilities to participate in creative music-making. Advances in personalized, open source technologies and low-cost DIY components have made customized musical tools easily accessible for use in inclusive music-making. In this article, the author discusses his research with the Drake Music Project Northern Ireland on making music-making more inclusive.

The barriers to music-making faced by people with disabilities can be viewed through two predominant theoretical models: the medical model and the social model [1]. The medical model sees the disabling factor as a limitation within the prospective musicians themselves. In contrast, the social model of disability perceives the exclusionary designs of musical interfaces, as well as noninclusive social attitudes to music-making, as the disabling factor. Thus, the social model perspective shifts the focus from the limitations posed by the disability to implementing enabling techniques and assistive technologies for transcending or transforming disabling barriers.

In 2014, I conducted a year-long ethnographic study with the Drake Music Project Northern Ireland (DMNI), a charity that exists to enable people with disabilities to overcome disabling barriers to musical participation through digital interfaces [2]. In operation since 1992, DMNI is one of the most established and recognized community arts organizations operating in Northern Ireland. The methodology of my ethnographic study was based on participant observation. I trained alongside 10 other Belfast-based musicians to become a DMNI access music tutor. Our training was followed by a period spent shadowing experienced access music tutors before completing the training process and becoming lead tutors for inclusive music workshops.

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The activities of DMNI exist at the intersection of music, technology and disability. Workshops take place at one of two DMNI studios (Fig. 1) or at day centers in and around Northern Ireland. The workshops range from large group songwriting and performance sessions to small and focused composition workshops. Other activities have included residential songwriting weekends and “hackdays” to create new DIY-accessible musical interfaces. We aspire in our classes to bring people with disabilities and professional musicians together to explore music and sound creatively and collaboratively.

INCLUSIVE MUSIC: PRACTICES AND TOOLS

Individuals creating artistic work in any medium have diverse abilities and, accordingly, develop specific techniques and customizations of the tools that shape their work processes and practice. Among disabled musicians, the spread of these abilities and techniques can be especially broad [3]. Inclusive design emphasizes the creation of technologies that consider the broadest spectrum of user abilities.

Electronic musicians can potentially create new tools, patches or instruments for individual works or configure software or adapt hardware in ways specific to each instance of performance. I do not suggest that instrument extension and modification are new phenomena; rather, the advent of electronic instruments and tools, particularly MIDI controllers, digital musical instruments (DMI) and programming languages for audio, have made instrument design itself available to musicians and makers as a form of artistic expression [4]. In a similar vein, musicians can create custom inclusive musical tools aimed at overcoming specific barriers for individual musicians or user groups or aimed at providing widely accessible tools for music and sound creation.

Brendan McCloskey [5] is an inclusive digital musical instrument designer who has worked for over 15 years as both a practitioner and a researcher for DMNI. Since 2011, as a Ph.D. researcher at the University of Ulster, he has co-developed an inclusive DMI for three musicians with quadriplegic cerebral palsy who have some degree of upper limb motor

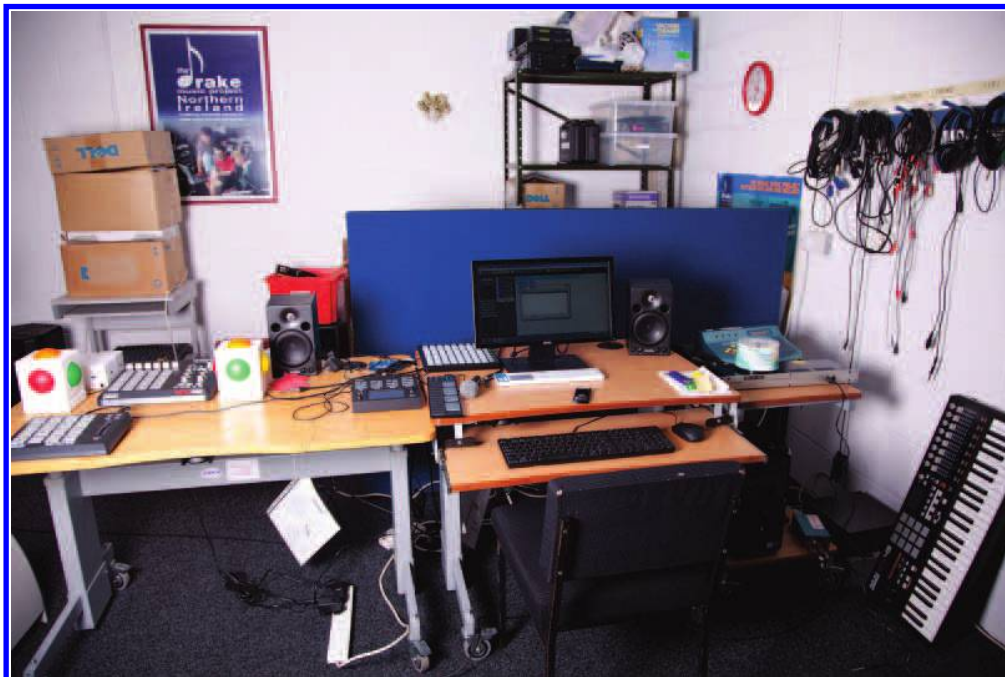


Fig. 1. Workstation setup at the Belfast DMNI studio, 18 December 2014. (Photo © Koichi Samuels)

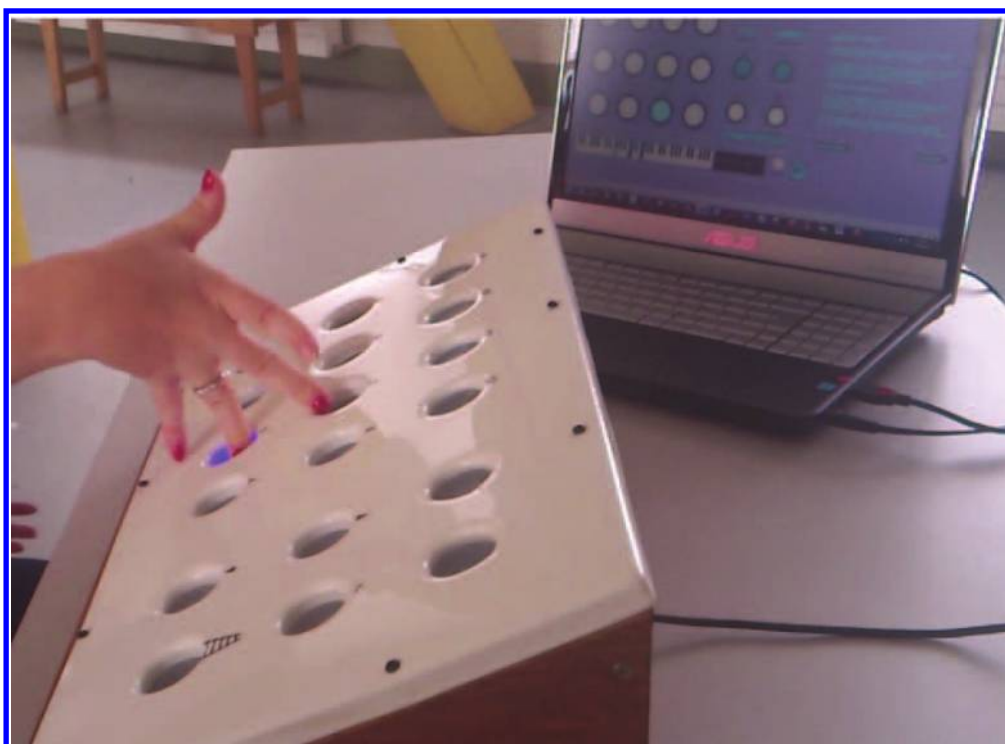


Fig. 2. inGrid hardware and software interface, 21 November 2014. inGrid was collaboratively designed to accommodate the unique abilities of three specific users who face physical barriers to their participation in music-making. (Photo © Brendan McCloskey)

capability. This collaboratively designed device is called inGrid [6] (Fig. 2). McCloskey built inGrid from a matrix of 16 DIY force-sensing resistors (FSR), which control a physical modeling synthesis engine built in Max/MSP [7].

The collaborative methodology of inGrid's creation emphasized participatory design and customized methods in the assessment of need and capability among the small group of physically disabled digital musicians. Interviews and discussions with the three collaborating musicians were followed by several stages of prototyping; each prototype was

then qualitatively assessed by the group. The feedback from these assessment stages informed technical revisions. The final design emerged through an extended circular process of collaborative testing, dialogue and prototype revision.

The outcome of this process was a DMI suited to the three collaborating musicians' specific requirements. Instead of keys or buttons, inGrid features ports into which one can "plug" a finger. This feature removes a barrier for a player who finds discrete hand movements and finger control challenging by enabling steady, fixed placement of fingers into the

ports. Through this interaction paradigm, inGrid enables independent, real-time expressive control for shaping a sound's loudness, timbre, vibrato and resonance through a simple switch-targeting gesture.

MEANINGS IN MAKING

In electronic music practices, as with more traditional music forms, the “tools of the trade” hold individual and social meanings inscribed in their making and performed in their usage. The design and making of inGrid exposed design limitations in conventional mainstream controllers and DMIs, explored solutions to overcoming disabling barriers to music-making and challenged common assumptions of the abilities of musicians with disabilities—in this case, of three digital musicians with quadriplegic cerebral palsy.

Matt Ratto [8] discusses how “making” can supplement and extend critical reflection on the relationship between digital technology and society. He defines his research experiments as “critical making”: a mode of materially productive engagement intended to bridge the gap between physical and conceptual exploration. Practices of creating and using inclusive DMIs can likewise be seen to deconstruct conventional understandings of disability, as well as help enable participation of those who face barriers in making music.

“OPENNESS”

The intrinsically modifiable and adaptable nature of certain contemporary music technologies makes them particularly useful in inclusive music settings. I use the term “open music technology” to encompass practices surrounding the

customization of MIDI controllers; hardware hacking and DIY/maker cultures in experimental music; and music and digital media programming languages (such as Max/MSP and Supercollider [9]). A recently published study on accessible design titled *Enabling Technology* [10] finds that open source hardware (such as Arduino and Raspberry Pi) and “curated ecosystems” (such as iOS and Android) also afford much versatility and customization useful to people with disabilities. In designs that aspire toward inclusion, systems in which the interface between musician and sound generator can be adapted or easily customized offer significant benefits over traditional, unmodifiable instruments [11].

In March 2015 I curated a 3-day collaboration between DMNI and the Sonic Arts Research Centre, Queen's University Belfast, that brought together five DMNI musicians, student musicians from around the U.K., engineers and interaction designers [12]. Over the 3 days, the participants worked collaboratively in teams to design and build prototypes of Arduino-accessible musical interfaces [13] (Fig. 3). On the final day they performed improvised music together. The students discussed the specifications with the DMNI musicians so that each musician had an interfacing solution tailor-made to his or her individual requirements.

In one team, Ruben, a young man who had sustained a brain injury that weakened his motor skills, related to his student designer that he enjoys using the joystick UI on his electric wheelchair because it allows him to use two fingers on his left hand for discrete control. Based on these discussions, the student designer implemented a similar interface with a T-bar shaped joystick (Fig. 4): A touch sensor on the



Fig. 3. Ray, a longtime DMNI musician, trying out a prototype interface built specifically for his use by student DMI designers at a 3-day hacking event held at the Sonics Arts Research Centre, Queen's University Belfast, 27 March 2015. (Photo © Edward Butt)



Fig. 4. Ruben and his joystick Arduino interface, 27 March 2015. The interaction mode was designed to be similar to his assisted control wheelchair system. (Photo © Cathryn Hogg)

top of the bar turns on the sound generator, the joystick's movement along its x -axis controls pitch, and its movement along its y -axis controls the length the note is played.

Open music technology sensor interfaces can be appropriately matched to overcome an individual musician's specific barriers to access and participation. Furthermore, as Jewell and Atkin [14] note, the availability of open source design can eliminate the need for a manufacturer, investors or both, since designs in the public domain can be used and manufactured by anyone. From my fieldwork experience with DMNI, I have come to the realization that adaptations or customizations of existing mainstream and accessible technologies can also lead to effective interfacing solutions. When a workshop participant wants to use a DMI or tool with an interface he or she finds challenging, the interface can often be temporarily adapted on the fly with additional controllers rather than permanently hacked or modified. An example of this kind of temporary adaptation is using a MIDI keyboard and iRig MIDI interface [15] to input into

an iPad synthesizer or sampler app, or connecting an accessible music technology device such as the Soundbeam [16] to remove the necessity of a tangible interface to hold or touch. Sometimes much simpler solutions are appropriate. For example, to enable live percussion play, a drumstick can be adapted by fixing an object with a larger surface area to the end, making it require less physical force from the musician to strike the drum. These kinds of solutions require creativity, improvisation and flexibility from both the access music tutor and the musician, as well as a space to experiment with improvisations of enabling techniques, performances of music and performances of ability.

It is important to note that, in most cases, it is the trained access music tutor who implements the hack or adapts a tool for the musician's use. Thus, an important question to ask when considering openness is: open to whom? Whether for inclusive music or any other purpose, a precondition for the person hacking or adapting a tool is a certain level of expertise. Thus, a universally "open" technology (one that is easily adapted, modified or hacked) is hard to conceive; there will always be the requirement of a certain level of knowledge and therefore exclusions.

TECHNOLOGY AND INCLUSION

Despite limitations to the universality of open technology, the potential of open music technologies for customizations and tailored specifications to suit an individual's specific abilities is undeniable. Whether they come from within universities or "third sector" (nonprofit or volunteer) initiatives, organizations like DMNI are growing in number, as is their reach and impact for musicians with disabilities in the U.K.

One of the most high-profile examples of musicians using inclusive adaptation is the British Paraorchestra [17], the world's first professional ensemble of disabled traditional and electronic musicians. Jewell and Atkin [18] assert that the Paraorchestra provides a fertile environment for its members to exchange information about enabling music technology and to collaborate in the creation of new instruments. Through my research with DMNI I have learned not to focus solely on the abstract concern that many open technologies are not universally open, but instead, as Jewell and Atkin emphasize, to extend the manner of collaboration and the sharing of information exemplified by the Paraorchestra in

order to understand and promote useful devices and software, and to design better musical interactions for the benefit of the musicians using them.

CONCLUSION

Openness, transparency and intelligibility are all fundamental themes when thinking about electronic music. In inclusive music practices, these themes are particularly relevant for discussion and questioning. At the same time, it is vital not to lose the essential ethos of inclusion itself. As an academic researcher, electronic musician and hardware enthusiast, I am aware that my own personal concerns come to bear when analyzing a device's level of openness, ques-

tioning who has access and assessing how intelligible and transparent work processes are to users and audiences. These are important considerations, but are perhaps most valuably posed within the context of academic research. To the workshop participants and the access music tutors of DMNI, concerns with the politics of making digital music technologies and their practices of use take a backseat when compared to the primary purpose and object of the workshops: the creation of the tools and environment to enable participants to collaborate in composing and performing music, and to facilitate the process of overcoming disabling barriers and enabling creativity.

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Experimental Music with Young Novices

Politics and Pedagogy

ADAM TINKLE

ABSTRACT

The author describes an experimental music-based pedagogy developed for workshops with untrained musical novices. He discusses the political impetus and implications for teaching music outside the traditional framework of instrumental skill-development and reproduction of extant works. Instead, he suggests an anti-hierarchical and empowering pedagogy through which anyone can exercise authorship and agency with music composition. Finally, he shows how the open-ended sonic inquiry—"the outcome of which is not foreseen"—that is characteristic of Cagean music resonates with trends toward STEM education.

Artistic creation is an arena in which people make choices. The affective and experiential correlate of making choices is *agency*. If art provides an experience of agency, we might then say that art is a place where anyone, irrespective of their social power in other domains of life, can exercise power—the power to rule, shape and determine the state of virtual domains. Beyond the intrinsic value of such an experience of empowerment, art-making might also function as a training ground for wider arenas (politics, culture) in which those who do not currently have much social power (children, the disenfranchised) are able to exercise choice and agency.

If we preferentially facilitate art-making experiences for those who rarely get them (for example, students who, because of structural economic and resultant educational inequities, have few art programs in their schools), then, from one perspective, we make a political choice. However, an effort to rectify the maldistribution of art experiences (or other educational goods), important as it may be, fails to provide a rationale for *why* art-making is socially beneficial, let alone offer insight about *what sort* of art-making would have the highest impact. My definition of art-making as agency has led me to a narrow and specific pedagogy and politics of sonic art.

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Since 2010, I have designed and led alternative music education workshops that take inspiration from the field of experimental music, very broadly defined. Working with groups of youth at community centers in high-poverty areas of San Diego County, I typically encountered students who lack the resources (school ensembles, private lessons) that allow many higher-income children in the U.S. to attain literacy in Western Art Music. For many, my short-term, once-weekly workshops were the only formal music-learning situations to which they had access. Some curricula focused on guiding students in free improvisation, notation and performance of graphic scores, and others, building and playing invented instruments and simple electronics. I see this work as an urgent critique and challenge to predominating norms of how we interact with sound and music. Here, I discuss three interlinked threads of political reasoning that underlie my practice of experimental music pedagogy: compositional agency, locally sourced sound materials and the connection of experimentalism to what are widely known as the STEM fields.

PRODUCING, NOT REPRODUCING

In early visual art or creative writing instruction, students are plainly the authors of the work they do. However, most school music instruction assigns choice-making and authorship not to students but rather to adult composers and conductors. By contrast, when I teach music and sound to novices, I encourage students to make as many choices as possible and frame everything produced as *belonging* to the child-composer and the group. To this end, students develop their own notation systems with which to compose (Fig. 1), help design the instruments with which the music will be played and eventually conduct their peers in practice and performance (Fig. 2). A process of agency and choice yields a result over which students feel ownership and authorship, in a kind of musical politics of self-determination. As in few other domains in their lives, the virtual domain of music is theirs to govern as they wish. The only rules we play by are the ones we assent to as a group.

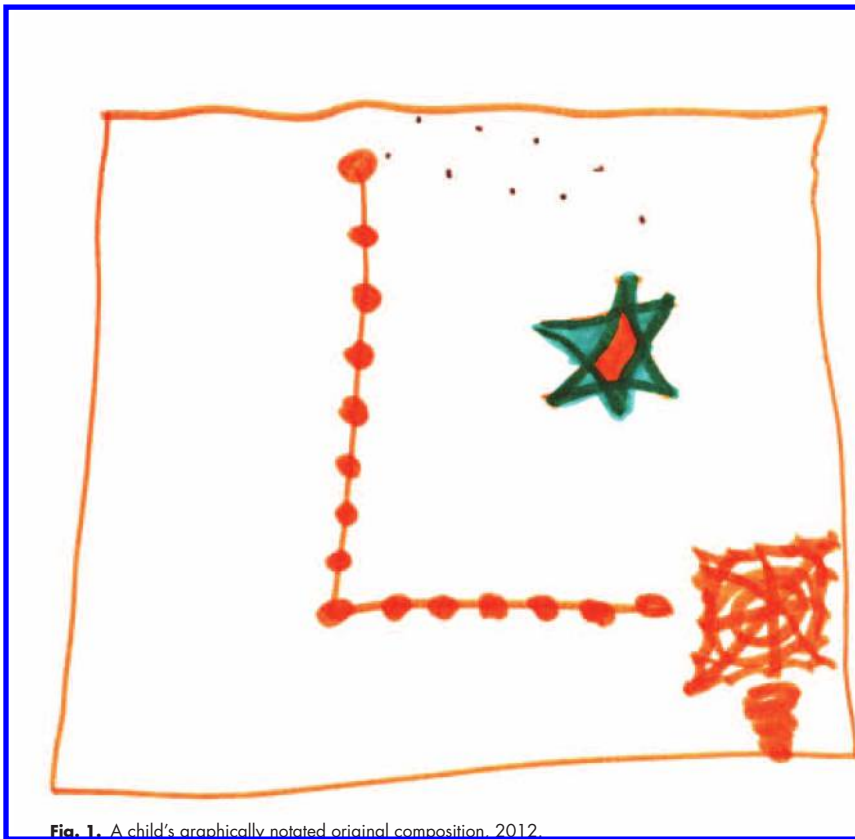


Fig. 1. A child's graphically notated original composition, 2012.
 (Photo © Universal Language Orchestra)

Most music training begins with the assumption that novices must spend a long time reproducing an extant tradition before they are adequately prepared to offer their own well-formed statement in that tradition. The most meaningful creative output in the Western Art Music tradition—as in most of the world's art musics—is often thought to come only from the highly trained. For me, experimental music (like many popular musics) offers a counterweight to this formulation of creativity and determination of who can exercise it and when. I locate my pedagogy in an experimental music lineage but not because I aim to expose students to its historical greatness; instead, I rely on experimentalism because I believe its strategies provide students with an immediate springboard to their own musical agency.

Experimental music offers promising politics and pedagogy because it offers techniques (and permission!) that enable anyone, of any background, to compose. Although this music is strongly linked to the academy, experimental composers teaching in universities ironically have been proponents of a kind of musical deschooling [1]. The influential experimental composition course John Cage taught at the New School (1956–1960) proposed that one need not be a musician to compose musical scores; it was “open to those with or without previous training” [2].

I had the privilege to study with two of the major professor/composers of the post-Cagean generation: Alvin Lucier [3] and Pauline Oliveros [4]. Both taught novice-oriented university music courses that, like Cage's New School class, asked students, regardless of musical background, to compose and realize unconventional scores. Because any system of notation can be employed to specify any kind of action, the logic of experimental composition has an obvious ad-

vantage over more conventional music training: Students do not need to become literate in Western Art Music's notation before they can author a musical instruction that their peers can execute. Thus, in my workshops, everyone composes and everyone helps in the realization of one another's scores in a beautiful model of individualism balanced with cooperation.

SOUNDS LIKE HOME

Doing experimental music with novices almost by definition requires that we “abandon normal instruments” [5]. A major stumbling block on the way to creative music-making is the simple technical obstacle of ability to make and control sounds on “normal” instruments. Working with alternative sound sources such as everyday objects and environmental sound offers at once a practical workaround and a deep political critique. When funding is not available for instruments or for adequate continu-

ity to help students ascend a ladder toward technical competence (as was often the case for my programs), it is certainly expedient to explore soundmaking with whatever is at hand. But it also liberates us from the assumption that novices are merely those who have not yet attained credentialing skills that determine their value (call it “musicianship”) as music-makers. All musical choices or sound-oriented behavior can be a source of beauty and value, especially if we remove the idea of instruments having deeply ingrained “correct” uses and sounds. Who is to say that an 8-year-old cannot discover the optimal way to play a bicycle or will not document some beautiful, unnoticed sound of the swing set?

Moreover, when they view the whole sounding world as a resource that can be manipulated and composed with, students can author something that captures an organic connection between themselves and their world. Instead of striving to “elevate” students toward the ratified materials and aesthetics (a project plainly bound up with colonial and politicized value hierarchies), I help my students articulate themselves in relation to the here-and-now. Emphasizing the music in our everyday surroundings, chaotic or plain as it may seem at first, helps students soften their assumptions about how music ought to sound and, ultimately, to view their own sound explorations as valuable, “real” music. The insight that comfort and fluency with the sounds of home could undergird the emergence of a compositional voice is a cornerstone of Pauline Oliveros's teaching as I experienced it: Her introductory course asks students to make a sound recording of their home environment and construct their first compositions from this sound material.

With recent advances in the image processing and video editing capabilities of our devices, millions of social media

users now creatively document their visual worlds and reshape them into digital canvases. While perhaps no comparable folk art of digital phonography has yet saturated our techno-culture to the same degree, I envision a future in which creative fluency with the sounds of our environments will be fundamental to what we think of as core musicianship. Colonialist logic suggests that the finest art and culture is cultivated in and for the halls of power. What if, like locavore chefs, we instead were to prioritize and commit to working with what immediately surrounds us and is directly at hand?

PUFFING STEAM: EXPERIMENTALISM AS SOUND INQUIRY

What is the place of arts education? What do we want art to do and be for people? Although I believe that art-making should be promulgated and taught because it is fundamental to what makes us human, we seem to be living in an era where data-driven, extrinsic justifications of art trump such intrinsic ones. In one increasingly influential justification, drawing on an enormous corpus of research “proving” art’s cognitive, social and economic impacts, proponents sandwich an “A” into STEM (science, technology, engineering and math) fields thought to be so crucial to the competitiveness of the American workforce. Those who would place the arts in “STEAM” suggest that to be competitive we need to innovate and invent, not merely calculate and engineer. If we are going to “save” arts education by declaring it as a means to such an end, we must prioritize the musical experiences that most

encourage divergence, creativity and imagination, certainly above settings of obeisant recitation of someone else’s music.

There is an obvious resonance between my creativity-centered approach and the demands of the postindustrial knowledge economy. If symphonies and concert bands were the musical mirror to an industrial economy in which cog-like workers were subsumed to rigid hierarchies, lockstep coordination and unquestioned commands (e.g. complex, multipart musical arrangements with little improvisation mirroring Fordian manufacturing methods), the postmodern knowledge worker is much more like an experimental composer: expected to be a “content producer”—an autonomous “creative” whose ideas are valued in proportion to their disruptive newness. I mention this not to celebrate recent economic transformations but rather to point out the lingering bad fit between the means of most mainstream music education (reproduction-focused, hierarchical) and our desired, “postindustrial” socioeconomic goals (innovation-focused, less hierarchical).

Given the current climate, an even plainer argument for post-Cagean techniques in the music classroom is to point out the obvious mutualism of aesthetically unconstrained sound experimentation and STEM-based inquiry. Much experimental music was “STEAM” *avant la lettre*: Tudor [6], Oliveros and the Sonic Arts Union [7] represent a still-thriving lineage of tinkerers at the artistic and technological vanguard. Yet this need not necessarily represent expensive or high technology: I start with the investigation of sounds that can be wrung from ordinary objects. For a child, an ex-



Fig. 2. A child uses a graphic score composed by a fellow student to conduct an orchestra of students playing homemade instruments, 2012. (Photo © Universal Language Orchestra)

periment with a contact microphone is a springboard both to improvisation and a science experiment: How do material, mass and means of excitation impact the sounds things make? Rather than prescribing a right way to make sounds, my classroom is a space for open-ended inquiry, an investigation of cause and sounding effect.

An experimental attitude toward music—embodied in the sort of actions, as Cage famously said, “the outcome of

which is not foreseen”—offers both a methodological and political challenge to traditional music teaching [8]. Rather than relying so exclusively on externally imposed norms and traditions to determine and delimit each step up a child’s ladder to musicianship, what if instead music education was self-education in which students were, like citizen-scientists, set loose to probe and document the sounding world?

Acknowledgments

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Sound Exchange

Reframing Music Composition Educational Practice

DANIEL WALZER

ABSTRACT

Affordable technology facilitates an immediate documentation of sound and space that encourages collective artistic expression modeled after track- or song-remixing websites. Students in a newly proposed music composition course must capture and generate original sounds, and then upload them to a separate class drive for other students to reuse. New creative work consists entirely of these reused sounds. The author discusses the use of remixed sound collages in an open access format and considers the positive influence of legal file exchange and remixing in educational musical practice.

ACCESSIBILITY

Modern compositional practice benefits from the free and open transfer of new content, inspiring composers and emerging sound artists to manipulate existing source material. Millennials steeped in an era of accessible digital technology employ affordable tools while conceiving new musical arrangements, soundscapes and remix compositions. Affordable open-source platforms such as digital audio workstations used in music production and composition are robust, configurable and user-driven, thus narrowing the divide between novice and professional application of those tools [1]. The modern project studio outfitted with Internet access serves as a vital compositional device and bridges the gap between classically trained musicians and their counterparts through asynchronous collaboration [2].

ACTIVE PARTICIPATORY CULTURE

Consumption of open source content is no longer passive; rather, it is a multifaceted process in which users absorb creative work and contribute to it in new ways [3]. This phenomenon illustrates how millennials actively engage and internalize newly acquired information. The Internet's global reach inspires emerging musicians and sound artists

to critically examine ideas that serve their personal creative interests.

Millennials born into an open access, technology-saturated culture avail themselves of a global compositional process, incorporating software tools that transform their creative patterns [4]. Emerging music and sound artists need not adjust to this technological phenomenon; millennials delve into an individualized creative process with their preferred tools at arm's reach.

Copyright law overlooks the fact that millennial content producers involved in peer collaboration are not always motivated by commercial gain [5]. Media producers freely offering their work without concern for profit illustrate a growing trend in product development and design. The growing body of Internet-based virtual collaborators innovates across disciplines without the rigorous constraints of corporate business and management structures while building communities of like-minded people [6]. In this scenario, content developers value innovation without monopolization. Collaborative authorship through the Internet's global portal reflects the ideals of many young musicians who actively participate in a hybrid musical event in which each contributes original sonic content and encourages its reuse in new and creative ways [7].

INSPIRING DIVERSITY IN MUSIC COMPOSITION AND EDUCATION

Over the past decade, the major improvements in music production software not only enhance creative practice but also improve the scope of student learning—particularly in how the technology inspires music education research and pedagogy from multiple perspectives [8]. Considering technology's effect on imagination and knowledge, topical music education research explores how including new media, e-learning tools, social networking and remixing in the classroom rejuvenate music teachers of all types and give rise to new cultural trends [9–11]. Recent moves to establish a shared music and technological ethos in curricula draw much inspiration from historical trends linking music composition with computer networks and live performance [12].

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THE CCMIXTER MODEL

Cheliotis and Yew's [13] quantitative study of the track remixing website ccMixer (ccMixer.org) illustrates the communal experience remixing inspires, where a desire for free expression is deeply connected to a sense of collaborative belonging and streamlined interface design. The site's introduction of ccHost, a licensing management tool, traces reused content by ccMixer users, linking all versions of derivative works while administering a Creative Commons license for newly uploaded content [14–16]. This transparent attribution policy facilitates a simple transfer of creative information and establishes a communal link among users that extends far beyond commercial interests, instead encouraging a deep sense of active musical participation [17]. ccMixer's participatory model engages its user base to credit authors of source material used in new compositions [18].

Recent qualitative studies by Diakopoulos et al. [19] suggest author willingness to provide original content for others to use is indicative of the collaborative value structure inherent in the remixing community. Composers voluntarily exchanging original music and sonic material participate in a deep exchange of cultural ideas, collaborative narrative structures and expression [20].

EDUCATIONAL APPLICATION OF FILE EXCHANGE

Collaborative file exchange guides much of the pedagogical framework and curricular design in Digital Synthesis and Remixing, a planned second-year course in the Bachelor of Music degree in Composition and New Media, an interdisciplinary program now designed and pending final approval, at the University of Massachusetts Lowell (UML).

Enrolled students record a range of sounds with various lengths, timbral characteristics and pitches from diverse environments. Students use simple portable recorders to capture their sound catalogs, taking care to ensure proper gain staging when using the portable recorder's internal microphone. Students import their recordings to a digital audio workstation for editing. Students then trim the recordings for length, but the sounds receive no further processing or post-production. At this point students upload their edited audio files to a composite drive with a simple description of the sound and its major characteristics.

After reviewing the existing database, students each choose assorted sounds recorded by their classmates to edit, manipulate and remix to create a new original piece. Students cannot include any of their own recordings in the remix composition and must only use sounds from other classmates. This limitation challenges the students to build a compelling artistic narrative with sonic content with which they are not intimately familiar. Tailoring specific restriction guidelines based on enrollment is advisable for faculty considering similar assignments.

Students are free to arrange the sounds as they see fit. They alter the sounds through creative synthesis and production techniques in the digital audio workstations. These techniques include equalization, filtering, use of delay-based effects and stutters, pitch shifting, reverberation and ambi-

ance, tempo shifts and combining analog equipment with their workflow. Initial compositions focus primarily on audio content with guided instruction. The instructor facilitates classroom discussions, production-specific approaches, and compilation and management of the database and supplements each class with listening examples from sound artists and composers drawn from popular, experimental, commercial and electronic multimedia styles.

The students focus their arrangements on achieving a basic structure with their chosen sounds. Ultimately, students must conceptualize a cohesive form for their compositions and find thematic elements and motivic devices. Transforming abstract sounds into a musical framework requires patience, planning and experimentation. Ambient sounds function well in a harmonic context, and metallic sounds inspire rhythmic and melodic development. Additionally, students workshop their production approaches with the original sound authors.

In addition to the growing database, students interact with one another in Blackboard discussion forums. Threaded discussions allow each student to describe their original sounds in detail and receive peer feedback on compositions-in-progress. Moreover, these threaded discussions receive little instructor moderation—their aim is to transform the online learning environment into a free, collaborative exchange of musical ideas [21].

This dialog serves a useful purpose in the remixing platform, as it gives the new composer an understanding of the original author's intent in recording the sound. The composer's intent should be to create an original narrative from source materials they did not originally conceive. Ultimately the new author must (1) conceptualize his or her existing sound catalog, (2) become intimately familiar with each sound's characteristics and (3) balance creative production techniques with critical thinking to arrange the existing sounds in a new composite work.

Collaborative music creation happens through this integrated communication during lab time. Just as traditional composers play their piano sketches during a seminar course, remix composers similarly discuss, revise and edit their material collaboratively and in real time. Peer feedback is important and encouraged in this scenario and requires each student to see his or her piece from a variety of visual, musical and sonic perspectives. The aim of this overall communicative structure is to nurture a discovery-based musical composition process both in class and online that encourages and respects each student's artistic inclinations [22].

CONCLUSION

Future research and curricular development must implement course-learning outcomes that embrace collaborative aesthetics in sound and music composition through an open access format. Although this premise is not overtly political, I argue that file exchange can benefit the student composer through the implementation of carefully structured learning activities and defined parameters in an educational context. These parameters mirror existing paradigms that the

remixing community already embraces. Logistical and technological frameworks must prudently achieve compliance with institutional missions.

As the new Digital Synthesis and Remixing syllabus and final course sequence, both works in progress, materialize in the next year, the proposed Bachelor of Music degree in Composition and New Media anticipates global trends in collaborative musical practice. A holistic and reflective artis-

tic pathway will engage students to conceptualize preexisting content for commercial and abstract musical compositions through classroom activities, relevant integration of online learning tools and applied instruction. The expected result of these efforts is a dynamic and inspired musical pathway that will direct students toward autonomous cultivation of their individual artistic style, both individualized and deeply inspired by their interaction with their cohorts.

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Glitch/Failure

Constructing a Queer Politics of Listening

ANDREW BROOKS

ABSTRACT

This article is an attempt to bring sound studies discourses into dialogue with queer theory, to “queer” the field of sound studies, and to open up queer theory to the textual canon of sonic art. Concerned with notions of failure, this article deals with glitch and examines the result when error, malfunction and failure are amplified within systems. The author argues that the glitch, a key conceit of experimental music, is a productive framework for theorizing minoritarian politics and alternative modes of knowledge production.

The figure of the parasite evokes transgression: It is an unwanted guest snacking on an unsuspecting host, a micro-organism that takes without giving and weakens without killing. It is a minor figure with paradoxically large implications. For Michel Serres, the parasite (a term that has three meanings in French, two corresponding to the English definitions—the biological parasite and its social equivalent, the sycophant—and a third that is not reflected in English and translates as “noise” or “static”) is a figure that accounts for differentiation, disruption, distribution and novelty [1]. The parasite is understood as both interference and, in a metaphysical sense, the infinite: the background noise or chaos from which all being originates. Bringing about minuscule changes of state, it has the potential to create unexpected deviations. In this sense, the figure of the parasite is akin to the concept of a glitch—a minor malfunction or error.

The glitch—figured as both an error and an intrusion of noise into a system—has become a material for aesthetic manipulation and an object of inquiry in experimental sound and media arts since the early 1990s. Artists working with the glitch as a material engage in a process of what Caleb Kelly has called the “cracking” of media, which involves encouraging or amplifying the failure of technologies and systems [2]. Claiming aberration and failure as sites of creation, glitch artists and musicians create unstable systems that allow for emergent and distributed forms of agency. Paradoxical in nature, the glitch is inevitable yet unexpected, tiny yet dis-

ruptive. It is an art form that amplifies noise both literally and conceptually. Seminal glitch artists such as Yasunao Tone and proto-glitch artists such as Christian Marclay and Nam June Paik deconstruct the technologies of music reproduction (including CDs and vinyl records) and playback devices (CD players, phonographs, samplers and so forth). Foregrounding failure, such practices highlight the limits of media technologies and the productivity of aberration, malfunction and error.

While much academic work has already been produced on glitch as both an artistic practice and a genre of music [3], here I treat the glitch in conceptual terms and propose a “queer” reading of experimental sonic arts practices. Such a treatment involves examining sonic glitch works alongside queer theory and critical theory, which articulate the productive political possibilities of failure and negativity. Focusing on how sonic art uses failure as a methodology and how queer theory has reclaimed failure as a site of resistance to normative modes of existence, I construct an affinity among the fields of sound studies, queer theory and affect theory.

QUEERING SOUND STUDIES, GLITCHING IDENTITY

Queer theory, which emerged in the 1990s as a field of critical theory with a direct lineage to lesbian, gay, bisexual and transsexual (LGBT) studies and feminist studies, builds on scholarly work that argues for a nonessentialist understanding of identities, orientations and practices. Arguing against essentialist readings of sexuality in particular, queer studies considers “sexuality as a product of social relations and thereby suggests the history of sexuality to be “the history of the subject whose meaning and content are in a continual process of change” [4]. Taking up this constructivist reading, Judith Butler argues that gender and, in turn, sexuality are multiplicitous and performative categories [5]. Considering performativity as a mode of authoritative speech and the production of static conceptions of gender and identity as the result of rehearsed and reiterated performances, queer theory glitches the understanding of identity as a stable and fixed category by introducing noisy concepts into normative systems.

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One such concept is queer theory's focus on failure and negativity as forms of resistance against political marginalization. Failure, uncertainty, pessimism and unhappiness become spaces to invert the authority of normative politics. Attentive to what Sara Ahmed has termed the "cultural politics of emotion" [6], theorists such as Lauren Berlant, Jack Halberstam, Eve Kosofsky Sedgwick and Sianne Ngai [7] have repurposed negativities as strategies of defense against socially and politically determined norms and as constructivist articulations of deviant (or glitched) identities. Negativity, far from outlining a nihilistic dead end, opens up new critical and political spaces for minoritarian experience. A queer reading of failure—that it is a failure to adhere to the drive toward heteronormative infrastructures that define the "good life"—points to a kind of radical questioning and a making-fluid of norms, identities and goals. This broad-brush definition of queer theory is by no means intended to be a definitive account of the field, which would be an impossible task given the strategic indeterminacy that queer theory invokes in regard to the limits of what constitutes queerness. However, while the notion of the queer subject resists definition—allowing for a continuous making and re-making of subjects and political projects—the overarching critical project of queer theory is centered on a critique of normativity and an exploration of deviant practices.

I am interested in the verb form of the term *queer*—as in the queering of objects, discourses and disciplines. Patrick Dillely writes, "In academic circles, to queer something is to analyze a situation or a text to determine the relationship between sexuality, power, gender, and conceptions of normal and deviant, insider and outsider" [8]. I broaden Dillely's definition to include race and class, in line with intersectional approaches to queer and feminist scholarship in recent decades [9]. Below I read queer politics through contemporary glitch works, framing the productive possibilities of the parasite in both sonic and political contexts. In doing so, I offer a queer reading of experimental sound practices, one that to my mind is long overdue. I argue that the noisy canon of experimental music is an ideal space for thinking through the queer possibilities of failure and negativity by other means.

GLITCHES AND VIRUSES: DISRUPTION AND DISTRIBUTION

The parasite, occupying the triple role of the host, the guest and noise, is the relation of relations in systems theory: a figure that has the potential to produce newness through difference, deviation and interference. For Serres, noise is both the foundational disorder from which all relations emerge and a concept of minor difference that allows systems and relations to evolve. Understanding noise and chaos as productive categories, he writes,

The theory of the parasite brings us to minuscule evaluations of changes of state. It installs unexpected chains where small cases or very tiny differences are followed by zero effects or by effects of return and better resistance or by immense catastrophic effects [10].

Noise itself is a foundational part of any relation or trans-

mission, and the a priori judgment of the parasite as degenerate or negative is rethought in the work of Serres and systems theorists such as Gregory Bateson and Niklas Luhmann, which positions it as both creative and productive [11]. The parasite reveals that the commonly held belief of a two-way transmission is a fallacy, and it ruptures this simple model with its constant movement between information and noise, chaos and order.

Glitch music foregrounds the presence of the parasite in the audio matrix. Anomalous sonic micro-objects such as clicks, cuts, stutters, skips, pops, crackles, splinterings and spikes have spread through digital music culture since the 1990s, forming the basis of a glitch aesthetic that has infected experimental and popular forms of electronic music. These sonic objects—the detritus arising from malfunctioning digital audio technologies—form the material basis for music practices that transform unwanted noise into signal. Practitioners of glitch, rather than attempting to suppress noise, amplify and encourage it, inviting the parasite into their work to create unexpected ruptures in the surface of sonic and media artworks. The history of 20th- and 21st-century music can be seen as a history of the struggle to either incorporate or expel the parasite, a struggle seen in works from Luigi Russolo's manifesto, *The Art of Noises* [12], to John Cage's attempt to dissolve the distinctions between noise and music, to guitar feedback and record crackle, to Yasunao Tone's experiments with skipping CDs and the warped beat-making of contemporary electronic music. The enduring interest in the glitch as a material for aesthetic manipulation is the latest evolution in what Steve Goodman has described as a "noise virus" that has inhabited the skin between sonic experimentation and popular music" [13].

New York-based multidisciplinary artist James Hoff uses the notion of a "noise virus" literally in his work, utilizing computer viruses to produce glitch music and paintings that crack, break and reconfigure digital sound and image files. Expanding on the well-known canon of glitch music practice, Hoff employs digital parasites to infect source recordings at the level of code, where they spread, disrupt and ultimately transform their host into something new, laden with stutters, skips and noises. Hoff's manipulation of digital materials, concerned with creating emergent systems in which chance and failure are magnified and agency is distributed, is realized in his 2014 recording *Blaster* [14], for which he infected beats from 808 drum-machine samples with the Blaster virus, a computer worm that wreaked havoc on Microsoft Windows operating systems in 2003. Drum grooves, in the style of pop electronic music, are transformed by the Blaster virus into pieces of great density, with any semblance of regular rhythm destroyed in a process that corrupts the coded language of an audio file. Whereas earlier glitch and proto-glitch artists such as Tone and Marclay worked to break or crack reproduction and playback media (CDs and CD players, records and phonographs), Hoff's work creates glitch by releasing a parasitic virus into the code of a digital audio file.

Glitch, as a process-based art form, destabilizes the centrality of the author in the process of creation. By creating conditions that utilize chance and error as compositional

tools, glitch artists create conditions that give rise to emergent systems in which agency is radically distributed. Noise is willfully introduced into sonic systems—as an aberration, error or figure of disruption—then multiplies wildly and unpredictably and manifests as audio noise in the resulting compositions. In this way, glitch systems such as Hoff’s *Blaster* are parasitic in nature. The parasite feeds on the apparently stable source sound, disrupting its clean transmission and refiguring it as something new.

Hoff’s work is an Internet-era updating of glitch; although the sonic outcome is very much in line with the musical genre of glitch, his choice and use of immaterial actors in the composition process draw out an important conceptual relationship between failure and distribution in networked systems. The computer virus is a semiautonomous actor that Jussi Parikka describes as having “tendencies and powers of affiliation and affordance, but not of a human sort” [15]. Human-made, yet with the ability to autonomously replicate and spread, the computer virus provides a useful analogy when thinking about disruption, distribution and circulation in the networked age of information capitalism. Like a contagious accident or infectious disease, the virus can expose the inner workings of networked societies, revealing paths of communication and interaction, flows of information and commerce, and chains of effect. An attentiveness to viruses and virality makes visible the otherwise invisible networks of systems and societies, drawing our attention to the point at which failure becomes evident. Central to the virus’s ability to spread and multiply is its transformative capacity. In its ability to mutate as it replicates, “the virus does not remain the same, nor does that which it confronts and transits through” [16]. The virus transforms what it comes into contact with, producing both a symbolic and a material rupture in the normal functioning of a system (whether it is biological, political, digital or sonic).

QUEER NEGATIVITY: CONSTRUCTING A THEORY OF DEVIATION

The emergence of the computer virus as a global phenomenon was mirrored by the AIDS crisis of the 1980s and 1990s, with these twin viral threats producing discourses of fear and activism that centered upon identity and security in relation to bodies—biological, political and computational. Queer theory, emerging from the AIDS crisis and its homophobic emphasis on queerness as symbolic of pathology, contagion and extinction, began as a field striving to bring a “queerer world into being” [17]. Challenging both the homophobic discourses surrounding the AIDS epidemic and the privileged position that the heterosexual couple is afforded as a referent and symbol of the normal and the correct, queer theory critiques the construction and perpetuation of heteronormativity, using negativity as a critical tool to consider and articulate alternate possibilities of social reality. On the importance of negativity in queer discourse, Lauren Berlant and Lee Edelman write:

Negativity for us refers to the psychic and social incoherences and division, conscious and unconscious alike, that trouble any totality or fixity of identity. It denotes, that is,

the relentless force that unsettles the fantasy of sovereignty. But its effects, in our view, are not just negative, since negativity unleashes the energy that allows for the possibility of change [18].

Based on the amplification of error, failure is a key conceit of glitch aesthetics, an art form based on disrupting, breaking and transforming media. Glitch musicians and artists invite the figure of the parasite into their works to disrupt and destabilize sonic systems and challenge the autonomy of the artist in the process of creation. Similarly, queer theory proposes failure as a mode of being or, rather, a mode of *unbeing* in the world. Seeking to articulate alternatives to the structural normativities that code lived realities under contemporary capitalism, queer theory looks to counterintuitive spaces such as failure and negativity as ways to outline an identity politics that accounts for “othered” bodies—including, for example, nonwhite, nonheterosexual and disabled bodies. To embrace failure is to seek out alternate forms of knowledge production that reside in subcultures and countercultures. As Jack Halberstam notes:

Failure allows us to escape the punishing norms that discipline behavior and manage human development with the goal of delivering us from unruly childhoods to orderly and predictable adulthoods. Failure preserves some of the wondrous anarchy of childhood and disturbs the supposedly clean boundaries between adults and children, winners and losers [19].

The affective modes associated with failure—including “cruel optimism” (to quote Berlant), uncertainty, unhappiness, shame and humiliation—function as noise and work to destabilize fixed notions of identity as rendered by the categories of gender and sexuality. In the process the term *queer* is transformed from a homophobic slur into a theory of deviation. Failure is reclaimed as a space of resistance, producing what Berlant refers to as an “impasse” [20], a term usually designating a situation in which one cannot progress. Yet she redefines it as a productive and politically charged temporality and a space that

demands both a wandering absorptive awareness and a hypervigilance that collects material that might help to clarify things, maintain one’s sea legs, and coordinate the standard melodramatic crises with those processes that have not yet found their genre of event [21].

The impasse, a failure to move forward, is a critical space in which one may resist the traditional structures of organizing and reproducing political and affective life. Interference and disturbance—figured here as noise—can rupture the fabric of normativity, revealing hegemonic power structures as ontologically unstable and chaotic. Foregrounding movement and relationality, queer failure is a space in which alternative ordinaries may be constructed.

GLITCHED LISTENING

Glitch practices and their focus on cracked media and malfunction produce a rupture in the listening experience. As Jacques Attali notes, the recording was originally intended to

be “a surface for the documentation and preservation of representation” [22]. The disruption of representation in glitch practices disrupts the experience of listening (as a reproduction of a live event) by highlighting and foregrounding the imperfection and error of reproduction technologies. Kelly writes: “The cultural practice of listening to these media objects explicitly requires that the listener ignore or block out those elements of media that would return him or her to the actualities of the mediated experience. That is, the listener is required to buy the myth of transparency” [23]. Practitioners of glitch expose this myth by forcing the listener to consider the listening experience as one that is mediated by technology and environment. The cracks that appear on the surface of the music foreground the act of listening as an assemblage of processes and objects and highlight the contextual nature of the listening event.

As a process that highlights failure by producing cracks and breaks, glitch can be employed as a theoretical framework for understanding how disruption, deviation and disorder are productive in systems. The glitch reveals the substructures and hidden layers of systems. The presence of the parasite—noise—always suggests the potential for new relations to be made and remade within a given system. A queer listening practice listens to the noise of parasite, tuning in to the sound of the relations. Such a listening practice uses the ear as a way of thinking through relations of power; it is a mode of listening attuned to the production, transmission and mutation of the affective tonalities of dominant neoliberal late-capitalist cultures. To read queer theory through the lens of experimental music practices is an attempt to both reorient the politics of experimental sonic arts and construct a queer politics of hearing.

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DIY Electronics

Revealing the Material Systems of Computation

RYAN JORDAN

ABSTRACT

The author sets out an extension of do-it-yourself (DIY) electronics as a literal critical practice addressing the social, economic and geological systems shaping technologies we use, presenting several real-world examples and concluding with future directions.

Music technology has historically relied on scientific developments in software and/or hardware to bring new tools to the marketplace. Popular press articles have highlighted a rapid progression of successes, from nano-component transistors [1] to neuromorphic microprocessors [2]. This progression, however, has not been without its costs, specifically to the environment and to human health, as has been well documented [3,4]. One alternative to this highly engineered electronics market has been do-it-yourself (DIY) electronics, in which artists “hack” salvaged electronics and cheap components to make work that recognizes the close interrelations between sonic technologies and the natural world. Although such approaches have been documented in the literature, little attention has been paid to the material foundations of these technologies and to their relationship to social, economic and geological systems. To address this gap, I propose a “literal critical” approach to DIY electronics in which artists simultaneously leverage the raw materials of computation in their practice while critically examining their material foundations.

LITERALLY DIY: MATERIAL SYSTEMS OF COMPUTATION

Within sonic arts, the practice of DIY electronics offers one alternative to expensive, highly engineered technologies, with artists using cheap, readily available components. The components are usually taken from either disused technolo-

gies or purchased from specialist retailers distributing mass-produced goods. These components are then hacked in order to make sound, either by exploiting the technologies’ in-built functions or by amplifying natural phenomena such as electromagnetic fields (EMFs). For the majority of artists, their practice stops at the level of building or rewiring circuits with preexisting components. To bring attention to technologies’ relationship to social, economic and geological systems, DIY electronics can be expanded through a *literal critical practice*. By this I mean an actual dismantling of the machines we are using, observing them and opening them up to see what is inside, what they are made from and how they function. If we as artists are practicing DIY electronics, then we should be doing it ourselves, making the actual components instead of purchasing them. From this literal critical practice, we can begin to better understand how our current computational technology is directly related to and embedded in social, economic and geological systems.

To begin a literal critical approach to DIY electronics, we can start with the computer, breaking it apart to its most basic component. Although DIY electronics practice relies heavily on loudspeakers, recording and playback systems and the Internet, it is beyond the scope of this article to look into each of these in detail. It should be noted that these technologies use the same rare earth minerals and metals found in the standard computer, such as neodymium magnets, copper coils or silicon-based transistors. The core of the computer is the central processing unit (CPU), which is made up of microprocessors that in turn are built from complementary metal-oxide-semiconductor (CMOS) technologies. All digital computers are essentially transistor-based due to this construction. CMOS circuits’ fundamental components are built from metal-oxide-semiconductor field-effect transistors (MOSFETs) [5]. Sets of such circuits combined together onto one single chip are called integrated circuits (ICs), with the base of the chip made from a semiconductor material. Semiconductor technologies form the backbone of modern electronics. We must begin to look deeper into the material constructions of the technologies we are using; as

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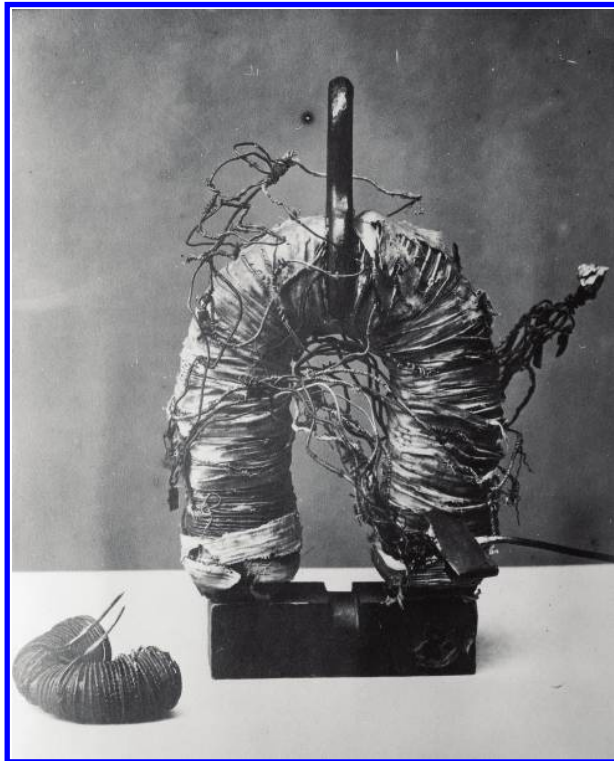


Fig. 1. Joseph Henry, *Quantity Magnet*, 1830s. Today electromagnets are used in many applications, including loudspeakers and hard drives. (Photo © Smithsonian Institution Archives, Image No. 39040.)

Jonathan Kemp states, “We’re forgetting that materially ICs are actually fashioned from metal tracks etched into mono-crystal silicon wafers through photolithography, and then packaged into a ceramic or plastic housing with exposed electrical pins” [6].

The electronics and computer industries rely on rare earth minerals and metals for the construction of all technologies. Semiconductor materials, for instance, are influenced by their geological environment, for example: “The sulfides galena, chalcopyrite, and pyrite are semiconductors whose electrical resistivity and type are controlled by deviations from stoichiometry and impurity content, and hence by their geochemical environment” [7]. A geological environment obviously has a geographical location and hence a geopolitical environment—in the case of the computing industry, a very complex transnational one, with deposits of minerals often located in countries in conflict such as the Democratic Republic of Congo [8]. Not only the extraction of minerals needed for computer hardware but the entire computer life cycle shares this transnational complexity, as Alastair Iles observes: “Computers are designed in the US, Europe, and Japan, manufactured in countries like Taiwan and Singapore, produced with materials extracted from Africa and Australia, used almost everywhere in the world, and sent for recycling and disposal, often in China, Indonesia and Pakistan” [9]. In his paper, Iles highlights the problems faced with e-waste and the environmental and health consequences faced by recycling areas and employees especially when collecting, dismantling, recovering and disposing of the materials used in computers. Frans Berkhout and Julia Hertin reinforce his concerns through their research into the

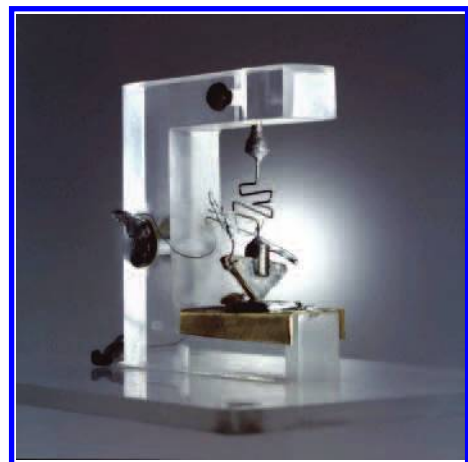
impacts on the environment of information communication technologies (ICTs). They state some positive impacts, such as improved efficiency, detection and monitoring of environmental change, structural and life style transitions, such as growth of small industries and green consumerism, but there are no direct positive impacts of ICTs on the environment [10]. The industry changes rapidly to keep consumers purchasing products, as Sy Taffel explains, highlighting companies’ “planned obsolescence” tactics in which devices have artificially brief life spans so that consumers buy more, and companies generate more profit [11]. Taffel also highlights ICTs’ requirements for power, namely the combustion of fossil fuels that release harmful gases into the atmosphere as well as contributing detrimental ecological effects at the extraction sites [12]. ICT industries also negatively affect human health, as detailed in a recent study in Taizhou City, China, a long-established center of e-waste recycling. The research tested for the dietary intake of polybrominated diphenyl ethers (PBDEs) in children and adults consuming local foods such as fish, meat and eggs. By-products of the recycling process leach into the earth and local water supplies and are also carried as dust that is consumed by local populations and animals. Overexposure can lead to liver problems, sperm defects and impaired neurodevelopment in children [13].

Through a literal critical approach, we can glimpse the complex interrelations among social, economic and geological systems. Kemp [14], Jussi Parikka [15] and Matthew Fuller [16] have contributed key literature on these issues in relation to media arts; however, the relation to the sonic has received less attention.

THE SONIC ARTS AND DIY TECHNOLOGY

The sonic arts have historically relied on scientific developments in software/hardware to bring new tools to the marketplace, from top-of-the-range microphones and speaker diffusion systems to low/no budget, DIY electronics and circuit-bent instruments. Notable technologies well known within sonic arts practices are inventions such as Thaddeus Cahill’s Telharmonium (1897), Leon Theremin’s theremin

Fig. 2. John Bardeen and Walter Brattain, first point-contact transistor, 1947. Transistors now form the bedrock of ICs and microprocessors. (Photo © Alcatel-Lucent USA Inc. Reprinted with permission of Alcatel-Lucent USA Inc.)



(1928) and the various Robert Moog synthesizers of the 1960s and 1970s. These inventions used current technologies of their time, harnessing their materials' unique phenomena. The Telharmonium used electric generators to produce "an absolutely pure tone" [17]; the theremin used EMFs [18]; and Moog synthesizers are based on transistor technology [19]. Notable historical technologies contributing to the invention of various musical instruments can in themselves resemble works of art; the distinction between art and science is aesthetically blurred. Examples include Joseph Henry's electromagnets of the 1830s (Fig. 1); John Bardeen and Walter Brattain's point-contact transistor from 1947 (Fig. 2); and Jack Kilby's first IC (1958) (Fig. 3).

The progress of the sonic arts goes hand in hand with the progress of technology. From the invention of the transistor to the first IC and then the birth of the modern computer, artists have been looking for alternatives to expensive equipment. One alternative to the high-end technology market can be found through DIY electronics, a practice popularized today by books such as Nicolas Collins's *Handmade Electronic Music* [20]. Most of the technology, aesthetics and circuit designs in the book date from the 1970s [21], coinciding with the origins of the U.S. computer industry in California [22]. Artists such as Collins, David Tudor and Gordon Mumma, among others, made instruments and music with

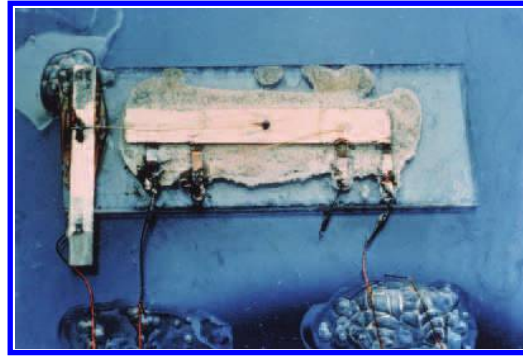


Fig. 3. Jack Kilby, first integrated circuit, 1958. The messy aesthetic is quite far removed from the clean minute black chips we see today. (Photo © Texas Instruments Inc. Courtesy of Texas Instruments.)

transistors and ICs, predating the home computer [23]. These composer-hackers were generally self-taught and built "black boxes," mainly filters, ring modulators and delay circuits, with newly available transistor-based circuits. Thom Holmes describes what this new breed of composer-hackers, as opposed to those using high-end commercial technology, were doing with basic electronic components: "Composers who could afford to use commercially manufactured synthesizers were working with cookie-cutter sounds, rhythms, and

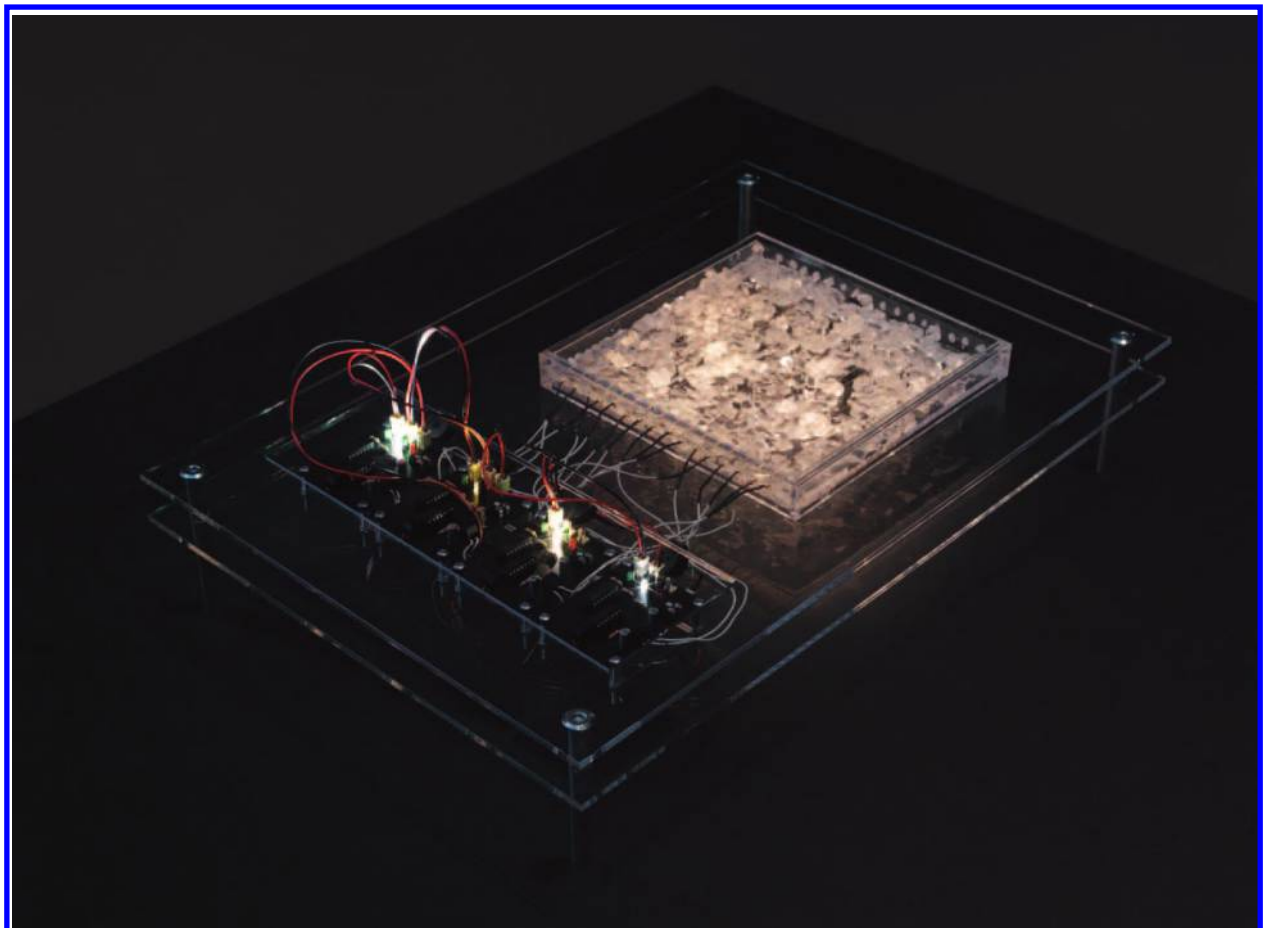


Fig. 4. Ralf Baecker, crystal field oscillator close up, part of *Irrational Computing* installation, 2011–2012. The whole installation uses semiconductor crystals such as silicon, quartz or silicon carbide. (© Ralf Baecker)

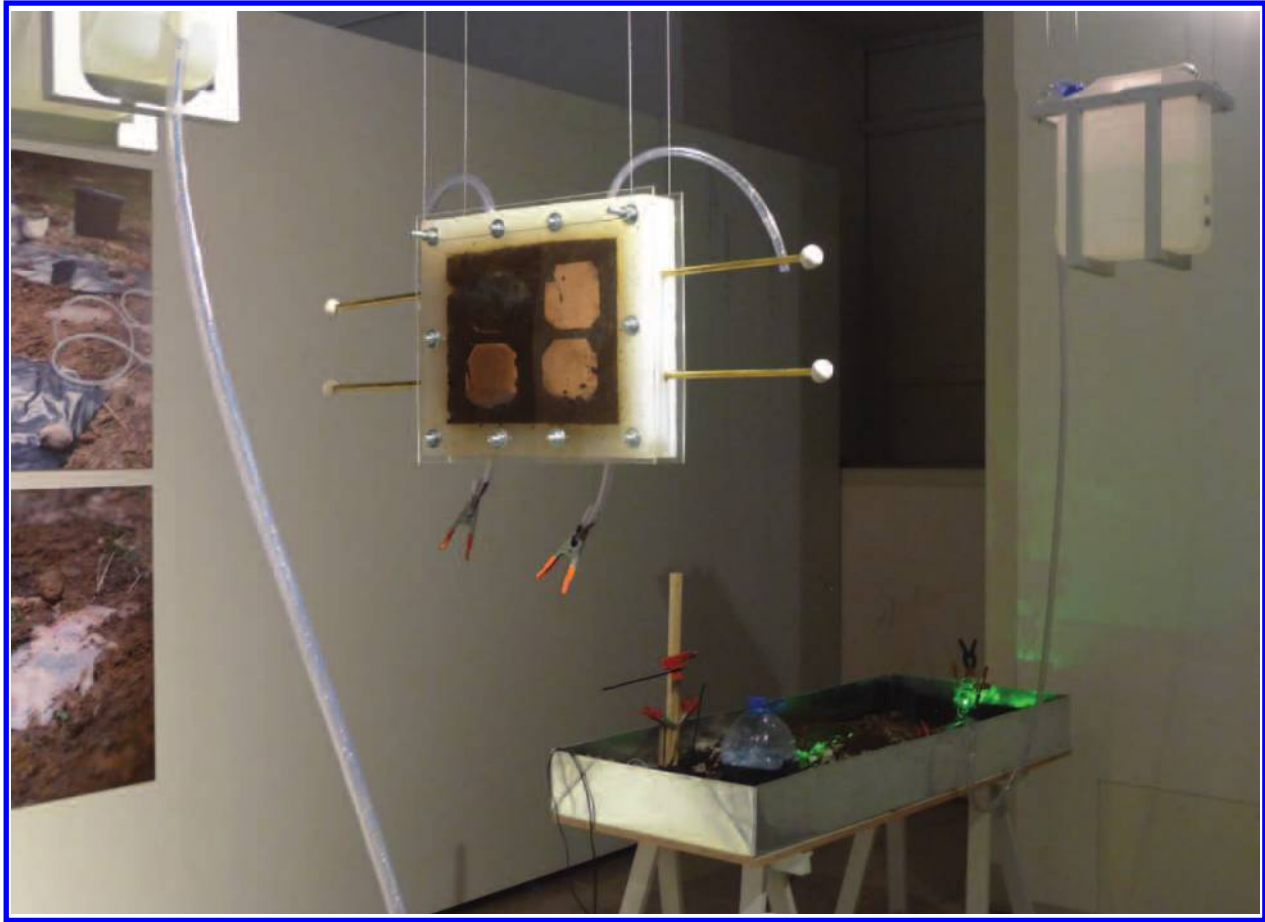


Fig. 5. Martin Howse, *Sketches towards an earth computer*, installation, 2014. Hanging earth container (Perspex and RTV silicon) with forest earth and alternating copper and cuprous oxide plates. (© Martin Howse)

preset controls. The tinkerers, on the other hand, were in many ways reinventing music itself. It was a time for violating the first principles of music composition to see where it would lead” [24]. But where does it lead?

CRASHING THE CORE

A small selection of contemporary composer-hackers demonstrate a literal critical practice. Nyle Steiner’s website [25] provides an essential DIY guide to building oscillators, transmitters, diodes and amplifiers from materials such as zinc, copper, iron pyrite and germanium. His experiments thus provide a simple way to bypass more commercial technologies. Steiner’s work has been source of reference and inspiration for some of the following composers. For example, Richard Brown’s *Electrochemical Synthesiser* [26] is constructed with test tubes containing salt water with copper and aluminum electrodes, situated on a wooden keyboard resembling that of a small, crude piano. When the keys are pressed, the test tubes are tilted so the salt water runs to one end to make the circuit, allowing electricity to flow between the copper and aluminum electrode. This reaction is amplified, and the sounds of the electrochemical circuit are heard. Jonathan Kemp’s *live material noise* performance setup resembles a chemistry lab and, differing from Brown’s work, makes no reference to a traditional musical interface. It is

“made by real time manipulation of mineral components from computers, including: calcite, copper, copper sulphate, iron ore, lead, magnesium, magnetite, quartz, silica sand, silicon carbide, silver in combination with direct current, fire, hydrochloric acid, a pyroelectric infrared sensor, sulphuric acid, and 4093, 40106, and 74HC integrated circuits” [27]. The mineral components are processed live by subjecting them to heat via Bunsen burners, gas torches and microwaves; the violent chemical reactions are amplified through a sound system. Martin Howse and Martin Kuentz’s live performance *substrate* is described as “tabletop micro-material-theatre” and uses combinations of salvaged electronic equipment and fragments of material underpinnings of digital technologies. The resulting din is the chaotic high-frequency noise of a system on the brink of crashing or booting up [28]. Ralf Baeckers’s works *Crystal Set/Self Test* and *Irrational Computing* (Fig. 4) use silicon, galena, germanium or silicon carbide to “form a kind of primitive macroscopic signal processor” generating static crackles and small visible glows [29]. These examples treat sound as a by-product of the creative process. There is no musical or compositional intention as such; instead, these works allow the machines, or rather the elements of the machines, to compose themselves.

Some projects that further address the material founda-



Fig. 6. Ryan Jordan, derelict electronics workshop, 2014. Crystal amplifier powered by clay battery using iron pyrite deposits in the earth at Oficinas do Convento, Portugal. (Photo © Ryan Jordan)

tions of technology include Howse's *Sketches towards an earth computer* [30] (Fig. 5), which sets out potential possibilities for building abstract forms of computation directly into and with the earth. Combinations of minerals and metals are deposited in the earth, allowing natural processes to control their functions. Other projects such as *The Crystal World* [31] by Kemp, Howse and me, experiment with the extraction of minerals from computers and e-waste, mimicking hazardous recycling processes, returning them to the earth and (re-)creating semblances of fundamental technologies. An offshoot from a project within *The Crystal World* led to derelict electronics workshops [32] (Fig. 6). In derelict electronics, I have been building, through workshops, crude solar cells, diodes and crystal amplifiers from chalcopyrite, iron pyrite, galena, germanium, silicon, silicon carbide, copper and copper oxide, with the specific intention of using them in live performances as sound sources [33].

CONCLUSION

The literal critical practice of DIY electronics addresses the social, economic and geological systems shaping technologies we use daily. Through this approach we can gain insight into technologies' interrelations with nature. By reducing technologies to fundamental components and discovering how they work, we can build crude semblances of technological devices ourselves using materials available to us in our surrounding environment instead of relying on industry. We can see that the progress of the sonic arts goes hand in hand with the progress of technology, but with a literal critical practice approach we rediscover earlier technologies and make alternate versions of them. It should be noted that all the works cited here rely on an audio mixer, loudspeaker systems, standard ICs and batteries. Advocates of this practice should begin to look at reducing such reliance as well as at how to generate energy to power the resulting electronics.

The audible output of these technologies is inevitably noise, which aesthetically suits this practice. As Joanna Demers, in writing about noise music, states: "The liminal qualities of this music . . . all wrest music out of a reasoned, ordered plane and thrust it back into the world of objects and raw materials" [34]. Ultimately we listen to the noise of the materials of the machines; electrons passing through holes and quantum processes unfolding in time and space. Far from being disjointed and dematerialized from nature we are far more connected with it than would at first appear. As knowledge grows of the hereditary lineage of the technologies we use daily, it is perhaps time to reconsider our uses and interactions with it. One extreme is to follow the DIY route to its literal molten core—that of the earth itself.

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Changing Music's Constitution

Network Music and Radical Democratization

SHELLY KNOTTS

ABSTRACT

A review of radical democratic theories influenced by technological developments and nonhierarchical network structures allows us to analyze factors influencing hierarchical structure in music ensembles. Network music ensembles are uniquely positioned to deploy heterarchical technologies that enable them to address radical democratic concerns relating to communication structures and power distribution. This essay provides examples of current politically tinged explorations in network music and examines the room left for maneuvering in developing systems that consider the implication of data structures on sociopolitical hierarchy.

Currently, the most exciting network music systems seek not to generate content within existing patterns of musical creation but to change the very processes of musical creation itself. Analogously, the most radical protest movements, such as #Occupy, focus not on working within preexisting government structures but on changing the very constitutional basis of government itself. Such “transformative creativity” [1] with a political edge is at the heart of the most advanced network music works.

Democracy theorists suggest that, rather than thinking of democracy as a discrete system, we consider the continuum of democratization as an ongoing process of populations striving for ever-greater equality and higher levels of self-governance [2]. New technological tools have inspired radical forms of democracy that seek to increase equality within political systems rather than offering ideal utopian solutions [3–6]. Such an interplay of utopian ideals and the pragmatics of citizen participation play out in novel musical interaction, too.

The development of new musical practices and the creation of the organizational structures required to support them go hand in hand. As a form that can deploy heterarchical technology, network music can replicate ongoing political struggles between grassroots, pro-democratic radical

movements that use Internet structures to fight for equality and the network systems abused by authoritarian governments to gain ever-greater control over their citizens. Musicians’ political allegiances are perhaps revealed in their system design choices—i.e. systems that can facilitate data flow in many directions versus systems that use a top-down approach to impose musical practices upon network music citizens.

This article explores the impact of freely designed data-flow structures on social interplay in network music ensembles by first surveying existing political theory and real-world radical democratic movements. The following section applies this theory to music ensemble structures, and the text then examines several emergent themes and practices in network music. The conclusion attempts to identify the “room for maneuver” that is left for network music to explore the great potential of politically engaged network music.

DEMOCRATIC THEORY AND TECHNOLOGICALLY MEDIATED SOCIAL ORDER IN THE AGE OF NETWORK MUSIC

As formal participation in political life (through elections) became almost universal over the course of the 20th century, theorists examined the relative freedoms of state citizens under democracy. Inglehart and Welzel, for example, distinguish between formal democracy (civil liberties as inscribed in law) and effective democracy (as those civil liberties are actually experienced by citizens) [7]. Others have proposed factors, and sought to develop theories of social organization, that contribute to the emancipation of citizens from oppressive societies, and have analyzed political systems that, though formally democratic, do not adequately represent voters’ wishes [8,9]. Below I use some of these factors (see Table 1) to consider the democratic potential of music ensembles.

History provides us with ample evidence of technological development driving political change. The Industrial Revolution’s need to reorganize society into hierarchical structures to facilitate the mass production of goods, which drove the

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move from feudalism to partial democracy, is one such example [10]. More recently, the emergence of knowledge-based economies has been facilitated by nonhierarchical, many-to-many networks that are efficient tools for the distribution and fast exchange of knowledge, and here collaboration has driven the production of new and profitable ideas [11,3].

Alongside these technological developments, political theorists have explored communication and power distribution in political systems. Jessop, for example, describes the formation of states as collectives of institutions defined by their communication channels, and politics as a social relation [12]. Radical democratic theorists have proposed various models of social organization that seek to modify power structures and to implement less hierarchical versions of representative democracy or otherwise to entirely reform political interaction into self-organizing networks. While new models of political organization inspired by “power-free” Internet structures offer utopian visions of society, and many see Internet-driven “biopolitical” production [11] as an opportunity to restructure societies, some governments perceive interconnected societies as a threat to political order and have abused their power to track Internet communications and encroach on their citizens’ online liberties.

Alongside the Twitter-facilitated green movement in Iran and the Arab Spring movements that led to the ousting of several autocratic leaders, one of the most notable network-facilitated radical democratic movements is #Occupy. In addition to being a vital tool for organizing and distributing information to large numbers of geographically dispersed protestors, the Internet, in #Occupy’s view, is a model for deconstructing societal hierarchies.

As the only “spaces” that are free of systematic hierarchical structure, the many-to-many communication networks of the Internet are, for #Occupy, the sole place that a radical revolution can be organized without pressure from real-world political systems. Furthermore, the movement views heterarchical communications as inherently stronger than hierarchical organization: “Working in a horizontal way and using network structures, it is difficult for the system to dismantle you, and it’s the only real democratic way” [13]. Positioning the protest movement both in physical public space and online, #Occupy members have sought to use strength in numbers to construct a global revolutionary message that can resonate across diverse societies and pressure governments to address political and economic corruption, which the movement believes are inherent in hierarchical political systems.

One clearly politically oriented network music project, Crisis R Us, draws directly from #Occupy’s organizational foundations as it seeks to unify diverse voices around a central issue—in this case, women’s crisis. Crisis R Us borrows techniques used by radical democratic protest groups, including open assembly and deliberation, as it develops performance material around specific themes considered important by each performing group. Local performers are joined by audiovisual streams from remote contributors to position local issues within a global framework [14]. Although Crisis R Us is clearly directly informed by radical democratic practice,

other, less transparent approaches to incorporating radical democratic theory and practice into music ensembles should now be considered.

COMPARATIVE ANALYSIS OF DEMOCRACY IN MUSIC ENSEMBLES

An earlier study analyzed the operating political structure of 160 network music ensembles [15], deducing structural features that can help to determine the relative agency of group members. Table 1 takes a broader look, generalizing some of the categorizations in the above study for different forms of musical ensembles and real-world organizations, and including descriptions of factors that have been described by political theorists as determinants in shaping the structure of a society. These include an organization’s components, hierarchical structures, communication channels [12], decision-making processes and levels of power sharing and autonomy among its members [8].

While political systems structure the relationship between citizens and state, balancing individual autonomy against societal value, music ensembles have the rather simpler task of structuring the process of creative musical production. Just as in real-world societies, performers’ autonomy in music ensembles may be a key indicator of relative democracy within those ensembles. Freely improvised music, in which almost all decision-making occurs during the performance, has been described variously as an antiauthoritarian practice and as an anarchistic form of musical organization. In free-improvisation ensembles, musicians are considered to be autonomous individual creatives who freely engage in collaborative processes; the socially driven decision-making offers them more autonomy than hierarchical structures can provide [16,17].

Although string quartets perform mostly notated music—which considerably reduces performer autonomy—they do employ a large amount of deliberation during rehearsal [18]. This immediate collaborative exchange is highly related to the radical democratic ideals of scholars such as Habermas, who posited participatory deliberation as integral to decision-making [19]. One can see the antithesis in clearly hierarchical structures such as the symphony orchestra, which was developed largely in order to accurately realize notated music. Orchestral musicians must interpret the composer’s score with accuracy and according to the interpretive decisions of the conductor. Normally, performer innovation is not desirable, and performers with diverse playing styles may even be considered disruptive to group unity.

An obvious tension can be seen, then, in network music groups that use network technologies to instigate varying amounts of sideways data exchange and ask performers to engage in directed improvisation activities—yet still conform to orchestra-like organizational and decision-making structures (director > composer > conductor > performer)—often even using the moniker “laptop orchestra” [15].

Perhaps less problematically, the Grande Internationale Audio Streaming Orchestra utilizes orchestral hierarchy to manage improvisations by globally dispersed performers. Group members send audio streams from remote global

TABLE 1. The democratic potential of music ensembles. Titles in brackets indicate positions that are not always present; often an honorific role with little/no actual political power. Communication channels in parentheses indicate channels are secondary.

Type of Organization or Group	Hierarchy and Roles	Communication Channels	Decision-Making Processes	Level of Power Sharing	Level of Citizen Autonomy
Authoritarian states	Head of state Head of government Government State institutions Citizens	Law making Political rhetoric Propaganda	Directive	Low	Low
Democratic states	[Head of state] Head of government Government State institutions Citizens	Law/policy-making Political rhetoric Lobbying Elections Polling Petitioning	Directive Elements of deliberation to various degrees Referenda	Low [33]	High
#Occupy movement	Self-organizing group members	Verbal Visual Textual	Discussion/debate Voting Deliberative		
Social media	Service providers Software designers Users	Textual Data			High
Open-source software production	Developers Users	Data Textual	Deliberative Multitude	Mid-high	High
Free-improvisation group (instrumental)	[Group leader] Group members	Aural (Visual) [34]	Multitude	High	High
Symphony orchestra	[Director] Composer Conductor Section leaders Section members	Visual Aural	Directive	Low	Low
String quartet	Composer Group leader (most often first violin) Group members	Aural Visual	Deliberative	Mid	Mid
Pop band	[Manager] Songwriter Frontman (singer or lead guitar) Band members	Aural (Visual) [35]	Deliberative or directive	Mid	Mid-high
Non-networked electronic music group	[Composer] [Instrument builder] [Group leader] Group members	Aural (Visual) [35]	Multitude Deliberative Directive	Mid-high	Mid-high
Network music group	[Composer] [Instrument builder] [Group leader] Group members	Aural Data Textual (e.g. chat screens) (Visual) [36]	Disputing Multitude Aggregate	Potentially high	Potentially high

locations to the location of the performance, and a performer there mixes the streams in real time. Although it conforms to the anarchistic spirit of free-improvisation ensembles, the performance has an obvious hierarchy: The performer mixing the streams freely chooses the context of the performers' audio contributions in relation to other streams. Dialogues among the largely autonomous performers, therefore, are mediated by the aggregation of the streams presented by the mixer [20].

HETERARCHICAL DATA EXCHANGE AND DEMOCRATIC MUSICAL INTERACTION

Weinberg proposes that network music ensembles are unique in that their use of networking technology makes data exchange possible and opens communication channels unavailable in other forms of music ensemble [21]. Information exchange in network music ensembles includes not only aural and visual information but also text (via chat room-style messaging systems) and musical and other data. Hugill's taxonomy of "Internet music" broadly categorizes network music projects by interaction and use of technology, implicitly acknowledging data organization's role in creative music processes [22].

As Boden proposes, computing and artificial intelligence can allow us to imagine new ways of thinking [1]. Network music borrows the data structure of Internet-based information exchange, which has typically led to a focus on communication structures, multiplayer instruments and the unique possibilities offered by network technology, such as geographically dispersed collaboration. Often the most interesting network music systems are those that offer the greatest novelty in interaction among players, although, of course, an interesting musical result is also desirable. Barbosa foregrounds collaboration as a defining element of network music [23].

In the 1970s, when the League of Automatic Music Composers (LAMC) began to experiment with routing data between microcomputers, they recognized the importance of data structures, data types and methods of data exchange to the collaborative process. Although technical hurdles limited LAMC's experiments, its members explored the democratic potential of the medium and sought to design systems that facilitate elements of group decision-making [24,25].

The democratic potential of data sharing was further foregrounded in later pieces by the Hub [26] as well as pieces by its individual members. In Chris Brown's *Wheelies* composition (1992), performers change their own timbral parameters but yield control of their rhythmic parameters to other performers in the group. In Scot Gresham-Lancaster's *Stuck-note* piece (1994), each performer designs a sound that has just one control parameter, which is freely available for all the other players in the group to control, foregrounding the social interplay and group decision-making necessitated by opening up instruments to multiplayer control [27].

As sections below elucidate, contemporary network music systems continue to explore the potential that networked communication and data sharing offer to collaborative musical production. Yet, as an earlier study deduced [15], the

possibility of freely designed data distribution alone does not necessarily lead to democratic interaction, echoing Inglehart and Welzel's theory of formal versus effective democracy [7].

Network-Facilitated Composer Autonomy

Although many artists insist that reciprocity is an essential component of democratic music-making, and although most network music systems are designed to facilitate real-time musical collaboration, Makelberge takes an anti-novelty stance, proposing that a critical aspect of musical development is the creation of new technologies that will facilitate greater composer autonomy. Describing the large-scale collection and distribution of samples as an artifact of the Internet age, he asserts that individual creativity, supported by collective gathering of resources, is "truly democratic" [28].

In light of the present investigation, however, valuing individual composers' autonomy without formally acknowledging the social structure that supports their creation conforms to traditional musical hierarchies and acts against technologically mediated reform of music creation processes. Using processes similar to those advocated by Makelberge, for example, SoundSon is a global network of composers who record sound files in their own geographical vicinity and add them to a shared pool of resources, with the aim of facilitating the creation of new electroacoustic works. SoundSon projects variously use individual and collective (sequential) editing processes, creating multiple dialogues around the recontextualization of material. However, facilitating dialogue among participants and enforcing collective decision-making do not appear to be integral to its project, and thus SoundSon misses the vital deliberative step that moves network-facilitated music-making toward its democratic potential [29].

Deliberative Communications in Network Music

Instantiating deliberative communications, collective decision-making and socially focused interactions has great impact on the way that ensembles communicate and collaborate. Network music ensembles regularly use textual and other opinion-gauging communications during performance, which allows us to rethink musical exchange and to position network music as having a unique potential to address radical democratic concerns about communication and power distribution.

In practice, sharing opinions in real time and designing performance-ready consensus-forming mechanisms mean that the hierarchy of decision-making seen in other ensemble structures is not vital to ensuring musical coherence. Performers can act autonomously but mediate their actions according to real-time feedback from their collaborators. Network music bands such as Glitch Lich have asserted that the important factors in group performance are the interactions facilitated by the technology rather than the technology itself [30], a position made visible through the band's decision to project their textual communications during performances, giving the audience insight into the performers' real-time deliberations about how best to proceed with the musical interaction.

Multiplayer Instruments

One final innovation made possible through data sharing is the multiplayer-control musical instrument. These instruments remove natural hierarchies formed around the acoustic and technical properties of particular instruments and tools and allow performers to act within the same possibility space. System outputs can be aggregated from a multiplicity of inputs. Player action, although autonomous, is modulated by group action. This process subverts the formation of natural social hierarchies, as when, for example, a performer in a free-improvisation group instantiates an effective hierarchy by excessive soloing.

The NOMADS system, designed by Burtner, Kemper and Topper, specifically intends to facilitate interaction among a large number of people, and the designers even coined the term *socio-synthesis* to describe the aggregation of a large number of data inputs into a predefined synthesis engine. Burtner describes both how the system facilitates collective action by giving many participants a small amount of control apiece and how that individual contribution is “minimized or lost” within the emergent dynamics of the collective action [31].

Analogously to the #Occupy movement, Burtner’s system implements a collective action that prioritizes a unified message over supporting minority voices; however, the practicalities of managing up to 500 participant inputs means the system lacks the deliberation required to deduce which output would most adequately represent the collective voice of participants. Musical choices are largely predefined, and decision-making possibilities are limited and abstract. In the opera *Auksalaq*, participants control the number of raindrop sounds emanating from their mobile devices, within set limits, as one of a number of ways to interact with the performance. However, the illusion of participation is undermined by the inclusion of professional soloists, who generate the bulk of the musical material.

Even when specifically aimed at facilitating collective action, network music projects often miss the mark in terms of fulfilling their technological potential or dismantling musical hierarchies, instead favoring musical success over citizen equality.

CONCLUSION

Political models provide great stimulus to motivate musical action and interaction, and the playing out of political theory within the “safe” domain of music [32] even encompasses socially aware but deliberately autocratic structures. Uncomfortable, if not horrific, human political misadventure may still be the basis of an interesting musical piece, and

satirical intent remains perfectly valid. Nonetheless, recent democratic theories arising from Internet-informed and -connected communities are perhaps the most inspiring influences on new network music work.

Musicians have used networks to acknowledge and subvert the power relationships of musical production, to attempt collective action and aggregation of inputs and to explore interdependency and collaborative decision-making. Network ensembles, more than any other genre of music, have actively ventured into structuring the social shape of creative musical activity.

Real-world politics has been unable to implement a full, radically democratic, nonhierarchical system against economic and populist pressures. Likewise, network music systems under the pressure of traditional musical values [23] have perhaps fallen short of developing systems that could fully engage with technologically facilitated radical democratic politics.

Introducing professional performers into participatory performances undermines attempts at collective action by installing a hierarchy in which participants are merely aggregated contributors without individual voices. Solo editing of pooled sound files limits the influence of the sample-selection act on the final product. Live-mixing multiple live streams elevates the mixer-performer into a position of power over subordinate performers, who must continuously jostle for a higher level in the mix.

The above examples elucidate attempts to shape the musical quality of multiple inputs into an output that possesses a unified voice, but in the process, these attempts restrict participants’ autonomy, reducing their voices and contributions to merely the first step in an ultimately hierarchical process of musical production. Network music systems, in their current state, fall back on tried and tested means of organization due to system designers’ mistrust of the capability of participant autonomy in self-organizing groups to create musical coherence.

We could argue that using “power-neutral” network technologies has enabled network music to make more attempts to democratize social processes of music production than other music forms allow, but we are not yet at the point of building systems that are fully nonhierarchical and capable of self-critically responding to power struggles in their internal structures. However, just as theorists have come to view democratization as an ongoing process rather than defining democracy as a definite state [2], at least we have started to demolish the musical autocracies of the past and begun to liberate network music citizens to shape their own musical realities.

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Sonic Proxemics and the Art of Persuasion

An Analytical Framework

KAREN COLLINS AND RUTH DOCKWRAY

ABSTRACT

This paper introduces a framework for the creation and analysis of sonic spatialization and proxemics in audiovisual media. The authors apply the framework to three public service announcements to show how sonic proxemics can be used as a rhetorical device that may be used to strengthen political aims.

SONIC PROXEMICS

The rhetorical potential of the spatial positioning of sound is often overlooked. As John Purcell outlines in a book on dialogue, “Perspective in sound reflects decisions we make concerning our relationship with the screen action as well as the relationships—physical and emotional—between the characters within the scene” [1]. Auditory perspective is an important element of storytelling and can be used to create emotional, physical, psychological or social distances. Through the use of sound, we are positioned within or outside a scene; emotionally close or distant; connected or disconnected. Sounds can be emphasized to draw our attention to particular objects or characters or draw attention away from and distract us from other elements in a scene. It is therefore important that we understand as theorists how the spatial positioning of sound can influence our reading of media and that we as practitioners understand how we can use the spatial positioning of sound as a rhetorical device.

The emotional, social and cultural aspects of spatial positioning (specifically distance and notions of territory) are commonly discussed in terms of *proxemics*. Edward Hall [2] outlined a theory of proxemics whereby people maintain a series of physical and social distances to others. Each set of distances relates to a specific level of comfort that we feel

with the person. The *intimate* distance, closer than 46 cm to our body, correlates to embracing, touching or whispering and is reserved for people very close to us. *Personal* distance is the space in which we let friends or family members encroach and ranges from 46 cm up to 122 cm. From there, *social* distances, where acquaintances may interact, are from 1.2 m to 3.7 m, and *public* distances are beyond that space. When these distances are encroached upon, it can leave us feeling uncomfortable and defensive: If a stranger steps into our intimate space to whisper in our ear, we will draw back and respond with discomfort.

In film and television, camera angles are sometimes spoken of and used in terms of these proxemic zones [3,4]. For example, close-ups and extreme close-ups may draw attention and provide a particular significance to an object or person by placing us intimately close. Medium close-ups are in the personal zone, social distances are characterized by medium and full shots, and so on. The distance from the camera to the object creates a subjective perspective that mimics social and emotional distances. Ferguson and Ferguson refer to this space as the “optical distance”; “the viewer’s perception of the physical distance that would separate him from the communicator or from the *event if he were actually present at the event*” [5].

As with visual proxemics using camera angles, we can infer a sonic proxemics relating to the subjective auditory distance from a sounding source and the audience. As with point of view, an auditory perspective can be crafted for the audience using recording and mixing techniques that enhance audience identification with characters, provide information about the relationships between characters and draw attention or distract focus. Sonic proxemics is an area of growing interest to scholars when it comes to voice and music [6,7]. However, to our knowledge, this approach has not yet been applied to sound effects, nor with a particular emphasis on the persuasive power of proxemics as a rhetorical device. In this paper, we provide a framework to show how the perceived spatial positioning of sound effects can significantly influence an audience by placing that audience in a particular

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subjective perspective. We use three examples from public service announcements to illustrate our analytical framework in action. We thus explore and explain how sound can be used to subjectively position an audience and so be used as a persuasive, rhetorical device.

A FRAMEWORK FOR THE ANALYSIS AND CREATION OF A SONIC PROXEMICS

Sonic distance, and subsequently sonic proxemics, is created using several different techniques. These aspects of sound can be combined, conflated and confused through artificial means in post-production—heightening the volume of a naturally quiet sound or having a low volume on a naturally loud sound, reverb on a close sound, and so on. In other words, even a recording of an original live event can be significantly manipulated after the recording.

1. *Microphone selection:* Some microphones are better at capturing more delicate sounds as well as different frequencies, and some have a faster transient response time (the ability to respond to changing sounds), which influences the timbre of the sound. For instance, a condenser microphone such as the Neumann U87 has a nearly flat frequency response except for a slight lift in frequencies from about 5k Hz to 15 kHz. This higher frequency range will catch more sibilance on a voice, for example, and give the impression of closeness.
2. *Microphone distance and angle from the source:* A closer microphone will capture small sounds that even our ears may miss. On vocals, this closeness means capturing mouth smacks, tiny clicks from inside the mouth from tongue and teeth. The angle can affect the “warmth” of a sound, as well as the nasality of the noise. Also, when the microphone is close to the object, it causes what is known as the “proximity effect,” which means a boost or lift in the lower frequencies of the sound, making for a richer, “fatter” effect. The mix of direct (no reverberation from the room) and indirect (reflections) sound can influence the perceived distance (close miking will have stronger direct versus indirect sound). Microphone distance can usually be approximately equated to perceptual distance in the recording; however, as mentioned, other effects can alter this perspective.
3. *Use of reverberation and signal processors:* As the microphone moves farther away from the source, more of the room’s tone is picked up, mixing the reverberation with the direct signal. More reverberation can give us the impression of distance. Reverberation can appear different depending on whether it uses high- or low-frequency damping effects: With little low-frequency damping, the perceived space appears large, solid and “rumbly” (basements, caves). Reverberation can be a tricky

aspect to analyze: A little reverb sounds warm and pleasant, but too much reverb (with little low-frequency damping, as in the examples below) sounds cold, suffocating and unreal. Reverberation can help to create a sense of space and place, and of emotional associations with those places—for instance, open spaces and loneliness, or warm, soft rooms. Likewise, more early reflections can lead to the perception of a smaller, more claustrophobic space. Various environmental effects can be used to simulate obstructions or other objects in the path of the direct signal [8]. The spatial signatures of one type of space may be artificially imposed on another in post-production. Additional processing techniques such as compression can influence the way that the sound is heard after processing.

4. *Amplitude:* In the natural world, loud sounds tend to be closer, so when sounds are artificially amplified, they seem to be closer to us. When amplified beyond what is natural, they can feel unnerving and as if in our intimate zone.
5. *Mixing (in relation to the loudspeaker position):* By pushing sounds into particular speakers when one knows the approximate speaker position setup, we can adjust the perceived distance of sounds. A sound mixed front and center, for instance, is likely going to appear closer than a sound placed in the rear right speaker in a theater mix. Since in this paper we deal with television advertisements (usually mixed in stereo and not surround), we are not concerned with this aspect of sound positioning here.

We therefore propose an analytical and creative framework for sonic proxemics that should include the following considerations:

1. The amplitude of the sound in relation to other sounds in the scene
2. The timbre of the sound in relation to its frequency spectrum and envelope
3. The use of processing effects, particularly in relation to other sounds in the scene
4. An estimated perceived microphone distance from the source
5. The positioning in the loudspeakers (or headphones)
6. Juxtapositions between visual and auditory perspective.

Not all of these points may be relevant at any one time, but each should be considered in analysis and production. We now turn our attention to implementing this framework in an analysis of three public service announcements.

SONIC PROXEMICS IN PUBLIC SERVICE ANNOUNCEMENTS

While all advertisement aims to persuade using a variety of emotional cues, public service announcements (PSAs) often attempt to persuade audiences by evoking strong emotional responses, most commonly through “fear appeals” [9,10]. In this way, PSAs are very close in nature to political advertising. We have chosen to use PSAs rather than political advertising here so as not to introduce any of our own political bias into the analysis. While there are many audiovisual parameters that influence the emotional response in PSAs [11,12], a notably unexplored area is the use of sound. We examine here how sound effects are used in three PSAs using the proxemic framework outlined above. The PSAs used here had been previously collected by an unknown YouTube user, “HelloImAPizza,” under the title “Top 10 Most Effective British Adverts/Commercials” [13]. The particular collection was selected rather than other PSAs because it was the first response to come up in our search for “effective advertising.” Comments in the collection often describe the emotional responses to the PSAs as scary, creepy or sad:

“Well I think the majority of the adds [sic] effectiveness come from the fact that they’re meant to scare you, disturbing imagery and scenarios that are meant to make you feel uncomfortable and frightened. The adds [sic] meaning is to scare you into realising the dangers of the world and to pay attention to them. At least I think that’s what they’re meant to do.”

“No offense but number 7 [Sarah’s Story]. Got me scared looked like some exorcist shit. I know it was a [sic] ad for a serious disease. But still. Creeped me out.”

“These commercials made my heart ache and damn near made me cry.”

In other words, most comments referred specifically to the strength of the emotional manipulation of the audience.

Although there are 10 PSAs in the collection, due to space constraints, we focus on just three here, chosen at random: “On Your Child’s Life” [14], “Sarah’s Story” [15] and “Break the Cycle” [16]. Also, for the sake of brevity, we will not be discussing the music or voice in these ads but rather focusing solely on sound effects.

“On Your Child’s Life” is a fire safety advert featuring a boy of about seven playing with burnt toys in a house. Microphone distance and amplitude on the objects the boy interacts with are much louder and closer than natural: We hear individual grains of dirt falling to the floor when he brushes them off a counter, placing us very intimately inside the scene. Tiny sounds like touching paper or the ticking of a clock are exaggerated and closely miked, making for a hyper-real sensation. In one shot the boy stands in the kitchen and we have a long shot camera angle combined with close microphone, again sonically placing us very intimately within the scene, even if visually the viewer is able to take in the entire environment. With the exception of the boy addressing the

camera, the scene is saturated with reverberation, perhaps to hint at the emptiness of the house, or the “other-worldliness” of the scene. The juxtaposition of reverberation with close miking puts us in the empty, sad space of the home.

In “Sarah’s Story,” a PSA about motor neurone disease, we watch a young woman in what looks like a basement of an office building undergo considerable physical distress as her muscles fail her, she’s flung about the room and her clothes are removed, leaving her nearly naked and contorted. The sounds are like those in a horror film: We hear groaning, monstrous sounds and screeches that would not be present if the scene were meant to be real rather than metaphoric. We also hear digital glitching sounds often used to signify a tape fast-forwarding or sudden jump of time, to show the progression of the illness over time. Many of the sounds in the scene go through phases in which they are muffled and treated with low pass filters (attenuating higher frequencies), as if we are going underwater, giving the impression of being strangled or drowned. Likewise, some sounds that we would expect to be present (being dragged along the ground) are absent. Both of these effects serve to emphasize the sounds that are both louder than normal and/or close-miked. Most importantly, the silence and distortion are juxtaposed with clear, close-miked sounds of her bones cracking as her body is forced into contortions. As with “On Your Child’s Life,” the scene is saturated with reverberation. A long reverb tail of nearly two full seconds accompanies a door slamming shut behind her at the start, emphasizing the sound and telling the audience that the door has firmly closed and there is no turning back. Here, the unnatural reverberation on her vocalizations (cries and mumbles) has the effect of putting us in her head, placing us in Sarah’s space and thus encouraging empathy.

“Break the Cycle,” about child abuse, repeats ever more rapidly a sequence of the consequences of abuse: A chaotic street scene where a teenage girl is robbing someone, the girl being shut in jail, at home being smacked by her father and called worthless, being made fun of in school for not being able to read, and injecting drugs. As with the other PSAs described above, some sounds are exaggerated—notably her father smacking her on her head as he says, “You worthless little cow,” the smack landing on “worth.” The smack by the father is by a significant margin the loudest sound in the commercial (about 8 dB louder than the average). The repetition, as it continues, focuses aurally on the smack until the smack is all that remains of what we hear. Even if we close our eyes, we cannot escape the violence.

The fact that we have some otherwise apparently loud sounds in the scene—screaming, a jail door slamming—and are then set up for a much louder smack on the head emphasizes the strength of the smack as the most significant element of the scene—indeed, it is clearly demarcated as the cause of the actions that follow through its repetition. Perhaps even more noticeable than the volume, however, is the closer miking of the smack—we hear the smack with noticeable grain (overtone) and a reverb tail. The volume and miking of the smack place us very intimately within the scene, as if it is we who are being smacked, not another person.

CONCLUSIONS: PROXEMICS AND PERSUASION

We have presented here a framework for the use and analysis of sonic proxemics in media, along with three PSAs that use sonic proxemics to emphasize key themes and draw audience focus. While our focus has been on public service announcements, this approach could easily be used to explore an auditory rhetoric in all media, including for instance party

political communications, government advertising and election campaigns to reveal underlying messages that work on an emotional level that may not be obvious in the visual or verbal message. In particular, because we are rarely taught a language with which to unpack auditory aspects of communication, it is especially important to understand how audio can be used as a rhetorical device to persuade audiences.

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Sounds, Images, Politics and Place

RICHARD LERMAN

ABSTRACT

The author discusses the concepts he has developed while gathering sound(s) and images for projects engaging politics and place, often at sites where human rights abuses have taken place. These works include recordings made at several Japanese-American and Aleut internment sites and at Nazi concentration camps, as well as borderlands works, environmental works on water use in the U.S. Southwest, and works addressing climate change in the Arctic.

EARLY WORK: THE 1970S

I have been working with piezoelectric devices since the 1970s, beginning with *Travelon Gamelon* (1978) for amplified bicycles. I always viewed this piece as a kind of political piece of populist new music. I have observed that it often serves as a “table-setter” for more abstract sound work—listeners not familiar with “new music” connect with this one. The Concert Version, filled with complex polyrhythms, functions both outdoors and in the concert hall. The Promenade Version (Fig. 1) turns cyclists into performers as they explore new sounds from their bicycles. Filled with complex polyrhythms, *Travelon Gamelon* functioned both on the streets and in the concert hall. *T Gam* also provided the impetus for me to design and build rugged housings to protect the phono cartridges I used to amplify the bicycles. This in turn led me to pursue the use of other forms of piezo materials.

THE 1980s

Incident at 3 Mile Island

My theater piece *Incident at 3 Mile Island* (1980) (later incorporated into *Half Lives/Nuclear Waste* [2007] [Fig. 2]), made before the first entry by staff or contractors into the damaged nuclear reactor, uses eight large tuning forks sus-

ended from thin harpsichord wires attached to eight piezo disks. Laser light shining on the tuning forks jumps from fork to fork and reflects around the space. The forks are uniquely resonant through this sonic network, and the constant twisting of the harpsichord wires creates Doppler shifts in the amplified sound field. Atoms and nuclear energy are forms of resonance—one both hears the resonance of the forks and sees resonance of the laser light as radiation. By recording live performance to 1/4-in tape, then rewinding, I was able to play back the tuning forks one octave lower and then two octaves lower, creating a sonic image of nuclear half-lives. The forks are very hard to control in performance, and it is obvious that nuclear energy continues to have safety issues. Both pieces solidified the technical core of my work with piezo materials by revealing to me the wide range of timbre and sounds possible in performance.

Transducer Series and WYSIWYH

When I first worked with piezo devices for *T Gam*, I found that the devices released an array of sounds from the bicycles, such as the pitch of spokes, the sounds of brakes and chains, and bumps in the road. As a result I began to use piezos in field recordings to record sounds below the threshold of our hearing. Conceptually, I began to think of my process of field recording with piezos in the same way as one might relate microphone to microscope—piezos allow me to play with both visual and sonic scales. Small, quiet sound objects become loud. I used credit cards, strips of film, brass/bronze window screens and more as sounding objects in installations. As wind blew through screens, one could hear the mesh rubbing. Installation viewers were encouraged to touch amplified \$1, \$5 and \$10 bills, a credit card, 16mm film and videotape. I began my *Transducer Series* of 56 Super 8 sound films using many materials such as these, along with leaves, cord and grass, to explore the question: What would the world sound like if my eardrum were made of (fill in the blank)? The *Transducer* films explored the sonic nature of a wide variety of materials. My working in Super 8 was also a reaction to the accepted norm where 16mm films were never

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A playlist with streaming video of works cited in this article can be accessed at the author's sound-art-channel-in-progress link found at <SonicJourneys.com>.



Fig. 1. Premiere performance of the Promenade Version of *Travelon Gamelon* for amplified bicycles and riders at University of Massachusetts–Boston, May 1978. The Promenade was followed by a performance of the Concert Version. (Photo © Richard Lerman)

supposed to show a microphone on film (at a later point I began to refer to the process as WYSIWYH: What You See Is What You Hear). I also noted at the time that magnetic-stripe Super 8 film had better frequency response than 16mm optical tracks.

Los Desaparecidos

In 1987, I received a Guggenheim Fellowship to support a recording trip to South America. The trip was inspired in part by my family history: Part of my family had left Poland in the late 1840s and traveled around the Horn to Los Angeles, then continued north, first to Fresno and then on to San Francisco and Oakland. However, in 1987 border skirmishes between Argentina and Chile made travel to Cape Horn impossible. Even so, I made 14 Super 8 sound films in Argentina and Peru, along with numerous audio recordings. After seeing a show in Boston of *arpilleras* (politically charged tapestries), entitled “Fabrics of Life,” made by women in Chile protesting the Pinochet regime, Mona Higuchi and I traveled to Santiago in June 1989 to work on a project for Amnesty International. I gathered hours of audio and video at the Fedefam Conference (Federación Latinoamericana de Asociaciones de Familiares de Detenidos-Desaparecidos). Driving southeast from Santiago, near the border with Argentina, and just before the village of El Volcán, we saw a herd of goats wandering near a fence high above the Rio Yeso. I attached piezos to this fence and recorded audio and video as the goats disappeared from view. This sound became an important part of *Los Desaparecidos*, an installation with video that we created the following month for the 1987 Amnesty International Conference in Chicago. The piezo picked up the sound of the river below, the wind on the fence and an occasional goat bell. For me, the recording layered the present with the past, amplifying the sense of disappearances that were occurring in Chile. Other images came from amplified grass blowing in the wind (which sounded like whispering) and from a politi-

cal demonstration I recorded in downtown Santiago. Higuchi also documented the hundreds of names of the Disappeared on seven large panels in the installation.

THE 1990s

Threading History

Higuchi and I based our collaborative work *Threading History: the Japanese American Experience* (1994) on a 1991 TV news story of Japanese-American veterans receiving an award at Yad Vashem, the Holocaust Museum in Israel, for their part in liberating Dachau. We planned the collaboration to consist of an installation by Higuchi along with my sound/video. At Dachau, I recorded video and attached piezo disks to the extant barbed wire and tall trees (representing the past). The sound also contained voices of visitors, wind, tree branches scraping the barbed wire, passing cars heard through the barbed wire and footsteps (representing the present). The sounds were intercut with audio/video [1] from Manzanar, an internment camp near Mount Whitney, and from Tule Lake, a second camp near Mount Shasta. I gathered audio at these sites from extant building foundations, plants, fences, an apple tree planted by the internees and gone to seed and more. As Manzanar is near the mountains, the camp’s strong wind was an everyday experience for the internees; to capture it I constructed site-specific wind harps. Manzanar and Dachau both have iconic guard stations, still in place, with strong visual presences. The personal stories of internees and their families were the inspiration for Higuchi’s installation, consisting of 1,000 suspended needles (the internees stitched belts for their soldiers with 1,000 stitches for courage in battle), and 1,000 small shells gathered at Tule Lake, glued atop 1,000 thin dowels installed on a wooden platform along with two video monitors. The work underscored the fact that even as Japanese-American soldiers were liberating Dachau during World War II, their own families were interned back home in the United States.

Recordings in Lodz and at Auschwitz

Recording in the Jewish Cemetery in Lodz, Poland, in 1993, I gathered sound from the headstones, trees and wind. I buried some of the recordings in the cemetery, which had recently been looted. I found this trip extremely difficult emotionally. Later, in 1997, during the Sound Art Festival in Krakow, Poland, I traveled to Auschwitz on a windy, rainy, cold morning. I chose to record from old fences surrounding the camp but only gathered audio there [2]; the sound of the wind and rain on the fences continues to give this piece a strong feeling of place.

2000–2015

Relocation Alaska: 1942–45

Relocation Alaska: 1942–45 (2004) (Fig. 3), another collaboration with Higuchi, was based on the World War II internment of the Unangan people (Aleuts), who were taken from their homes on the Aleutian chain and relocated to deplorable camps in southeastern Alaska. I made recordings for this piece at three locations in Alaska. At Funter Bay, near Juneau, I recorded from the walls and beams of a former goldmine camp that had housed internees, and also in the old Russian Orthodox cemetery, using wind harps being plucked by rainfall. The internment camps in southeastern Alaska were in dense, dark rainforests, completely foreign landscapes to the internees—in their homeland in northern Alaska, along the Aleutian chain, there are no trees due to the strong winds and climate. Around Dutch Harbor on Unalaska Island, I gathered sound from a lone mountain iris in the rain and snow (for me, an image of resilience), tall grass, wild orchids and wind. At the third location, on St. Paul, one of the Pribilof Islands, I recorded sound and video of wild celery at a Russian Orthodox shrine, thousands of fur seals, bird cliffs, and a whalebone support found in a former hunting *barabara* (a house of driftwood, whalebone and sod) dug deep into the tundra. The installation included a map of the islands, curving 26 feet in the gallery at the Phoenix Public Library. Suspended above the maps, floating like a cloud, were 900 thin vellum strips with the names of the internees. Sounds from the three video pieces intermixed in the space. We chose this gallery because of its ship-like architecture and to encourage further research by installation visitors who were unaware of this historical event. For me, all the work discussed here from *Los Desaparecidos* to *Relocation* touch upon the fragility of the rule of law.

Fences/Borders—USA/Mexico

The U.S.–Mexico border projects a strong geopolitical presence. One cannot live in the region and not be aware of or affected by borderlands issues. In 1997, I began recording border fences, which gave rise to a number of audio/video pieces, performances and installations. In 2006, Higuchi and I were invited to install *Fences/Borders—USA/Mexico* at the Museum of World Culture in Gothenburg, Sweden, for their exhibition *Trafficking* (Fig. 4). Higuchi created a map of the U.S.–Mexico border for the wall of the gallery that

was roughly 23 ft wide × 8 ft high. Video from the fences [3] was projected onto the map on its top right side. In front of the map, I suspended a coil of dried and spliced bougainvillea about 20 ft long × 3 ft in diameter. Bougainvillea thorns are very sharp, and the resulting coil resembled razor wire. I made the coil into a functional loudspeaker that pushed sounds from the fences into three piezo disks inserted into slits in the coil. Video of the fences came from four different types of border areas: (1) large urban, (2) small urban, (3) countryside and (4) a very remote area with no fences at all. The fences provided an amazing array of sound: dogs barking, cars, voices, wind, and wind on metal. At times I used the camera to peer through holes cut in the iron fence for a view of Mexico. Even with the presence of heavy metal fences, the border remains porous, which is revealed sonically in the piece. In *Camino del Diablo*, the area with no fences, I recorded wind over cactus and ocotillo thorns, capturing the desolation of the remote desert in southwest Arizona. More persons perish attempting to cross the border here than in any other area in the United States. In 2011, I expanded the piece to a performance version by recording the fence that extends into the Pacific Ocean to separate Tijuana from



Fig. 2. Richard Lerman, *Incident at Three Mile Island* (1980), incorporated into *Half Lives/Nuclear Waste* installation/performance, the Ice House, Phoenix, AZ, 2007. (© Richard Lerman. Photo © Ty Beal.)



Fig. 3. Mona Higuchi and Richard Lerman, *Relocation Alaska: 1942–45*, installation, Phoenix Public Library, March 2005. (© Mona Higuchi and Richard Lerman) The installation included 900 vellum strips suspended above USGS maps of the Aleutian chain curved in an arc 24 ft long. Video monitors played site recordings from the Aleutian Islands and a former relocation site in southeast Alaska. Standing on a birch platform were 300 willow branches. (© Mona Higuchi and Richard Lerman. Photo © Brandon Sullivan.)



Fig. 4. Richard Lerman and Mona Higuchi, *Fences/Borders–USA/Mexico*, installation (map of the U.S.–Mexico border [23 ft × 8 ft] from 46 USGS satellite images and GIS data, video, audio, dried spliced bougainvillea, electronics), Museum of World Culture, Gothenburg, Sweden, 2006–2008. (© Mona Higuchi and Richard Lerman. Photo © Richard Lerman)

California. Ironically, this fence, along with new Homeland Security regulations, now makes it impossible for persons from the U.S. side to visit the Mexico–U.S. Friendship Center. Border agents demanded that I move 10 meters away from the fence about 5 minutes after I had arrived and affixed transducers to it.

Death Valley Cycle

From 2004 to 2010, I made many trips to Death Valley for my *Death Valley Cycle* pieces. Along the way, I recorded Lake Mead's falling water levels at Hoover Dam. In 2009, I installed *Hoover: Water | Power* for an exhibition on sustainability at the Arizona State University Art Museum (Fig. 5). Hoover Dam is surrounded by rocky desert, and I recorded sounds from the dam and from brittlebush, ocotillo and creosote. A dam is a wall of water—to represent it I arranged 25 feet of plastic water bottles to create a graph of the levels of water at the dam from 1935 to 2009 [4]. I draped wire from the ocotillo towers to carry sound to two loudspeakers and to dried brittlebush plants hanging from the ceiling. The brittlebushes were driven by piezos to behave as loudspeakers. All this required a series of power supplies, transformers and wires, completing the image of a dam.

Kilpisjärvi and *Arctic Transitions*

In October 2014, as an artist in residence at the Kilpisjärvi Biological Research Station north of the Arctic Circle in Finland, I was hoping to record the sound of plants and lakes/streams freezing. It did not really get cold enough to do this, although I did make a recording in a river by plunging thin carbon fiber rods into a riverbed at Pikku Malla. As water slowly froze around the rod, I could hear its sound, along with harmonics being generated by the wind bowing the carbon fiber rod (Fig. 5). Stiff materials, such as carbon fiber rods, branches and stems, behave as single-ended strings

under the right conditions. As a result I was able to record a moth alighting on grass in a strong wind [5]. One can hear the moth moving on the stem as the wind swirls through the tundra.

In March 2015, we returned to the Kilpisjärvi station on another Finnish Bioart Society residency. I was thoroughly engaged in recording snow, wind and breaking ice using rods, trees and a hydrophone. The working title for this project is *Arctic Transitions*. I have been astonished by the range of sounds/frequencies gathered from different ice pack formations, especially at a site on the border between Finland and Sweden where two rivers, the Muonio and the Etuväyla, merge. Although the Arctic does not have an ozone hole, it is clear that climate has been affecting the thick Arctic ice pack. So, another image I am now working with is the “Age of Carbon.” We have all entered that age.

CONCLUSION

My work continues to be about *place*, and recording it is always a kind of improvisation. As I record, I must concentrate on the duality of the sonic and the visual in order to capture both. I have become aware of an interplay between sound and video camera—specifically, the nature of [macro] [close-up] [LOUD piezo] contrasting with [micro] [wide angle] [soft piezo] [soft omni-mic]. Working within these parameters helps me to define sound/place/context. For me, sound art remains the interplay between the sonic and the visual, whether a work be politically themed or abstract.

Henry Cowell states in his great book *New Musical Resources*:

Natural sounds, such as the wind playing through trees or grasses, or whistling in the chimney, or the sound of the sea, or thunder, all make use of sliding tones. It is not impossible that such tones may be made the foundation of



Fig. 5. Richard Lerman, *Hoover: Water | Power*, installation (700 water bottles, ink, ocotillo, brittle bush, video, audio and electronics), Arizona State University Art Museum, 2009–2010. (© Richard Lerman. Photo © Lekha Waitoller.)

an art of composition by some composer who would reverse the programmatic concept, such as expounded by Richard Strauss. Instead of trying to imitate the sounds of nature by using musical scales, which are based on steady pitches hardly to be found in nature, such a composer would build perhaps abstract music out of sounds of the same category as natural sound—that is, sliding pitches—not with the idea of trying to imitate nature, but a new tonal foundation [6].

I know that when I read this book in 1960 I did not comprehend Cowell's statement. Now I am sure that I have arrived at a similar way of hearing/listening, and I have incorporated it with my understanding of sound art and images/content. It is my hope that listeners and/or viewers (and sometimes listeners only) will gain such curiosity or insight from my work to fuel their own investigations. I also hope they gain a sense of the ways in which I listen to and view the world. I continue to think of my work as "extended location recording," gathering the sound and soul of a place.

TECHNICAL NOTES: WORKING WITH PIEZO DISKS

I have used more than 100 different types of piezo disks and materials in my work over many years. I spend much time soldering and repairing transducers that have been damaged in the field. Generally, thinner, larger ones have better low-frequency response.

At times I will run a piezo disk directly into a video camera without using a better, self-made preamp. (Working in the field can be a challenge—in Finland, temperatures reached



Fig. 6. Richard Lerman, bi-morph piezo. The author has used more than 100 different types of piezo disks, such as this one, in his work in the field over the years. (Photo: © Richard Lerman)

–14° Celsius, with driving snow/wind.) I believe that communication and process remain more important than capturing the best-quality sound. Since I must drag my own gear around, weight of equipment is a necessary consideration.

Using a parametric EQ, it is possible to find the specific metallic resonance of each piezo disk and filter out its frequency to get rid of the sometimes metallic quality of certain sources. I have also come across some disks with very thin metal sandwiched between two layers of ceramic. These are more "transparent" in their sound quality but very hard to solder (see Fig. 6).

Piezos are very Hi-Z (high-impedance) devices and they perform better with a Hi-Z preamp. Readers will find several "how to" links, along with sound samples from piezos used in the field, at my site, <SonicJourneys.com>. There are many other sources as well.

References and Notes

- 1 Video of the Manzanar/Dachau/Alaska pieces is available at <vp.telvue.com/preview?id=T01328&video=151087>
- 2 A 3-minute excerpt recorded at Auschwitz, 1997, is available at <https://soundcloud.com/sonicjourneys/auschwitz-r-lerman-3-min-excerpt>.
- 3 Video of the *Border Fence* pieces is available at <vp.telvue.com/preview?id=T01328&video=156482>.
- 4 The water level at Lake Mead is even lower now, with grave consequences for the Southwest.
- 5 Video of *Moth Grass Wind*, Kilpisjarvi, Finland, 2014, is available at <vp.telvue.com/preview?id=T01328&video=216447> and *4 Pieces from the Arctic*, 2015, is available at <cvp.telvue.com/player?id=T01328&video=242541>.

- 6 Henry Cowell, *New Musical Resources* (Cambridge Univ. Press, 1930) p. 20.

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Physical Glitch Music

A Brutalist Noise Ensemble

MO H. ZAREEI WITH DALE A. CARNEGIE AND AJAY KAPUR

ABSTRACT

This article introduces an ensemble of mechatronic sound-sculptures designed and developed to realize glitch music outside of computers; the sculptures instead create glitches mechanically, physically and visibly. A brief description of the three different instrument types forming the ensemble is followed by a discussion of how the sound-sculptures employ a Brutalist “anti-beauty” approach in terms of both design and ideology.

If Luigi Russolo impregnated the pure world of musical sound with industrial noise, then glitch music, according to Caleb Kelly, “combined the clean world of the digital with a dirty, detritus-driven sound” [1]. From Russolo and his noise machines to current laptop-producers of glitch music, organizers of sound, for more than a century now, have been keeping abreast of the available technologies of the day in order to explore new sonic territories and push the boundaries of music and sound art. Russolo’s claim with regard to the connection between “the evolution of music” and “the multiplication of machines” [2] can be observed succinctly in the transformation of glitch music itself, from Christian Marclay’s experiments with turntables to Yasunao Tone’s damaged CDs and Nicolas Collins’s modified CD players [3] to Carsten Nicolai’s laptop-produced glitch. In all these instances, some undesired sonic by-products of technological developments, as Greg Hainge describes, are integrated “into an aesthetic construct, as primary content” [4]. Inspired by works of contemporary digital glitch music, I created a mechatronic noise ensemble, which I discuss here, to feed off of unwanted sonic byproducts of the technological world that occur in the physical realm (rather than in the digital).

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Video documentation of *Brutalist Noise Ensemble* available at <<https://youtu.be/mNPt8ov1bSA>>. See also <mitpressjournals.org/toc/Imj/-/25> for audio, video and other supplementary files associated with this issue of LMJ.

PHYSICAL GLITCH

Along with rapid developments in the fields of mechatronics and robotics over the past few decades, the number of works of sound art and music that incorporate these systems has significantly increased [5]. Regardless of the specific apparatus they employ, a large number of these works are rather deterministic systems, inspired by some already existing musical instruments whose goal is to achieve a certain musical output. In other words, such works can be perceived as mechatronic versions of conventional musical instruments, with automated, modified or extended capabilities, for example, with perhaps a machine substituting for a human performer in the action of plucking a guitar string. Here, the inherent actuation noise of the mechatronic components raises an issue and needs to be overcome, through either various dampening techniques or amplification of the musical instrument’s sound. Therefore, in cases of mechatronic versions of conventional instruments, while the technological medium provides the means to achieve a desirable sound, it simultaneously introduces into the transmitting musical signal an undesirable noise that has to be attenuated.

Accordingly, if “a glitch is that which betrays the fidelity of the musical work” [6], then the inbuilt noise of the mechatronic machines is the physically generated counterpart of the skipping CD or speaker distortion in the realm of digital sound.

From the viewpoint of those interested in glitch, however, this otherwise undesired noise can open a door to new sonic material and be transformed from a subordinate byproduct into the primary content of an aesthetic construct. With this in mind, the installations of Zimoun and Pe Lang are remarkable examples where mechatronic components are employed in the creation of a less conventionally “musical” sonic output to aestheticize mechanically produced noise [7]. In the majority of their works, these artists create a series of identical noise-generating units, each of which incorporates a mechatronic component to actuate an external nonmusical object, such as steel wires, cotton balls or cardboard boxes. Using the term “prepared” in reference to the electromechanical com-

ponents in the titles of their pieces (e.g. prepared motors), these artists emblematically emphasize their unconventional approaches in the employment of mechatronics, in contrast to those works in which machines are used to mechanize a conventional musical instrument [8].

In an attempt to validate the idea of mechatronic machines and their mechanically produced noise as aesthetic elements, I designed and developed a series of mechatronic sound-sculptures. In my ensemble, the basic components of mechatronic systems are removed from the context in which they are tools that help run a machine (or a musical instrument), and their sound is perceived as a sheer unsolicited by-product (noise or glitch); instead they are turned into a medium for sonic expression. This contextual transmutation is accomplished through an apparatus that combines mechatronic techniques

with microcontroller programming to regulate their noise rhythmically and timbrally, thereby “musicalizing” them. As Jacques Attali argues, the only thing that all kinds of music have in common “is the principle of giving form to noise in accordance with changing syntactic structures” [9].

THE NOISE ENSEMBLE

The noise ensemble is composed of 10 sound-sculptures grouped in three different types: *Rasper* (×4), *Rippler* (×2) and *Mutor* (×4). Each type varies in terms of parts, mechanisms and sonic quality. All three types are driven by the same custom-designed driver board and controlled using microcontroller programming [10].

Rasper [11], the first sound-sculpture in the series, is composed of a DC motor attached to a disk, a piece of spring steel connected to a solenoid and an LED strip, all held together in a clear acrylic enclosure (Fig. 1). *Rasper*’s sound-generating mechanism is somewhat inspired by the mechanism used in a number of Russolo’s noise intoners [12]: Russolo’s crank has been replaced with a motor; the lever with a solenoid; and the vibrating material, i.e. the metal string, has been replaced with spring steel. As the solenoid pushes out, the motor spins the disk. Sound is generated when the sharp edge of the spring steel touches the rotating disk. Changes in speed of rotation result in changes in the timbre and frequency of



Fig. 1. Mo H. Zareei, *Rasper*, mechatronic sound-sculpture, electronics, metal, plastic (transparent enclosure dimensions: 6 × 50 × 6 cm), 2013. Sound is generated when a contact is made between the spring steel (attached to the solenoid) and the rotating disk (mounted on the DC motor). (© Mo H. Zareei)

the sound. *Rasper*’s LED strip is driven by the same signal as the solenoid. Therefore, every noise pulse is reflected visually with an accompanying burst of light.

Although the dominant sonic output of *Rasper* is caused by the contact between the spring steel and the disk, the solenoid’s actuation noise and the buzzing of the motor are also components of the resulting sound. Both of these were sources of inspiration for the design and construction of my succeeding sound-sculptures. *Rippler*’s sound-generating mechanism is based on amplification of the solenoid’s actuation noise through a thin sheet of steel [13]. I designed two models of the instrument. Both models are composed of a steel sheet in a clear acrylic frame: the steel sheet of the first model is positioned vertically, in the second model it is positioned horizontally. The resulting direction of the actuation re-

lates to the orientation of the sheet. In the vertical model a single solenoid is attached to the sheet at the top; in the horizontal model, two solenoids are attached, one at each end of the sheet (Fig. 2). When the signal is applied, the solenoid causes the sheet to vibrate. The actuation noise of the solenoids is amplified through a series of pulses caused by the movements of the sheet. In both models, the top of the frame holds a rectangular acrylic tube, enclosing a strip of cold white LEDs. As in the previous instruments, light and sound are synchronous: whenever the sound-sculpture produces noise, there is an accompanying burst of light.

Lastly, *Mutor* [14] has no external actuated object, and therefore its sonic focus is instead the noise of the mechatronic component itself, i.e. the motor, which is housed in a clear acrylic box with a pivoting door. While the primary source of sound here is the buzzing of the motor—the speed of which can be controlled, creating variations in the buzzing frequency and sound—a solenoid mounted on the pivoting door can open and close it, further coloring the sound by varying the timbre and amplitude (Fig. 3). As in the other sound-sculptures discussed, an LED panel mounted on the back of the box provides visual representation of the modulations in sound: As the solenoid pushes out and opens the door, the LED panel lights up the entire box.

Regardless of their different sound-generating components and procedures, all of the sound-sculptures in the ensemble follow the same sense of direction in aesthetic, design and ideology: that of a Brutalistic mindset.

THE BRUTALIST APPROACH

Brutalism (also known as New Brutalism) is a movement in architecture that, according to Reyner Banham, is defined by three key features: memorability as an image, clear exhibition of the structure and valuation of the materials “as found” [15]. Brutalist buildings are often recognizable through their austere geometries and repeated modules, as well as their monolithic look and full exposure of parts and materials. For instance, Hunstanton School, designed by Alison and Peter Smithson, an early example of Brutalist architecture,

appears to be made of glass, brick, steel and concrete, and is in fact made of glass, brick, steel, and concrete. Water and electricity do not come out of unexplained holes in the wall, but are delivered to the point of use by visible pipes and manifest conduits [16].

Correspondingly, the mechatronic sound-sculptures presented here abide by these principles. While their primary purpose is to generate sound, they do this in a physical manner. Therefore, their bodily appearance as *sculpture* is of great importance and has been thoughtfully taken into account. In order to further emphasize their visual attributes, I have

designed the pieces so that every single aural event is highlighted in synchronous beams of light, which serves to tightly couple the auditory and visual elements of the work. On the other hand, their entire sound-generating mechanisms and every constituent part are fully exposed in clear enclosures. In these transparent structures, DC motors and actuators, normally hidden inside the black boxes of our machines, are relocated to the foreground in a bare and reductionist style: as found (Fig. 4).

The essence of Brutalism, for the Smithsons, is in fact rooted in ethics rather than in aesthetics and style; however, for Banham, it is a mixture of both. In this ensemble, the Brutalist ethical influence has, with each subsequent sound-sculpture, assumed a more central role. In *Rasper*, I have placed the mechatronic components as exposed as possible, in combination with other materials to serve purposes somehow extraneous to their inherent quality. In *Rippler*, I simplified the mechanism for the purpose of emphasizing one of the mechatronic component’s intrinsic features, where in *Mutor*, the mechatronic component appears, both visually and sonically, in a direct and untreated way, as found.

The visual aesthetic of Brutalism, as Banham argues, delivers an “anti-beauty in the classical aesthetic sense of the word” [17]. Therefore, the association of glitch music with what is classified as “extra-musical” by a conventional demarcation can be perceived as a sonic transcoding of the anti-beauty Brutalist aesthetic. If Brutalist architecture



Fig. 2. Mo H. Zareei, *Rippler*, mechatronic sound-sculpture in horizontal model, electronics, metal, plastic (transparent enclosure dimensions: 53 × 35 × 6 cm), 2014. Actuation of the solenoids causes the steel sheet to vibrate. (© Mo H. Zareei)



Fig. 3. Mo H. Zareei, *Motor*, mechatronic sound-sculpture, electronics, metal, plastic (transparent enclosure dimensions: 8 x 8 x 10 cm), 2014. The noise of the DC motor is modulated using a solenoid-actuated pivoting door. (© Mo H. Zareei)

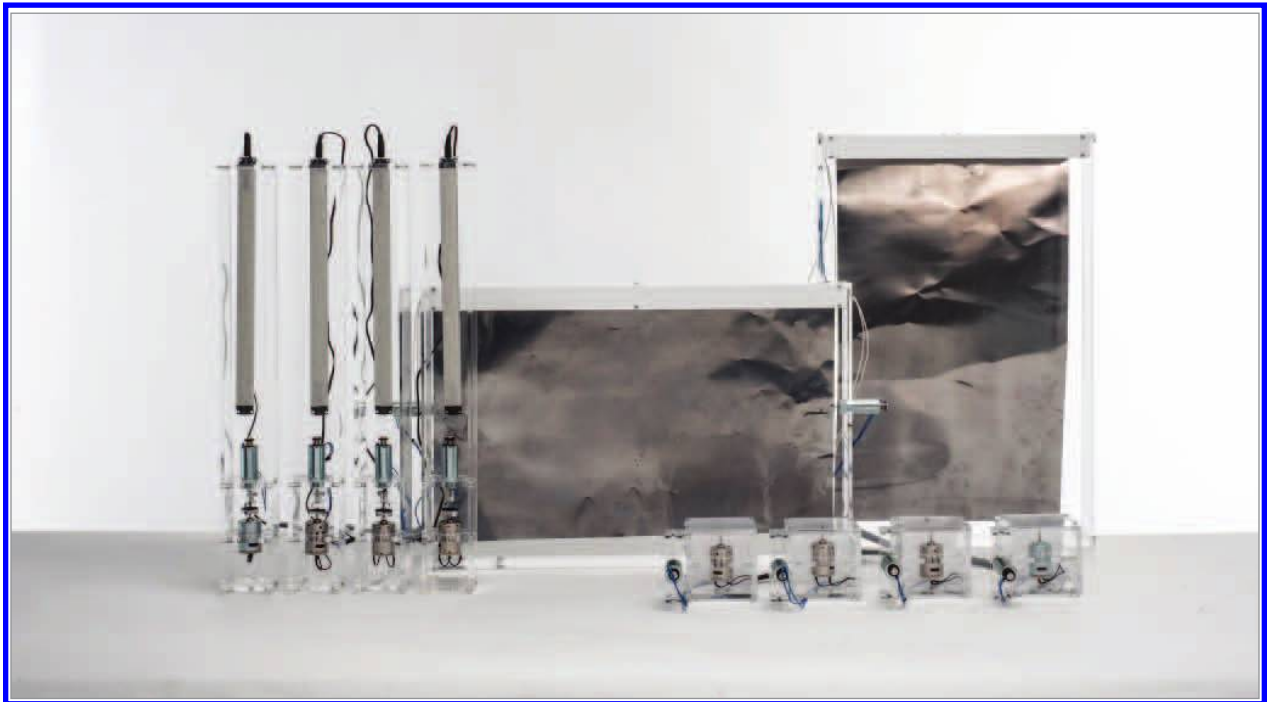


Fig. 4. Mo H. Zareei, *Brutalist Noise Ensemble*, series of mechatronic sound-sculptures: *Rasper* (x4), *Rippler* (x2) and *Motor* (x4), 2013–2014. (© Mo H. Zareei)

structures its anti-beautiful raw material into spatially gridded modules, the extra-musical material of *Brutalist Noise Ensemble* (an audiovisual piece composed for the noise ensemble [18]) is temporally ordered through the use of repetition and pulse-based, metric rhythmic patterns with clear-cut on/off envelopes: a strategy employed by others in

a substantial number of works of digital glitch music. In this way, the structural clarity of Brutalism is not only fully conveyed in the visual aspect of the ensemble but also extends to its audible structure, where the nondevelopmental and repetition-based temporality of the sonic material emulates the block-like monolithism of Brutalist building [19].

AESTHETICIZATION OF THE BRUTE

You are sitting in a cafe on a Tuesday afternoon. In the background a pop record is playing. Suddenly the CD stutters. You have listened to glitch music for quite a while now. Your reaction has changed. Instead of the usual frustrated response you lean back and enjoy the random loops and skips of the CD, finding it more beautiful in its simplicity than the commercial hit from which it derives. You hear how well it goes with the cappuccino-maker's noise, the cell phone ringing at another table and the chiming from tablespoons on teacups and of forks on plates [20].

Fascinated by post-Industrial Revolution soundscapes, Italian Futurist Russolo believed that “every manifestation of life is accompanied by noise” [21]. Thus, his Futurist manifesto, in addition to a call for expanding the realm of musical sound, was indeed an effort toward embodiment of the modern industrial life in music. Interestingly enough, as

Russolo invites the post-Industrial Revolution city-dwellers to “orchestrate together in [their] imagination the din of rolling shop shutters, . . . electrical plants and subways” [22], the Brutalist mind, on the other front, “tries to face up to a mass-production society, and drag a rough poetry out of the confused and powerful forces which are at work” [23]. With this in mind, while “the experience of everyday life is increasingly mediated by a multitude of mechanically reproduced sounds” [24], I present the mechatronic noise ensemble discussed here as an effort to embrace the potential aesthetics of the noisy machines surrounding our urban technological life. In doing so, the work adheres to a Brutalist line of thought through valuation of the very physical existence of its conventionally “anti-beauty” raw material, by expressing them in clear visual and sonic structures.

The characteristic of noise is that of reminding us brutally of life.

—LUIGI RUSSOLO

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Baghdad Music Journal

A Soldier's Move toward Technology in Music

WILLIAM A. THOMPSON IV WITH JEFFREY ALBERT

ABSTRACT

The author was deployed to Iraq as a member of the U.S. Army National Guard in April 2004. He left his acoustic piano roots and embraced electronic music as a way to stay involved with music during his deployment. While deployed in Iraq, Thompson recorded and released a CD entitled *Baghdad Music Journal (BMJ)*. The soldier's recording was made and released while he was deployed to an active war zone and is a document of his experience. Describing his time in Iraq, he discusses how it has changed his musical practice.

I joined the Army National Guard in 1999 as a way to help fund my education at the University of New Orleans, where I studied jazz piano. In April 2004 my unit, the 256th Mechanized Infantry Brigade Combat Team, was officially deployed to Iraq in support of Operation Iraqi Freedom. My job title in the army was that of a 97b or Counter Intelligence Agent. Although I have always been interested in military matters, the army lifestyle was about as contrary to that of a jazz musician and college student as possible. When I finally came to terms with the reality of my deployment, it was as if my life flashed before my eyes. I was a piano major at the University of New Orleans, and my instrument and music were my only obsessions; they were my life. I was a "purist," having no interest in playing any instrument other than acoustic piano. Although I owned a keyboard out of necessity, I detested it. I knew that there were few and probably no pianos in Iraq, at least none with which I might come into contact. I saw this as the potential death of my musical ambitions. It seemed too painful to go without my music obsession, so much so that I thought I might not be able to return to music if I left it. In the end, however, I found there was another way, which

would inform my approach to music going forward, and even to this day. I embraced technology in music.

I do not recall many things that happened directly before deployment, such as how I became interested in making electronic music. I was listening to a lot of music in which computers played a large role, especially that of bands like Radiohead, Stereolab and Massive Attack. With my fattening active Army pay, I quickly purchased a PowerBook G4 with maxed-out RAM, a 40-GB iPod, a Griffin voice recorder mic made for attaching to an iPod, Reason 2.5, Logic Express, an Oxygen 8 MIDI controller keyboard and a device called a MIDISport that allowed a computer to communicate with a MIDI device via USB and without an audio interface. This was a significant move, considering that I had never owned a computer in my life. In fact I am sure that I was the first person in my family to buy a computer. I already had considerable training in computers in various fields, much of it from my Army training in Intel school after I enlisted in 1999. With this new gear, some books on digital music and pretty strong ambition, I had a new mission that was separate from, but dependent on, my deployment to Iraq (Fig. 1). Even before I left for Iraq, I had decided that I would produce music to reach an audience back home and elsewhere from the combat theater of operations, and I would act almost as a musical journalist, composing music that could give the listener a taste of one soldier's "boots-on-ground" experience in Iraq in 2004.

It was during my unit's pre-deployment period, a 6-month training period designed to take National Guard members and transform them into active-duty, combat-ready soldiers, that I began cutting my teeth on this new musical format. Even in this early stage, my focus on music and my new mission allowed me a certain type of escape. Soon all my free time at Fort Hood was taken up by composing music using Reason and a MIDI controller. I learned to love the synthesizer as an instrument in itself and no longer thought of it as an imitation of acoustic instruments, but rather as one with seemingly infinite possibilities. I wrote several pieces. Some I discarded as part of my learning experience, while others

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Audio and supplemental material related to this article can be found at: <www.wativmusic.com>. See also <mitpressjournals.org/toc/lmj/./25> for audio, video and other supplementary files associated with this issue of LMJ.



Fig. 1. Will Thompson en route to Iraq. (Photo © William A. Thompson IV)

would eventually become part of *Baghdad Music Journal*. At this point I had not yet conceived of a CD release. Instead, I decided during my last “pre-deployment” stage in Kuwait that this new music I was working on would best find an audience via the Internet and that I would begin building my own website once in Iraq.

After we were settled in at Camp Victory and getting into the routine of life there, music resurfaced in my daily life. For the first half of my tour I worked at the Brigade Interrogation Facility or BIF. Every day I would conduct between two and 12 interrogations along with my three-man team. Initially my unit might capture anyone encountered on a mission—most detainees were innocent of any crime or threat and were released. It was our job as interrogators to decide who walked and who got sent up the chain to the Division Interrogation Facility. My approach to interrogation did not fit the stereotype the general public applies to the word interrogation. Being “the nice guy” worked for me. I would sit in the 5 × 5 standalone room with a detainee and my interpreter and feed him fruit and cigarettes. When detainees were obviously innocent, I would usually ask questions about music, since I was interested, and the detainee would rather smoke with me than go back to his cell. It was around this time that I became fascinated with human speech in recorded audio samples and as an element of composition. I was aware that this had been done before by Steve Reich, as in *Different Trains*, as well as by others. I had no real field recording gear (Fig. 2) and somehow ended up using my classic “click wheel” 40-GB iPod with an attached third-party mic adaptor on the

top. It was not the best-quality audio but it worked in my situation. I began recording often, not only speech (but never during interrogations) but also distant gunfire, humming power generator trailers and anything else that caught my ear. The most interesting recordings to me remained human speech.

A good example of my field recording from this time can be heard on the track entitled “Follow Our Orders.” It is a composition based on a recorded conversation I had with an Iraqi man concerning his opinion of the war. The content of the conversation was less important than the idea that all sound, including the human voice, contains melody, rhythm and implied harmony. “Follow Our Orders” also contains a loop of Arabic speech repeated throughout the track. This sample was not recorded by me but was instead supplied to me by the U.S. Army on a CD on “How to Speak Arabic,” which was full of commands useful to soldiers. One of these commands is “follow our orders” in Arabic.

I found myself in a whole new world of sound. Nightly after my work at the BIF was done, I escaped to a set of headphones and found amazing patterns in speech. It

seemed to me that Arabic speech and Arabic music were very much alike in their microtonal content. At this point I was pretty far down the rabbit hole of Arabic music. It consumed much of my listening time, something that I could not have imagined before the war, as I had cared only for American music and almost exclusively jazz. Much of the resulting music I have composed, especially shortly after returning, is inspired by the music of the Middle East in general and Iraq in particular. Some of these influences include Oum Kalthoum, Assyrian pop music of the 1970s, Maqam and readings from the Koran. These influences found their way into *BMJ* live performances once I returned, on pieces such as “Assyrian Folk Song” and “Khala.”

Whenever someone from one culture uses the cultural resources of another culture to make art, issues can arise, especially when there is a war involved. My use of Iraqi musical and sonic material in my music is intended to show respect for that culture. I do not feel that the music on the record is necessarily dark or derogatory; nor do I feel that all my experiences in Iraq were bad. I greatly value the relationships I developed with my fellow soldiers and also with a number of Iraqi people. My use of speech patterns, music or prayer calls is both my own artistic reaction to the sounds around me at that time and an acknowledgment of the respect and admiration I gained for many of the individual people I encountered.

During this time I also composed the album’s first track, “Post Election News.” I recorded an Iraqi radio broadcast of the news that President George W. Bush had been reelected.



Fig. 2. Thompson's barracks (home) studio while deployed in Iraq.
(Photo © William A. Thompson IV)

This was recorded from a small Iraqi-made transistor radio. I took the news report, added some radio static and arranged it. I then transcribed the pitches in the Iraqi newsperson's voice and reproduced these pitches using software instruments in Logic and Reason. I still have no idea what the specific content of the Arabic speech is but I had strong feelings in regard to the election. (At the time, at least, I blamed Bush for my deployment and hoped another candidate would bring us home.) This is still probably my favorite track on *Baghdad Music Journal*.

Wars are political by nature, but in my experience, the soldiers fighting the war think less about the politics than one might imagine. I understand the making of this music, in that setting, to be a political act, but not an act of pushing a political agenda (I did not wish to use this music to put forward a specific agenda at that time). The listener should bring the political thought to the music. This music is not meant to be a grand manifesto on war but simply the result of one soldier's specific experience.

Before my initial deployment, I had a big going-away party at my apartment in New Orleans near the University of New Orleans on Pasture Avenue. One of my best friends, Matthew Golombisky, was filling up my computer hard drive with hours of great music during the party. All this music proved to be important to me; however, one thing in particular stood out. It was a recording he had made of himself practicing, and it was full of great ideas. With this recording I was able to collaborate, in a way, with my favorite bass player back home. "Golombisky" (track 4) is the result. Included in this track is one found sound, a recording of an odd-sounding Army bathroom air conditioner.

It was during the first half of my tour that I built a website to communicate with the world and home about my experience in Iraq. With the help of a tech-savvy friend and fellow soldier, along with a book I bought online, I managed to create a simple website. The site hosted mp3s as free downloads,

explained the concept behind *Baghdad Music Journal* (still not imagined as a CD) and presented information regarding my personal history. At some point, through emails with a musical colleague and friend in Santa Fe, NM, named Carlos Santistevan, we embarked on a quest to make *Baghdad Music Journal* a CD, with the ambition to release the disc while I was still in country. Now my mission had more purpose than ever.

Approximately halfway through my deployment, some positions were shuffled around. Operation Iraqi Freedom was now called Operation Enduring Freedom. I was reassigned from the BIF at Camp Victory and joined two of my other home-unit buddies at a small Iraqi army base in the middle of Baghdad. We were working outside the

wire and doing what Counter Intel Agents are really trained for: going out and meeting people, making connections and friends and acquiring useful information on a tactical and strategic level. Our three-man team was made up of some of the few Americans on the post. We wore modified uniforms with no names or rank insignias and grew large unkempt beards (Fig. 3). This was an exciting period for me. We were under very little command, seemingly, from higher-ups. We did our work very well and spent the down time as if we were home hanging with friends; however, instead of drinking beers at a local bar, we were sitting on the top of a 10-story building in the middle of Baghdad, laughing, while still very much aware of the war around us. Often from the rooftop we would hear small battles that we conjectured were Iraqi-on-Iraqi skirmishes, given the fact that we could only hear the small arms fire of AK-47s, and no M-16s, which would have alerted us to American presence. On certain occasions, these fights would be accompanied by the sound of prayer calls through loudspeakers. We imagined that these sounds of sung scripture were a signal for attack or perhaps a soundtrack for fighting.

I recorded sounds like these on many nights, and although they did not form a part of *BMJ*, I still use the samples during performance today. The samples I have from my time in Iraq are among my most prized possessions. They are sounds that are unique to my own experience. One particular sample might be my favorite of all. I recorded it while assigned to the Iraqi Army base. The event was a large outdoor public address made by the then-prime minister of Iraq. I recorded the whole event, but the part that grabbed me was the Iraqi Army band's performance of the Iraqi national anthem. Their performance is a good example of the state of the Iraqi Army at the time. These soldiers were the exact same soldiers, for the most part, who had once operated under Saddam Hussein. Their performance of probably their best-known tune sounded as though they had not played a note since 2003,

when the U.S. invaded Iraq. It seemed that they knew their parts but were terribly out of tune and time. The result was for me similar to the famous Charles Ives representation of two bands crossing paths in *Three Places in New England*. I cherish my recording of the Iraqi Army band. I used this sample in my most recent composition, *DD-214*, a sound installation I composed for New Orleans's citywide biennial art festival, Prospect.3+.

DD-214 draws its name from the nomenclature given to the Department of Defense document that is every service-member's record of service. The sound piece *DD-214*, much like the document, chronicles war in hindsight and seeks to express the thoughts, conditions and inner lives of combat veterans of all wars. Similar to *Baghdad Music Journal*, it makes use of found sounds from my deployment. However, *DD-214* also includes recordings I made of interviews with other combat veterans. These samples, both from my deployment and from post-deployment interviews, serve as the themes of the five movements. The first of these themes centers on a recording I made of the Southeast Louisiana Veterans Healthcare System's automated telephone answering system. The melodic content is derived from speech samples from the VA director's voicemail address. The speech starts with the important but unpleasant reminder, "If you're having thoughts of harming yourself or others please hang up and dial 911." For this section I also recorded myself dialing the phone number given in the speech for a "suicide hotline." I then reproduced the pitches assigned to each number on the telephone keypad. The second movement centers on the previously mentioned recording of the Iraqi Army band and is preceded and followed by variations on the theme of the Iraqi national anthem recorded with piano, Hammond organ and various synthesizers. The next movement is an interview I recorded with a very old veteran who served under Gen-

eral Patton in World War II and who experienced war from the invasion of Normandy to the Battle of the Bulge. The fourth movement is a song I wrote with lyrics about dealing with war in hindsight paired with interviews I conducted of a Vietnam War veteran and a Iraqi War veteran. These interviews took place on Wall Street during the Occupy Wall Street movement. The fifth and final movement is composed of recordings of mosque prayer calls I collected during my tour of duty in Iraq. Due to their microtonal nature, these are some of the most difficult but beautiful vocal transcriptions I have undertaken. *DD-214* premiered on 25 October 2014 as a sound installation at Tulane University in New Orleans as a part of Prospect.3+ [1]. This piece is also now available online at <wativ.tumblr.com>.

There is one track on *BMJ* that best represents my experience in Iraq. The piece, entitled *Pasture Peace*, is one that I began writing with much excitement before I knew I would be sent to war and continued to write until far into my time in country. The work starts with a very hopeful movement but carries a certain feeling that something is about to change. Things take a turn for the dark in the piece very soon after that, while still acknowledging with the occasional harmonic shift that all is not lost. In the final section the hopeful mood returns but with confidence and passion. All of these pieces from *Baghdad Music Journal* can be heard at <www.wativmusic.com>.

My experience in Iraq deeply changed me musically, especially regarding my relationship with electronics. Before I went to Iraq, I played acoustic piano exclusively. I can only speculate how much I might have embraced electronics had I not been deployed, but electronic music is now a significant part of my practice, stemming from my inquiry into the electronics field out of the necessity of my situation. Without this technology, I imagine that producing music in my wartime setting would have been impossible. Since my return to civilian life I have used laptop computers in performance and have added sampling and other electroacoustic practices to my regular means of artistic expression (Fig. 4).

I did not see the making of this music as a coping mechanism for my deployment but rather as a way to stay involved in music-making through the tools that were available to me in the theater of war. It was also a way for me to be a sonic journalist and share through sound one soldier's experience in Iraq. I did not intend to make a specific political statement but instead let the listener bring his/her own political meaning to the music. What started as a way to enable me to keep making music during my deployment became an expansion of my artistic palette that is with me to this day. The result is significant in that it is something that



Fig. 3. Thompson in battle gear in Baghdad. (Photo © William A. Thompson IV)



Fig. 4. Thompson performing with his electronic rig at the Mudlark in New Orleans, 2013. (Photo © William A. Thompson IV)

I believe has not been done before: recorded music (not a score) during combat; all the sounds were captured in that space and cannot be separated from my time there. The resulting music provides a view of a soldier's experience in a new and unique way.

I often answer the unanswerable question that all veterans are asked—"What was that like?"—with the response that it was the best and worst thing that ever happened to me.

In reality I have found that the "best" and the "worst" are in essence the same thing. Through experience I have found that the wider my spectrum of perceived darkness is opened, the more the spectrum of light expands as well. As an artist I must draw from my experiences. I know my experiences as an artist-soldier are unique and for that, and for the ability to share them in a way through my music, I feel truly blessed.

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Considering the Politics of Sound Art in China in the 21st Century

JING WANG

ABSTRACT

In 21st-century China, “being political” can mean many things, particularly as discourses on the global economy, environmental pollution, consumerism, sensual perceptions and gender politics become increasingly concrete at local levels. Contemporary Chinese sound artists go beyond the mere use of the language of propaganda and instead make works that play different sociopolitical roles—heroic, observant or participatory—to address sociocultural, sensual and spiritual issues. The author shows that the political statement made by a sound work in China depends to a great degree on the sociopolitical contexts in which the work is exhibited and performed, as well as the sociopolitical identity of its creator.

Politics has been a dirty word in neoliberal China. Many Chinese artists see “being political” in their work as either an easy way to get (Western) attention or as a form of old-fashioned revolutionary heroism—a display of courage and self-sacrifice for greater ideals, e.g. justice, freedom or the success of proletarian revolution. Most sound practitioners, however (especially those from the Mainland), consciously or unconsciously distance themselves from political discourse and avoid using sensitive terms such as Party, censorship, Tiananmen, Ai Weiwei, etc. However, in contemporary China in the 21st century, being political can mean many things, especially as discourses on the global economy, environmental pollution, consumerism, sensual perceptions and gender politics become increasingly concrete at the various local levels within China [1].

Contemporary Chinese sound artists go beyond simply using propaganda terms in their works and instead make works utilizing different sociopolitical roles to address sociocultural, sensual and philosophical issues. To some extent, the politics of China’s sound art practice is congruent with Jacques Rancière’s description of politics:

Politics, indeed, is not the exercise of, or struggle for, power. It is the configuration of a specific space, the framing of a

particular sphere of experience, of objects posited as common and as pertaining to a common decision, of subjects recognized as capable of designating these objects and putting forward arguments about them [2].

Here, I approach the politics of China’s sound art in terms of different sociopolitical roles—heroic, observant and participatory. I use this categorization for the convenience of textual discussion; in reality, sound artworks often play and generate multiple roles.

HEROIC

Mainstream Western media discourse often focuses on the state’s censorship of music and the arts in mainland China, with direct or implied reference to the Tiananmen Square students’ protest of 1989. However, the relation between the state’s ideology and new music ideology should not be oversimplified into rigid dichotomies.

During a symposium in connection with the *China Sound Art Exhibition* in Shanghai in October 2013, curator Yao Dajun recalled an unpleasant encounter with the media at a press conference in New York for the 2013 exhibition *RPM: Ten Years of Sound Art in China*. Some journalists seemed determined to force statements from Chinese artists on sensitive political issues. Even after Yao clearly denied any political dimensions in the works exhibited, the “story” that the media desired to report still appeared in the news. For example, the *New York Times* reported:

Some of the other pieces touch on sensitive political and social issues, though none have been banned in China, Mr. Shi said. For instance, Edwin Lo’s “Mourn” from 2011 is a spooky audio-visual work about candlelight vigils to commemorate the killings at Tiananmen Square in 1989 [3].

It should be noted that Edwin Lo is a Hong Kong-based artist; his work *Mourn* has never been exhibited in Mainland China, and its exhibition in the United States does not necessarily mean it would be allowed (or not) on the Mainland.

Due to the “one country, two systems” constitutional principle set out by Deng Xiaoping in the early 1980s, Hong Kong

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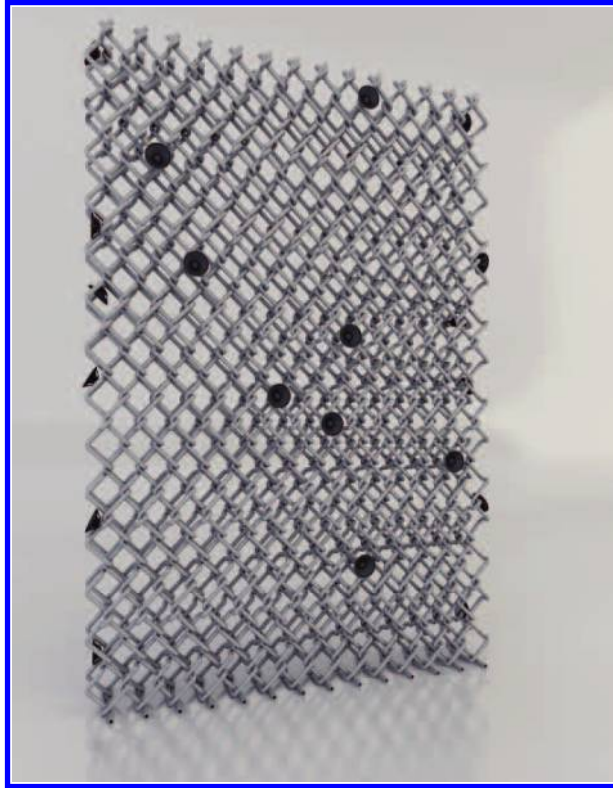


Fig. 1. Zen Lu, *Borderline*, sound installation artwork proposal, 2014. (© Zen Lu. Photo © Zen Lu.)

and Macau can retain their own economic and political systems, while the Mainland uses the socialist system. In addition, censorship systems vary significantly among the regions of Hong Kong, Taiwan, Macau and the Mainland. Thus, the economic and political conditions of each region affect the perception of the political nature of the sound works discussed here.

An actual censored sound work in Mainland China, which may well fit into the rebellious-artist-versus-state-censorship dichotomy, is Ai Weiwei's *Nian* (2010). *Nian* (reading) is a 3:40:53 audio recording consisting of thousands of readings by volunteers. Each volunteer reads out the name of a student killed in the 5•12 Wenchuan Earthquake on 12 May 2008. Five thousand two hundred five students' names were read 12,140 times in the piece. *Nian* commemorates the students' deaths and expresses the artist's anger over the jerrybuilt government construction projects implicated in the disaster. *Nian* has never been exhibited or circulated through public channels in Mainland China.

Ai Weiwei is an unusual example, however, as his artworks often publicly confront the state. Going back to China's rock music of the 1980s, we can say that the rock star Cui Jian and his music played a similar heroic sociopolitical role [4]. In the 1980s, Cui Jian's public performances found enormous resonance among music fans, artists and intellectuals. During the Tiananmen Square students' protest, Cui Jian went to the square and sang "Nothing to My Name" to students to express his spiritual support. For Cui Jian, rock music is an ideology rather than a musical form. Rock music was strictly censored soon after Tiananmen and, as a result of the cen-

sorship, very quickly caught both commercial and Western media attention.

In neoliberal China, being rebellious within conceded degrees is safe and sells. Deng Xiaoping's neoliberal policy reshaped the social milieu of post-Tiananmen China and gave rise to new political dimensions. Despite their cultural, technical, historical and institutional differences, different genres of music were all mixed together and introduced as new or avant-garde to Chinese listeners through *dakou* CDs [5], the Internet and online radio programs. In the early 2000s, the underground rock musicians and critics who would later constitute the main forces in China's sound art culture, including Yan Jun, Li Jianhong, the Raying Temple collective, Feng Hao, Zen Lu and Li Yangyang, shifted attention from the sociopolitical to the technical, materialistic and philosophical dimensions of sound. Most became disillusioned with revolutionary heroism, but what has nonetheless been inherited from the first-generation rockers is the condition of musician-as-public-intellectual. Sound artists (including experimental musicians) are influenced by Western experimental art, critical theory and contemporary philosophy (Foucault, Baudrillard, Deleuze, Virilio, etc.). They are savvy about critical discourses, which somewhat facilitates their creation of sound works that are observant and participatory.

OBSERVANT

We should not hastily conclude that Chinese sound artists, especially those of younger generations, are apolitical simply because they have told the public media that they are not interested in politics. The fact is that the game of political resistance is changing and becoming multiscale as technical and intellectual milieu change.

Despite Yao Dajun's denial of a state-activist dichotomy in the above-cited press conference, he does create sound work that is implicitly political. In the *Sound Art China* exhibition (Shanghai, 2013), Yao's sound installation *Tank Listening Shanghai* (20 October–19 December) applies the concept of the Panopticon in transforming a gigantic oil tank into a listening space. The red-lit Panopticon space, according to Yao, returns listening to its purest form, uninterrupted by visuals. At the same time, while sitting in the piece's semi-enclosed listening booths, created with plastic boards around the interior edges of the tank, and listening to a field recording of Shanghai, one cannot help feeling exposed (although one cannot see people sitting in neighboring booths, one can be seen listening by the people standing in the middle inside the tank). There is an uncomfortable feeling of listening privately but being watched in a public space. The work makes one recognize the immanent visual and audio surveillance and the central control permeating everyday city life in modern society. However, while the work makes Shanghai audible and social surveillance sensible, here the artist remains a distant critical observer maintaining an ambiguous relationship with his/her work. A critical observer often retains a certain distance from the object of observation, unlike an artist-hero who presents a clearly defined position and attitude.

The sound artist Yan Jun tells a story on his "Radio Enemy

016” program of June 2010 [6]. During a visitor’s talk at UC Berkeley in 2011, Yan Jun played a field recording of Tiananmen Square during the national day of mourning for the 2008 5•12 Wenchuan Earthquake. In the field recording, one hears waves of patriotic chanting: “China China China” and “Jiayou [cheer up], Jiayou, Jiayou.” The affective power of human sound and background noise is overwhelming. After his talk, a visiting Chinese scholar, apparently irritated, approached him and asked, “What do you want to do with this? Why do avant-garde artists like you make such ambiguous work? What do you want to say?” Yan Jun did not have an immediate answer. In the radio program, he said he still does not have an answer and that the question stays with him.

Also utilizing the affective power of field recordings, Shen-

zhen-based sound artist Zen Lu proposed a multichannel sound installation called *Borderline* (2014). The work makes one aware of the electrified fences put up for border management by the Chinese government to separate Shenzhen and Hong Kong (Fig. 1). Four years after the founding of the Shenzhen Special Economic Zones in 1979, 84.6 miles of 2.8-meter-high electrified fences were built to encircle a 327.5- \times -327.5-km zone. People from the Mainland must obtain a “Border Pass of the People’s Republic of China” to cross this border into Hong Kong. The fences contribute to the increasingly striking gap between the rich and the poor, as well as spatial-identity-related discrimination. *Borderline* is interactive. When the audience makes enough noise, a microphone picks up the signal and activates sounds of gunfire. However, this work has not yet been actualized due to financial

difficulties. It is also difficult to find a venue for its exhibition on the Mainland because border issues are too politically sensitive to address in artworks.

PARTICIPATORY

The performative and participatory have become major characteristics of China’s current sound artwork. To create the work *Sing for Her* (2013), Zheng Bo spent a significant amount of time interviewing Filipino domestic workers at their weekend gatherings. From Sol Pillas, a Filipino domestic worker who lived in Hong Kong for 28 years, Zheng Bo discovered a love song that most Filipino workers in Hong Kong know. He organized the workers to perform the song and recorded the performance.

Sing for Her consists of a gigantic iron speaker suspended in the middle of the exhibition room (Fig. 2). On top of the speaker, a small screen plays the video recording of the performance. The audience is invited to stand in front of the speaker to sing along. The video keeps playing until the audience becomes quiet. If no one makes any sound, the video does not play. With *Sing for Her*, Zheng Bo successfully makes the audience affectively experience another culture, profession and class by singing along. He calls the work a “pedagogical encounter,” to differentiate it from the participatory art (a.k.a. people’s art) of Mao’s era, which Zheng Bo has criticized as too violently enforced.



Fig. 2. Zheng Bo, *Sing for Her*, sound installation, Hanart Square, Hong Kong, 2013. (© Zheng Bo. Photo © Zheng Bo.)



Fig. 3. Yan Jun, *Noise Hypnotizing*, sound installation, Shanghai, 2014. (© Yan Jun. Photo © Yan Jun.)



Fig. 4. Peter Ablinger and Winfried Ritsch, *The Truth or: How to Teach the Piano Chinese*, sound installation, 10th Shanghai Biennale 2014. (Photo © Power Station of Art)



Fig. 5. Yan Jun and Yu Ji, *Deep in the Cloud*, sound performance, AM Space, Shanghai, 2013. (Photo © Wang Jing)

During the 10th Shanghai Biennale 2014, Yan Jun presented the participatory installation *Noise Hypnotizing* (Fig. 3). Yan arranged eight massage beds, each equipped with headphones, on the third floor of the Power Station of Art, the state-run contemporary museum and home of the Shanghai Biennale, by a window facing the Huangpu River. Most of the tracks played on the headphones come from Yan's previous live performances; two were made expressly for the exhibition. All of the tracks were created by the same method: feedback noise generated manually by portable recorder and earphones. Once the noise is played in a loop, a hypnotic effect that puts listeners to sleep is expected to

result. The high-pitched noise does not have this effect on every participant, and many quickly remove their headphones. Noise is still not widely considered an acceptable "music" form, but instead is considered to be a sonic attack.

Conceptually, this work is a variation of Yan's sound work series *Living Room Tour* (2011–current). The protocol for *Living Room Tour* is simple: Anyone can invite the musician to his/her living room for a private concert. There is no invitation fee charged, but the artist's transportation has to be paid for. Yan brings his feedback noise set and supplements it with whatever is available in the inviter's house. The tour is an ongoing project and has been conducted in several cities, including Beijing (2011, 2014), Shanghai (2012), and Montreal (2014) [7]. For Yan Jun, noise is liberation, although not everyone agrees.

China's sound art movement also encompasses works made by non-Chinese artists and exhibited in China. Berlin-based Peter Ablinger and Graz-based Winfried Ritsch created the sound work *The Truth or: How to Teach the Piano Chinese* for the 10th Shanghai Biennale 2014 (Fig. 4). It is a mechanized piano audiovisual installation that converts phonographic recordings (recorded human voices and field recordings) into music. The work is part of the *Speaking Piano* series, in which Ablinger investigates phonorealism's relation with photorealism. As a composer, Ablinger performs as an observer of perceptions of music, noise and speech.

In *The Truth or*, Ablinger programs the piano so that it musically pronounces the well-known Chinese propaganda phrase "seek truth from facts," used by both Mao Zedong and Deng Xiaoping. The phrase nicely fits into the biennale's theme, "Social Factory."

The 2014 Biennale theme addresses both the production of the social and how "social facts" are constituted in the case of modern China. A recurring point of reference is the year 1978, acknowledged as a turning point in the recent history of China's modernity. This was the year in which Deng Xiaoping, who was to become China's most influential leader in the following decades, initiated his landmark socio-economic Reform and Opening, reinvoking Mao Zedong's 1938



Fig. 6. Zhang Peili, *Collision of Harmonies*, sound installation, Boers Li Gallery, 2014. (© Zhang Peili. Photo © Master Oriental Art Magazine.)

exhortation to “seek truth from facts”—a practice meant to separate accounts of objective reality from subjective imagination, as the curatorial statement for the Biennale stated.

Articulating an ideology-laden phrase at a loud volume, imitating a stereotypical Chinese propaganda broadcast voice, Ablinger’s work invites criticism mostly targeted at the apparent orientalism in the work and the sonic pollution of his piece in relation to the other works in the same exhibition. The use of socialist propaganda symbols was a strategy applied in political pop art of the early 1990s and 2000s, but only rarely has been used by contemporary Chinese artists in recent years. Whether the work constitutes orientalism should be a question open for debate, but this is a good example of the importance of context in attributing a political dimension to a sound work, even if the artist desires to remain apolitical and conceptual.

Acknowledgments

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In general, the degree to which a sound work is considered to be political in China depends largely on the sociopolitical contexts in which it is exhibited and performed, as well as the sociopolitical identity of its creators. Even when the work is a pure experimentation in sound and technology, the process of exhibition or performance, the nature of the exhibition space and the larger cultural-economic space endow additional meanings and significance to the work. The more abstract the sound, the easier it is for it to be discursively and symbolically manipulated in subjective ways.

HARMONIOUS NOISE

In my opinion, sound works that create a dangerous, unbearable and immersive sonic presence are the most political and, at the same time, the most poetic. Recent examples include Yan Jun and Yu Ji’s collaborative project *Deep in the Cloud* (2013) (Fig. 5), and *Collision of Harmonies* (2014) by the well-known new media artist Zhang Peili [8] (Fig. 6). While *Deep in the Cloud* creates an immersive sonic world that makes every audience a breathing body vibrating with feedback and dust, *Collision of Harmonies* draws the audience into a conceptual and reflexive state in thinking about intricate relations between harmony and noise.

In *Collision of Harmonies*, when the installation’s two speakers are far apart, one hears women (from the right speaker) and men (from the left speaker) singing harmoniously. As the two speakers slowly move closer together, a piercing feedback noise is generated and becomes increasingly unbearable, until fluorescent tubes suddenly light up. Piercing noise and blinding lights fill the room. Then the two speakers move apart once again; noise becomes harmony. Noise—“cosmic vibration” in Evens’s term—is still an undesirable thing, but nonetheless an ideal state for sonic harmonizing [9]. Noise makes music possible.

Over the last 14 years of development—from China’s first sound art exhibition *Sound*, curated by Li Zhenhua in 2000 in Beijing, to the most recent Shanghai Biennale 2014—sound art in China has finally stepped out from the shadow of “no sound art in China.” Now is the time for sound artists to push beyond their own boundaries to make more noise, to discover creative possibilities, and to connect sound to more nerve endings in both the actual and virtual worlds [10].

References and Notes

- 1 I am aware of the complicated identity politics among Taiwanese, Hong Kongers and people from the Mainland. I will not expand on this issue here given space limitations. I use the term *Chinese* here mostly as an ambiguous cultural identity rather than a national identity. I will not engage in exploring what “Chineseness” means in this article; this point definitely deserves fuller discussion elsewhere, however.

- 2 Jacques Rancière, *Aesthetics and Its Discontents*, S. Corcoran, trans. (Malden, MA: Polity Press, 2009) p. 24.
- 3 See <artsbeat.blogs.nytimes.com/2013/03/01/now-hear-this-works-by-chinese-sound-artists/?_r=0>.
- 4 For further discussion of China's sound culture, please see Jing Wang, "Making and Unmaking Freedom: Sound, Beijing and Affect," Ph.D. dissertation, 2002: <rave.ohiolink.edu/etdc/view?acc_num=ohiou1336097506>, as well as Jing Wang, "Utopian Impulses in China's Sound Culture: The Raying Temple Subcultural Collective," *Journal of Popular Music Studies* 25, No. 1, 2–24 (2015); Jing Wang, "To Make Sounds inside of A 'Big Can': Proposing a Proper Space for Works of Sound Art," *Leonardo* (forthcoming): <doi:10.1162/LEON_a_00895>.
- 5 *Dakou*, or "saw-gash," refers to the small punch hole cut into the excess CDs by Western record companies prior to shipping them to China as trash, presumably to make them unsellable.
- 6 Listen to the Radio Enemy program online: <radio-enemy.band-camp.com/track/old-radio-enemy-016-yan-jun-nation>.
- 7 For more on *Living Room Tour*, see <www.yanjun.org/archives/category/project/living-room>.
- 8 For more on *Deep in the Cloud*, see <www.yanjun.org/archives/1132>.
- 9 Aden Evens, *Sound Ideas* (Minneapolis: Univ. of Minnesota Press, 2005) p. 13.
- 10 For further discussion of socially engaged practices within the discourse of contemporary Chinese art, please see e.g. Thomas Berghuis, *Performance Art in China* (Timezone 8, 2007); Wu Hung, *Remaking Beijing: Tiananmen Square and the Creation of a Political Space* (Chicago: Univ. of Chicago Press, 2005); Peggy Wang, ed., *Contemporary Chinese Art: Primary Documents* (MoMA Primary Documents) (Duke Univ. Press, 2010).

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Cultivating Activist Lives in Sound

TARA RODGERS

ABSTRACT

The author discusses political dimensions of electronic music and sound cultures in the historical present, critiques various ways that neoliberalism inflects and constrains creative practice, and outlines cultural and political aspirations that sonic activists might pursue.

An activist life in sound [1] 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 far-reaching 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 speech [3] 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’s *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 [5–8]. 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 line-ups and record labels with statistics and infographics and to organize collectively voiced calls to action [9].

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

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[10]. 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 longstanding mythologies that articulate socially and culturally differentiated bodies and subjects to particular social roles and expectations [11]. 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” [12] 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” [13]. 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 [14]. 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” [15]. 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 [16]. 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 [17].

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, 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 [18–19]. 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?” [20] 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 [21]. 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” [22]. 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” [23]. Artists’ capacity to fully inhabit this crucial social role can be compromised if there is noncritical acceptance of technolo-

gies, 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 [24]. 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 [25]. 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. Open-source 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 geo-political 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 music-making to people with physical disabilities [26]. 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.

Acknowledgments

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The Instrumentality of Sense in Bruce Nauman's *Audio Video Piece for London, Ontario (1969–1970)*

ADI LOURIA-HAYON

ABSTRACT

Bruce Nauman's installations have long served a literary and linguistic critique emphasizing the role of the body in relation to space and time. However, focusing on vision, phenomenology and semiotics, scholars of Nauman have paid little attention to the sounding body. The author weaves the political basis of audition into the making of sense while morphing the historical and philosophical roots through a close examination of Bruce Nauman's *Audio Video Piece for London, Ontario*, a work executed soon after unrest on the American West Coast and in the streets of Paris. Unhinging the unity of *sensus communis*, Nauman's work proposes new political trajectories for dispersed sounding bodies.

In 1969, after 4 years of skillfully producing noise and finally obtaining international recognition for their chaotic harmonies, Greg Curnoe and the Nihilist Spasm Band (NSB) invited Bruce Nauman to exhibit at their home venue, Gallery 20/20, in London, Ontario. Nauman's intermedia activities were well met with the NSB's interdisciplinary transgressions and the production of aporetic sound. Ever since his graduate days at the University of California, Davis, Nauman, a jazz bass player and student of mathematics, philosophy and music theory, had been engaged with the intersection of music, sound, performance, sculpture and installation. The ad hoc band members of NSB, Hugh McIntyre, Art Pattern, Archie Leitch, Murray Favro, John Clement, Bill Exley, John Boyle and Greg Curnoe, were a group of visual artists who had begun orchestrating noise in 1965. Without musical training, they improvised shouting, humming and blowing 25-cent kazoos. By 1967 NSB had modified their own instruments: electric guitars and bass, amplified kazoos and electric violins, a theremin, clarinets, cooking pots and marbles. In 1969, they officially represented Canada at the Sixth Biennale de Jeunes in Paris, later traveling to London to reverberate the halls of the Institute of Contemporary Arts senseless.

Their home gallery was a space devoted to artworks and happenings, a politically charged juncture for audio/video

experimentation. The dynamic space resounded with the clashing cacophonies and cross-media happenings of Luigi Russolo and Hugo Ball and the production of unbearable yet engaging events by Karlheinz Stockhausen, who semi-annually performed *Originale* in NYC in 1964. Nauman had met Stockhausen in 1968, a year before commencing *Audio Video Piece for London, Ontario*, which he would exhibit at Gallery 20/20 between 11 February and 2 March 1970 (Fig. 1). Nauman constructed *Audio Video Piece* using the floor plans of the gallery, sent to him by Greg Curnoe by mail. He tactically installed a surveillance camera oscillating on its side and played a looped sound recording in an empty, sealed room emanating the rhythmic sounds of his hands clapping on his hips. The video footage of the vacant room was relayed to a television monitor placed on the floor in a second room accessible to the viewer, while the soundtrack, overflowing its confining space, was faintly audible. The division of the rooms into inaccessible and shared spaces dictated a novel redistribution of the senses, such that sense production resisted synthetic practice, and the instrumentality of sense was exposed by the compartmentalization of individual senses.

Exploring the relation between the body, perception and technology, Nauman had begun experimentations with the portable video camera, which he received in 1968 from Leo Castelli [1]. The video camera called forth new possibilities inherent in its technological mechanism; it represented visual and sonic content while recording processes in real time. The common properties of sense perception reflected by the new contraption were suspected to adhere to ideological regulation, which inspired a return to the perceiving subject and an exploration of *techné*, i.e. the production of sensual sense. From the Berkeley campus to Paris, the uprisings of 1968 precipitated an escalation of political repression that fostered distrust in symbolic ideologies and disillusionment with technological apparati imposing their forms in fabrication of social, economic and ethical structures. Portable recording devices prompted artists to act in two directions: one facing the outside, exposing the instrumentality of sense in its generation of its own echoes, and the other facing the

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Fig. 1. Bruce Nauman, *Audio Video Piece for London, Ontario*, video camera, video monitor, videotape, player, chair, 1970. Nauman's original installation of the piece at Forest City Gallery, photographed in 2011 (formerly Gallery 20/20) [18]. © 2015 Bruce Nauman/Artists Rights Society (ARS), New York. Photo © Adi Louria Hayon.)

inside, plugging into the technologies of production by using instruments in an unruly manner that shifted perception and collective relations. From organized instrumentality to the dispersion of instruments, the writings of Marshall McLuhan, Buckminster Fuller, Gregory Bateson and others offered a fertile ground for expanding new media ecology and the critique of broadcast media by artists, composers and writers, published in activist journals such as *Radical Software*, founded by Phyllis Gershuny and Beryl Korot. The first issue of *Radical Software* centered on the orchestration of public opinion by television. Against the politics of set sense offered by television, Nauman proposed exploring the relation between technological shared spaces and the sensing body. To the reign of visuality he opposed sound and hearing; transcendent networks of information he replaced with the technological extensions of physical perception and the production of sense. His turn to the sonorous developed “the attitude involved in transforming normal activity into a formal presentation . . . [through] a creative misreading or a creative misunderstanding” [2]. He handed professional filming down to the amateur’s portable camera working as an extension of the sensing body. However, this democratic

distribution was consistently interrupted in order to prevent synthetic clarity while maintaining the discrete operation of the sorted senses and a return to the proximity of the visual and the sonorous.

The critique of the synthetic operation of common sense lends itself to recent aesthetic theories that discern a return to the aesthetic in its original etymological meaning of *aisthesis*, that is, sensation or perception by the senses. This return, as we shall soon see, sets the limits of representation against the technological operation of the senses. Far from composing a novel contemporary discourse, the concepts of sensuous affect and common sense begin their movement within the two main Greek schools of philosophy, which postulated perception in relation to reason and the senses. In his dialogue *Theaetetus*, Plato proposes a conscious subject that uses sensory perception under the reign of reason [3]. Aristotle, on the other hand, advanced a perceptual power over and above the five senses, coordinating and monitoring their singular capacities [4]. Aristotle called this perceptual power *sensus communis* (common sense). In the *Theaetetus*, Plato’s Socrates clarifies the relations between knowledge and perception to prove that while perception relates to the work

of the singular senses, it is subjugated to the soul. For him, the soul grasps and synthesizes common features obtained by the perceiving organic apparati residing in the body, which, in turn, results in knowledge. According to this idea, the unity of consciousness stands counter to the senses; the perceiving soul is the proper subject of perception and does not need the corporeal senses.

Contrary to Plato's intelligible integration, Aristotle proposes perception as preceding thought in time. For him, integration of a sense occurs within common sense, that is, coordination of the senses is achieved perceptually in the physiological body. Common sense is a higher perceptual capacity of the soul that, while distinguished from the senses, objectifies perception by giving its content objective reference and requires a physical organ in which to reside. The medical schools of Cnidus and Sicily maintained that this central organ of awareness is the heart [5]. The school of Cos, following Plato, asserted that it resides in the brain [6]. The significance of Aristotle's physiology lies in maintaining the tension of then-current research postulating the concrete embodiment of complex neurological and nervous systems activated within perception. Locating the integrated senses in some corporeal communality makes resonant the tension between sense made immanently and sense imposed as transcendent to the body. From Plato to Descartes, we see the reign of thought over the body, placing common sense in the head. The Kantian critique of *sensus communis* elaborated the Aristotelian shared sense, now externalized to a priori universal judgment. "We must take *sensus communis*," wrote Kant,

to mean the idea of a sense *shared*, i.e., a power to judge that in reflecting takes account, in our thought, of everyone else's way of presenting, in order *as it were* to compare our own judgment with human reason in general [7].

The tension between the physicality of *sensus communis* and its external capacities of knowledge and thought merits some consideration. It invites a provocation: What would be achieved by forgetting thought, the soul, the juridical subject? What if perception and the sensing instruments were on the same level? How may the operation of each individual sense organ, working in separation, become autonomous? Performative? And further, how may we think of common sense in such separation? Haunted by the corporeal Aristotelian *sensus communis*, Nauman's turn to the sonorous in the 1960s, at the time of Marshall McLuhan's call for the primacy of hearing and the production of sonic spaces predicated on tactile vibrations, is not accidental. McLuhan called us to reexamine the limits of perception, the peripheral senses, subjugated to the violence of trained sensual experience. He drew a direct correlation between the reign of visuality and the problems raised within the question concerning technology and critiqued the sway that technological environments have on the human senses. He considered technology and media to be extensions of the human organic senses; however, the forceful effects of technology result in displacement of sensory perception. Media's aptitude for augmenting the visual regulates a hierarchical sensual regime constitutive of

the production of sense (*logos*), which results from the *ratio* of sensual perception. The idea of the plurality of sense perception, which is inseparable from the physicality of sensual organs, and their interactions are predicated on their varying significance in relation to one another. While this disengaged instrumentality demands considering the senses in separation, it draws upon the Thomistic and Aristotelian concepts of ratio and *sensus communis*. From Aristotle, McLuhan drew the idea that the knowledge of our perceptions rests in the common qualities uniting all the senses [8]. However, McLuhan changed the direction of common sense, now placed within the technological extensions outside the subject. "As man succeeds in translating his central nervous system into electronic circuitry," he wrote,

he stands on the threshold of outerring his consciousness . . . [which] may be thought of as projection to the outside of inner synesthesia, corresponding generally with the ancient common sense . . . a mark of rationality [9].

From Thomas Aquinas, McLuhan drew *ratio* as the underlying proportion among the senses that produces rationality. Aquinas furthermore asserted that achieving the proper ratio among the senses in fact produces beauty as well as pleasure [10]. What is important to our understanding is the nature shared by rationality and technology, especially in relation to the discrete senses. "It is the ratio among our senses," wrote McLuhan, "which is violently disturbed by media technology. And any upset in our sense-ratios alters the matrix of thought and concept and value" [11]. To repair this matrix he proposed a performative response and change of ratio—his seminal turn to the sonorous and the haptic. He offered sonic spaces and vibrating tactility as primary to perception: no longer distanced viewing but instead the perceiving sensuous body set in between—as in Nauman's installation—the sonorous and the visual, in the vibrations of their limits. Here, one is impressed tactically, in between the senses.

In this new distribution we are performatively obliged to reconstitute sense—to make sense by redistributing the senses from their habitual connective tissues: body, perception and technology. *Audio Video Piece* experiments with the effect of the now externalized *sensus communis*. The latter leads to a shared consensus, or a shared sense. Nauman critiques this shared consensus by dividing the collective effect of the senses into discrete elements. The surveying camera, detached from the exhibition space, revealing the lack of evidence in the empty room via the monitor placed on the floor, and the rhythmical reverb, sounding the space between the concealed and shared rooms, together produce what Jacques Rancière calls an *anarchic* space: a space that undoes the hierarchies constructed by the correspondence between the articulate audible and the visible. Clear representation is contingent on the visible, writes Rancière, and

is opposed to the paradoxical space engendered by the art of sound vibration, that is, of de-spatialised materiality. . . . It is the contradictory union between . . . [the visual] stripped of sense-based form, and the art of sounds, stripped of its meaning [12].

Although an early work by Nauman, *Audio Video Piece* was not his first to transform the articulation of adequate operation of technologies into aporetic processes. In 1969, Nauman created an installation opposing two sensual frontiers through spacing. *Touch and Sound Walls* positioned the visitor between the sonorous and the haptic. The vacant architectonic trace relayed on the monitor in *Audio Video Piece* displays the same settings for *Bouncing in the Corner*, a 1969 video work recording the sounds of Nauman's body rebounding off of a corner of a room. However, in *Audio Video Piece*, Nauman evacuates the scene; he metaphorically exchanges his body for a chair set in between the two segregated sensual domains.

In 1963 Nam June Paik had executed a similar critique in his first solo exhibition, *Exposition of Music. Electronic Television*, staged at the Galerie Parnass, in a late-19th-century villa in Wuppertal, West Germany. (The title of Paik's work is echoed in Nauman's; however, Paik's influence on Nauman was far more pervasive.) During the late autumn of 1961, Paik had participated in Stockhausen's *Originale*, performed in Cologne. "After twelve performances," recalled Paik in 1986, "I started a new life. . . . I stocked my whole library except those books on TV technique into storage and locked it up" [13]. For the next 2 years, Paik was dedicated to his legendary secret investigations and experimentations with TV monitors, which were eventually exhibited at Wuppertal. Paik divided the sound installations between the basement and the separate rooms of the upper floors. In a "garden room," he displayed multiple television sets on their side, front, top or bottom—all on the floor. However, unlike Nauman's closed-circuit TV, Paik's televisions broadcast live shows. These shows featured the distorted sounds and images of politicians reiterating their dictums while demarcating the spectators' role of passive restriction. By distorting and dislocating the sounds of screened images, Paik did not merely mock their iconic halo convulsions but activated the viewers' uncertainty and physical contingency. Paik's TVs aim to activate the viewer's physicality through sound. In "afterlude to the EXPOSITION of EXPERIMENTAL TELEVISION," he wrote:

My experimental TV is the first ART (?), in which the "perfect crime" is possible. . . . I had put just a diode into opposite direction, and got a "waving" negative television. If

my epigons do the same trick, the result will be completely the same . . . that is . . . My TV is NOT the expression of my personality, but merely a "PHYSICAL MUSIC" [14].

Music's physicality calls the visitor, the passerby, her body, his body, to inhabit the limits of perception, to physically experience and generate the topologies reverberating in between the senses. In Nauman's indeterminate score, the production of sense and its distribution produce consensus through exercising power, or what Rancière calls "the police" [15]. For Rancière, the police are in charge of the social configuration of the *partage du sensible* (division of the sensible); its sway perpetuates inequality dictated by the distribution of knowledge. Rancière's *partage* simultaneously conveys two almost contradictory meanings: The first is "to share, to have in common," the second, "to divide, to share out" [16]. Nauman's shared sense de-parts from cognizant coherency while taking part in spatial communis. The political bearings of shared spaces predicated on division re-sound Nauman's sensuous separation:

I guess one of the more important parts of a lot of the work had to do with the difference between private space and public space. . . . So that one of the main things that I had thought about was to deal with trying to find the edge, to enforce the tension between that sort of transformation, between your space and having to share it, socially or whatever [17].

Considered within the evolution of the Aristotelian *sensus communis*, Nauman's corporeal sense produces a dissensual form of human perception that transgresses the mind's habitual measures. This transgression is actualized when the configuration and distribution of rules are reconfigured by desensualizing the exclusive attribution of sense. The departure of the senses and the separation of public space from private space hold sway over a dispersed yet shared space. For on the one hand, Nauman offers the praxis of separation, while on the other, private space exists within public space. Here, the edge, the place of transformation, is created by the private, the singular sense resounding with its own limit; however, there is nothing above, under or around the edge. The private evacuates its own *topos* to take part in sharing a disjoined common space predicated on disengagement.

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Schwitters's *Ursonate* and the *Merz* Barn Wall

MARTYN HUDSON

ABSTRACT

This paper notes the importance of Kurt Schwitters's *Merz* project to the modernist politics and poetics of exile of the 20th century. Placing the sound work of Schwitters within his full *Merz* project, the author assesses the relations between the *Ursonate* and the final *Merzbau*. He discusses three of these relations—collage, found objects and the structures of building materiality in language and sculpture—and presents Schwitters's work as culminating in a vision of sound and building structures in what Brandon Taylor has called “intrusive new entities” of collage and assemblage that are themselves analogous to the “intrusive new entities” of human material itself.

SCHWITTERS'S *URSONATE* AND THE *MERZ* BARN WALL

The politics of art in the 20th century found its exemplary motifs of exile in the *Merz* structures, collages and sounds of Kurt Schwitters—the *Merzbau* buildings and sculptures; his visual *Merz* collages; and the sound structures of his *Ursonate* performances. Schwitters's *Merz* art has secured his reputation as one of the great avant-garde artists of the 20th century [1]. Schwitters died in exile, however, “far from the world of art” in the English Lake District, as Isabel Schulz has written, leaving the final version of the *Merzbau* incomplete [2]. *Merz* art itself was born of fragments, often of detritus that Schwitters would find at his feet. He had a vision of totality, of an art that would be the integration of all forms of art and of human life itself [3]; however, the *Merz* totality [4] was profoundly opposed to other forces, whose vortex would subsume Schwitters, spinning him into exile and severing him from the artwork of his past [5].

Merz art was about putting the world of the 20th century—its anxieties, its fragments, its architectural aspirations and dreams—into some kind of form. The anti-dialectic of Nazism (its attempt to introduce fixity into history and its deadened vision of racial identity) compelled Schwitters into exile. Artwork after artwork was destroyed, his *Merzbau* an-

nihilated, his friends exterminated. Many of his paintings survived in private collections. Yet he tried to rebuild the *Merzbau* time and time again—relentlessly and in the face of a century that was displacing him time and time again, in an obsession with what Stefano Boeri has called “world-building” [6].

Karin Orchard has said that all of the *Merzbau* are continuations and elaborations of the original *Merz* project [7]. As she has said, Schwitters carried his “home” with him wherever he went as an exile [8], and his endless compulsion to rebuild was part of that reclamation of his past art in the face of the totalitarian impulse to destroy his work and everything he stood for. The dissolution of artistic genre through collage and a singular artistic comprehension of what he was trying to build sustained Schwitters as a refugee. He carried within him what he called his *Ursonate*—an amalgam of poem, music and performance, which Dick Higgins has elaborated elsewhere as “intermedia” [9]—and which he returned to and resurrected constantly in his life and later exile. The *Ursonate* itself has to be reclaimed as part of what Adrian Notz has called the *Merzbau* “transfigurations” [10]. The *Ursonate* sonata as a unified sound assemblage and structure, which has been seen as inferior to the *Merz* project as a whole, needs to be restored to its central position in Schwitters's *Merz* work.

There are fragments of recordings of Schwitters performing the *Ursonate*; disputes about the authenticity of some of them have now been resolved. It is clear now that the 1958 recording supposedly by Kurt was performed by his son Ernst. The *Ursonate* is a performance of the dissolution of language into its molecular entities or an *Ur-language*, a language of humans in birth or before the Fall or the collapse of Babel [11]. Unlike the *Merzbau*, it is not a collage work as such. The work has found some fixity in the Jan Tschichold typographical notations thereof and in its limited recordings by Schwitters and others since [12]. The ubiquity of its reconstructions again display a compulsion to rebuild on the part of both Schwitters and those who aim to reinterpret his *Merz* projects [13]. As Elger has said of the *Merzbau*, “our subject remains no more than a fragment, and only ever existed in interim forms and in an imperfect state” [14]. Reinterpreta-

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tions of the *Ursonate* continue to be performed and reconstituted, but unlike the *Merzbau*, they are not interim forms but a fully completed sonata structure fixed in the Schwitters and Tschichold versions. The *Ursonate*, then, is not a series of sound collages or a disparate set of recordings or manuscripts. It is a unified, composed sonata built from sonorous objects of speech that finds its notation in the 1932 recordings and transcriptions in the last *Merz* journal. Ironically, it was Tschichold's modernist typography that was first brought to the attention of the Gestapo. After a month in a concentration camp, having been accused of "cultural Bolshevism," Tschichold fled abroad.

Isabel Schulz illustrates well the significance of the *Ursonate* in her study of the importance of collage to Schwitters's work:

Schwitters' most important literary work is the "Ursonate" (Sonata in Primordial Sounds), a tone poem in sonata form that opens up to language, sounds and noises new realms between poetry and music. It illustrates in an exemplary manner how Schwitters placed tradition in relation to what was new, thereby transforming it [15].

What Schulz calls the "multivoiced harmony of colored papers" in Schwitters's collage work [16] is transformed in the *Ursonate* into a different sense of the "multi-voice." The multiple vocalizations of the piece not only display different facets of Schwitters but also present a structure of sounds and verbalizations that are reincorporated in the work and transformed by being placed there. Schwitters recognized the disjunction between the temporal rearrangement of sounds and the spatial organization of color [17]. Gwendolen Webster leaves the question of the *Ursonate*'s form, whether poetry or music, open [18], but she also recognizes the compelling nature of Schwitters's vision of himself as an author of a composition, if not a composer of music:

It was his lifelong conviction that there was an embryo musical genius inside him, a brilliant composer just waiting to blossom into existence. Until that talent revealed itself, he decided to use what musical theory he had learnt by composing a sonata of sounds in four movements, taking "fmsbw" as its opening theme. The result was one of the greatest and most innovative works, the *Ursonate* [19].

Uncovering the history of the production of the *Ursonate*, constructed through multiple performances in multiple spaces, Webster notes its problematic status in relation to sound, arguing that its significance has been shaped by a lack of resolution and an ambiguity about what it actually is. Schwitters recited it over and over again, alone and with friends, with the first performance taking place at the Sturm Gallery in Berlin [20].

The question of how to translate and visualize the spoken word of the *Ursonate*, and the ways in which certain transcriptions and translations have come to light, are considered both by Jack Ox, in her systematic visual translation, and by Nancy Perloff, specifically around the typography and history of its textual development [21]. For Perloff the newly

discovered *Ursonate* text/translation, committed to text just after the war,

highlights novelties of notation, typography, verbo-vocal experimentation and performance that help explain the continuing influence of the *Ursonate* on sound and concrete poetry, both in the twentieth century and today [22].

The use of speech for sonic composition, as Cathy Lane has noted, predates recording itself [23], but this does not mean that the *Ursonate* can simply be described as either music or poetry, nor can it be fully explained as a subset of either, a third space in which musical composition and poetry are entangled. Is it instead, as Webster has suggested, a parody of the sonata form—the emanation of a will toward music that Schwitters simply could not achieve? [24]

Certainly, performances of the *Ursonate* have been more or less musical. While the disputed Schwitters recording and another by Jaap Blonk [25] are clearly the products of sonic composition of speech, the Die Schwindlinge recording is more hurried and is a performance of songscape rather than of spoken word. A recording by Spiritus Noister explicitly reworks the *Ursonate* as a piece for two voices and a "musical environment" [26].

Schwitters carried the *Ursonate* within himself, in memory, for most of his life. That memory remained untouched and was constantly redeveloped and rethought. It could not be subject to book-burning—even if the definitive Tschichold version disappeared from view under the Nazi regime.

The *Ursonate* also tells us something about the indeterminacy that was at the heart of the never-completed *Merz* project. The multiple performances of *Ursonate* since Schwitters's death have used the Tschichold text as a starting point as one would use musical notation for a performance. Rather than a resurrection, each performance is to be seen as a point of recovery. There is a materiality to the Tschichold text such that it retains authorial status rather than being one of many by a number of performers.

Ideas on how to present the *Ursonate* rest on assumptions that its essential form is either music or poetry or a transition between them, implying that the categories of music and poetry themselves have some degree of fixity. Rather than questioning the *Ursonate*, I find that the *Ursonate* itself interrogates the very performative status of the organized sound of music and the organized sound of the word. The obsessive reworkings of the *Ursonate* are so compulsive for artists such as Blonk and Golan Levin precisely because of the enigma and mystery that are the essence of the piece.

Not only does the *Ursonate* counterpose its own logic to that of other, darker totalities; it also acts as a locus of transmission of a sensibility and an act of survival as Schwitters left Germany. Every breath and pause and vocalization is a victory against submission and for the sustaining of art into the future. Its performance has multiplied and is carried forever into new spaces of actual and metaphorical exile.

Adrian Notz, in his introduction to the important critical study of the relevance of *Merz* to contemporary art, sees the *Merzbau*

formulated as a metaphor and a module, a device for contemporary artistic, architectural, and social practices and developments. It is used as a trigger for architects and artists to deal with contemporary complexity [27].

How far then can we think of the *Ursonate* itself as a metaphor and a module? What is Schwitters imparting in that transmission/translation?

COLLAGE, OBJECTS, ARCHITECTURE

The idea of the fragment is central to both the *Merz Barn* and the *Ursonate* [28]. The fragmentary and the momentary and their recomposition as a work of art are inscribed at the very origin of the *Merz* label and project. Brandon Taylor argues that modernist collages were simultaneously material and ideological assemblages that could be understood as “intrusive new entities with a hybrid ontology all of their own” [29]. The centrality of the *Ursonate* to *Merz* lies essentially in its dissent from Schwitters’s usual collage procedures. It creates a unification of its elements, a hybrid that rivals the sonata structures of 19th-century orchestral music. The very hybridity of the piece can be seen in its multiple motifs, recursions and reversions, its use of elemental syllabic structures that both articulate a gesture and disarticulate sense. The fact that this was not a piece of glossolalia is demonstrated by the essentially fixed program of the piece as developed over a decade. The effect of the piece in its various movements mimics the structure of language, but without imparting or carrying over meaning. The assemblage of the multiple objects of the piece uses the “primordial sounds” or “found objects” within language and assembles them in a new formation. Those sound objects (imitation, mimicry) change profoundly as they are incorporated into the unified structure of the sonata. Even when basic syllables have some form of originary meaning, that meaning is subsumed into the piece as a whole and dispersed.

Thinking through the *Merz* structures architecturally [30] also entails dealing with the *Ursonate* itself as an architectural assemblage and composition, as Schwitters saw it. As Schwitters himself said, “Everything had broken down . . . and new things had to be made out of the fragments” [31]. The metaphor of architecture can take us some way in understanding the relation between the built structures and the spoken pieces, both ironically dispersed in fragmentary ways after Schwitters’s death;

I am not constructing an interior for people to live in, for the new architects can do that far better. I am building an abstract sculpture into which people can go. From

the directions and movements of the constructed surfaces, there emanate imaginary planes which act as directions and movements in space that intersect in empty space, the suggestive impact of the sculpture is based on the fact that people themselves cross these imaginary planes as they go into the sculpture. It is the dynamic of the impact that is important to me. I am building a composition without boundaries, and each individual part is at the same time a frame for the neighbouring parts: everything is reciprocal [32].

The *Ursonate* does not provide a home for language or meaning or dwelling but rather a way of thinking about movements, boundaries and intersections on an imaginary plane. Each journey with and within the interior of the assemblage of the *Ursonate*, each articulation of its elements and each traverse of the whole piece by the listener is situated in the specific site of the imaginary. In this sense it is an imaginary world-building, a fiction full of magical precipices in which, for the duration of the experience, the quotidian world is suspended. Composed before Schwitters’s physical exile, the sonata almost prefigures the dissolution of his world, the fragments unified into a total compositional work as he tried (and failed) to do with the *Merzbau*.

Yet the quotidian is not absent; like the elemental articulations of the *Ursonate* and its linguistic found objects, the found objects that are central to the physical and material *Merz* structures are still apparent if subsumed and rendered inarticulate in terms of their original function. Like the “ur-language” of Cathy Berberian’s performance in Luciano Berio’s *Visage* (1961) and Pierre Jodlowski’s *Dialog/No Dialog* (2009), where found objects of language are meshed with the texture of the whole piece, the very wall of the *Merz Barn* disinvests those objects of any meaning outside of their location in the full assemblage of the structure. The sewage pipe, the tin spiral, the metal forks, the wooden insert embedded in the plaster of the *Merz* barn wall were all found objects on the *Cylinders* estate at Elterwater. Each of the objects articulates a movement, a line to draw the viewer across the texture of the wall, but they are also submerged within the magma and flux of the plaster itself. The architectural vision of the barn wall, however, is dissonant with the structural assemblage of the sound movement of the sonata. The unified and composed masterpiece of the sonata can be contrasted with the unfinished fragmentary last *Merzbau*. Both are works of the politics of exile and of modernism, their very opacity foreshadowing the multiple expressionisms yet to come. The *Ursonate* was a part of the *Merz* totality but occupies a distinctive, canonical space within it.

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- 7 Karin Orchard, "The House Is Past: Kurt Schwitters and Gregor Schneider," in Notz and Obrist [4] pp. 81–89; p. 81.
- 8 Orchard [7] p. 97.
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MAKING ACTIVIST SOUND

Christopher DeLaurenti

ABSTRACT The author discusses his approach to recording protests and other politically charged soundscapes.

To listen is to liberate. I start with myself by taking microphones toward and—when I muster enough courage—beyond the boundaries of property, the law and oppression. I make field recordings, but I am not interested in building a documentary archive or capturing the essence of a place or an event. When I tape small microphones to my skull, or button up a stout leather vest with sewn-in mics, or strap an ORTF [1] stereo pair to my homemade mic boom, I am venturing into the world to ask, “Who is heard?” “Who has?” “Who is here?” and “Why are we listening to this right now?” I ask these questions to open my ears and open my heart. Can I hear justice?

I do not wait for quiet utopias. Let other field recordists seek the primordial absence of civilization. My “field” is the city, among people. The field is not a place, but an unstable condition where the soundscape may change radically at any moment. In the studio, it seldom rains.

Out in the field, I listen and learn to re-listen. Recording spurs me to imagine what I will miss and what my microphones pick up. Subject to sensory adaptation, my ears quickly subsume passing cars and juddering helicopters into a dull, recessed drone while the portable recorder continues to capture rumbling and careening movement. Microphones help me bypass the cocktail party effect, preserving a polyphony otherwise bisected into foreground sound and everything else. “The ear selects,” writes John le Carré in *The Little Drummer Girl*, “machines don’t.”

Noise, tapestry, text: Protests are one of the few occasions when a city feels lived in, not just inhabited. Unlike chants at regimented sporting events, urban distance conjures poetic depth amidst open space: Every echoing group of marchers’ voices emanates a distinct timbre, spatial location and variably passionate presence. What we hear is for us, not for someone’s corporation or logo. Individual voices chime in too, creating a polyphony in which the lone and local blends with massed voices. Neither is drowned out. Beyond the bland term “collective listening,” we can hear an aural model of governing consensus, personal autonomy and perhaps the germinal sound of an unself-

ish, ad hoc social network. (In olden times we called them “neighbors.”)

Protests and marches contravene what we are supposed to do in a city: working, spending and not talking to strangers. Deterritorialized counterpublics gather, or in plain English, overlooked, ignored and stereotyped individuals, small groups and communities gather to reclaim and redefine the city through sound.

I record protests and other politically charged soundscapes. I might be marching in the crowd, but I do not count myself as a protester—yet. When the cry “Raise your fists in the air!” comes, my deck stays in my hand; and during the call and response of “No Justice? No Peace!” I stay silent, lest my proximate voice drown out everyone else.

“Activist Sound” is what I call the sound pieces, performances and installations I make from field recordings of protests, testimonies and other pertinent sonic materials of social change. The titles are deliberately long and generic, e.g. *N30: Live at the WTO Protest November 30, 1999*; *Live at Occupy Wall Street N15 M1 S17*; and *Live in Baltimore at the March for Freddie Gray April 25, 2015*. I hope my boring, anti-commercial titles accommodate, welcome and perhaps inspire similar or parallel pieces. Back in 1999, the artist collective Ultra-red made an *N30*, I made an *N30* and there are likely other *N30* titles out there for sound, film, poetry, etc.

Names of people, by contrast, wield much more power. Freighted with assumptions and bias (quick, who has a Ph.D.: Brian or B’Hazel?), names almost never appear in my work, except in litanies or recollections of the dead. No experts appear by name because I believe the truth of the voice can be judged by what we hear, not by who is named. Nameless voices tell us more.

Much of my work is in English. Shortly before a presentation of *N30* in 2003, I found out that most of the graduate students were from Spain and Mexico. Although they were whip-smart and elegantly fluent in English, for many the accents, words and idioms rocketed by too quickly for much comprehension. Afterwards, a graduate student keenly described the work as “updated Xenakis,” citing sound-masses of varying densities, trajectories and pulsation. I still rue wasting their time. Linguistic barriers leave additional room for fellow artists of other cultures and languages to make parallel pieces outside the dumb aura of exclusive competition.

Pieces such as *N30* are neither a primer on trade and globalization nor an objective record of what happened at the so-called Battle in Seattle or anywhere else. I try to probe root issues of presence, autonomy, property and dissent by showing individual voices collaborating and contending with collective action.

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Sound files related to this article can be found at <delarenti.net/protest/>. See also <mitpressjournals.org/toc/lmj/-/25> for audio, video and other supplementary files associated with this issue of LMJ.

“As I see it,” declared Igor Stravinsky in *Retrospectives and Conclusions*, “even the greatest symphony is able to do very little about Hiroshima.” Symphonies—by me or anyone else—cannot bandage a wound and feed someone, but they can help expose the behaviors, choices and culprits who allow evil—poverty, racism, property, war and naive, faultless money—to continue.

Most of what I make remains free, online. There is scant cultural capital and no money in activist sound. I hope a just, radical transformation of society renders these works obsolete, leaving quaint, bygone documents for thesis-hungry scholars.

Reference

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THE LINES BENEATH YOUR FEET: REPRESENTING URBAN PROTEST THROUGH SOUND

Christopher Wood

ABSTRACT The author describes the development of a series of pieces based on recordings of protest in public spaces. Particular attention is paid to the ability of each form to represent the experience of participating in a protest.

The biggest strike of U.K. public sector workers in a generation took place on 30 November 2011. The protest was called by a coalition of unions in response to government austerity measures. These measures included pay freezes and a re-drawing of the rules around pensions for public sector workers. Picket lines formed outside major public buildings, and a mass of workers marched through central London. Parallel protests included vocal demonstrations at Liverpool Street station (a major commuter hub in the financial district) and an attempted occupation of an office building near Piccadilly Circus.

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For 12 hours that day I moved around the city making binaural recordings to edit into a short soundscape piece. I wanted to make a piece of reportage, capturing events in their acoustic, spatial context. Sound has a particular ability to depict an environment in an uncanny way, especially in a culture where the weight of reality and verification are usually placed on the visual realm (primarily in news media contexts). I recorded speeches, chants and crowd sounds within a breadth of acoustics (both social and physical). Through this I hoped to give a version of events that would better convey the sense of solidarity experienced during marches and protests. For me, the act of street protest is significant because it is a collectively felt and collectively created disruption of the usual function of an urban space. This significance is lost when the depiction is set in an expected and repeatable set of visual news media tropes.

The resulting piece, *Sounds of the Strike*, was carried online on the *New Statesman* website (a relatively left-wing news review magazine). I received comments from listeners that the piece “really felt like being there.” While this could be considered a success, I was troubled by the idea that I had just created a different type of fetish for a different audience. The piece may have presented a more nuanced depiction of protest by emphasizing it as a site of spatial disruption, but the fundamental relationship between producer/artist and consumer remained the same. This was a problem for me, as I understand protest to be an act of engagement, exploration and action, not one of remote listening to a predefined object. To investigate the further potential of the recordings I used them in an interactive installation.

The Lines Beneath Your Feet (Fig. 1) used floor pads as triggers for sections of the recordings. The pads were covered with images of the road surface in London’s financial district. The interaction was intended to invoke the act of marching and the feeling of being present in the streets. I did not draw up any rules regarding how many people

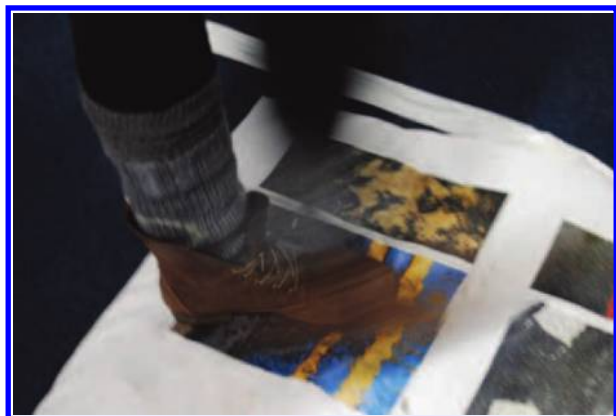


Fig. 1. Christopher Wood, *The Lines Beneath Your Feet*, interactive sound installation, Construction Gallery, London, 2012. The floor mat that triggers recordings of the 2011 protest is decorated with images of the street along the route of the protest march. (Photo © Christopher Wood)

could interact with the work at once (although, practically, the size of the interface made it difficult for more than three people to interact with a single floor pad at one time).

What was interesting for me here was my lack of control over the narrative produced by the work. There are valid criticisms around a lack of openness in interactive art and an inability of the participant to contribute to the overall meaning of an interactive artwork [1]. However, while by no means being completely open, *The Lines Beneath Your Feet* did seem to be more open than the more static meanings of *Sounds of the Strike*, due in part to a different presentational context. The recordings were presented in a gallery rather than in an informational/opinion-led news review context. The sound was also played out of speakers rather than through headphones [2], thus losing the immersive binaural qualities of the audio. These shifts, along with the audience's role in triggering the sounds, allowed for more possibilities in interpreting the content. In one interaction, two children spent some time running back and forth across the pads. They were particularly interested in retriggering the sample of the chant: "I'd rather be a picket than a scab" [3] because they thought the audio was repeating: "I'd rather be a pigeon in the sky."

Street protest destabilizes and suspends the habitual functioning of an urban environment. During a protest, spaces are occupied and recast as sites of a different kind of sociality. At this point, many things usually taken for granted are up for grabs: power, certainly, but also wider spatial meaning. When the children misheard and repeatedly retriggered the audio, their playful action was much more in keeping with what I understand to be the role of street protest than the piece's previous incarnation: an immersive soundscape held down by the weight of accurate representation.

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TRUE BREAD: THE SOUNDS OF CHANGE IN CUBA

Neil Leonard

ABSTRACT This article examines *True Bread*, an installation that engages listeners in the evolving sonic environment of Cuba. The work was made in collaboration with Cuban street vendors, examining the vendors' presence as a signifier of imminent social and political change.

True Bread is a 10-loudspeaker, two-video projection installation that I presented most recently during a fellowship at the Art, Culture and Technology program in the MIT Media Lab (2014) and previously at the Stephan Stoyanov Gallery in New York (2013). The work is the result of my long-term collaboration with *los pregoneros*, the street vendors of Cuba (Fig. 2). *True Bread* reconstructs the sonic environment of urban Cuba as it was immediately following the recent liberalization of policies toward small businesses. The installation's six loudspeakers present voices of *pregoneros*, within sparse sound design, to evoke the antiphony of the ancient phenomenon of street vendors calling out to attract business. The remaining four loudspeakers in the installation play audio from video projections depicting *pregoneros* at work.

Pregóns

True Bread had its genesis in a series of field recordings made while visiting my sister-in-law in Mantanzas, Cuba. Having frequented the island since 1986, I was accustomed to a society with virtually no private business and consequently a void of advertising. Of course the black market thrived under the radar with muted vendors traveling door-to-door to pedal their wares, sometimes naming products in code. Around 2011, when they re-emerged on the streets following a loosening of Cuban policies, the *pregoneros* instantly transformed the soundscape of Cuba, creating an ongoing musical theater using idiosyncratic vocal marketing strategies.

The first vendor that I came across at that time was pedaling a homemade cart and singing in a tenor voice, "Soft bread. Really soft. Crackers. Large crackers." Another vendor sold a liquid concoction that he claimed killed ants, cockroaches and mothers-in-law. One *pregonero* in Havana imitated the sirens and alarms of the car security systems that he sold. Another sang with a voice reminiscent of the famous singer Celia Cruz. Each *pregonero* performs a highly personal chant with a sense of spontaneity that is absent from the formulaic music and commentary that dominates the island's airwaves.

I was compelled to develop the visual component of *True Bread* when I found a *pregonero* delivering his bread using a "readymade" Styrofoam box mounted on a dilapi-

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dated wheelchair. His chant proclaimed that he is bringing “the true” bread. The image of capitalism arriving on a wheelchair, far in advance of the recent normalization of U.S.–Cuban diplomatic relations, could not have been more striking.

Llegoo Fefa

Prior to creating *True Bread*, I created *Llego Fefa* (2012) in collaboration with my wife, Cuban artist Maria Magdalena Campos-Pons, for her homecoming exhibition at Casa de las Americas in Havana. *Fefa* stands for “Familia Extranjera, Family Abroad” and is stamped on the passport of Cubans living outside of the country. Within Cuba the *Familias Extranjeras* have limited rights and share an influx status as do *pregoneros*. For *Llego Fefa*, we invited the *pregoneros* to sell their chosen products, plastic flowers, peanuts and imitation Chanel No. 5, and also promoted the arrival of a mythical character “Fefa,” who was invented and enacted by Campos-Pons. Apparently, the *pregoneros’* black market image had not yet faded at that time, and our performance was interrupted by the arrest of a *pregonero* for selling Chanel outside the gallery.

The idea of providing a forum to reverse the negative image of the vendors stayed in my mind. For the 11th Havana Biennale we created a performance called *Llegoo Fefa* (2012) that we presented during the opening of the Biennale at the Wifredo Lam Center. The performance was loosely fashioned after “American Idol” and included *pregoneros* from the Casa event and a jury of respected music specialists. Introducing what to my knowledge was the first *pregonero* competition, I detailed how they revived an iconic cultural practice and how growing up in the United States I knew of the *pregoneros* long before I had heard of Cuba—due to Louis Armstrong’s version of the iconic Cuban song “El Manisero” (The Peanut Vendor) in which Armstrong sings the part of a Cuban *pregonero*.

Without mentioning the antagonistic diplomatic relations between Cuba and the United States and the trade embargo specifically, *Llegoo Fefa* suggested the need for family reunification, international cooperation and mechanisms to enable growth of small businesses. The day before the competition there were attempts to censor a companion installation that we had created, but to my surprise the *pregonero* competition was reported on the front page of



Fig. 2. Neil Leonard, *Pregonero* in Mantanzas, Cuba, such as those featured in *True Bread*, sound installation, 2013–2014. (Photo © Neil Leonard)

the national newspaper and was later recreated on national television. The collaborating *pregoneros* told us that the performance helped legitimize their practice and stop the police harassment.

True Bread’s composition and diffusion strategy came from a presentation at the Cuban pavilion of the 55th Venice Biennale at the Museum of Archeology, Piazza San Marco. This mixed media installation, entitled $53+1=54+1=55$. *Letter of the Year* (2013), featured *pregonero* chants and interviews with Cubans describing the economic and material support they would like from family abroad. I used their voices to create a sonic map of urban Cuba, projecting the voices via 18 bidirectional, custom-made speakers, each emitting sound in two discrete directions, creating a total of 36 sound sources. The piece was suggestive not only of the antiphonal sound of Cuba but also of the innovations carried out in 16th-century Basilica San Marco, where composers of the day, such as Adrian Willaert and Giovanni Gabrieli, specified site-specific placement of instruments and voice in their musical scores for the first time in Europe.

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BLACK FIELD PLATES: EMERGENT ECOLOGIES IN SONIC ART

Nathan Thompson

ABSTRACT *Black Field Plates* (2014) is a series of sound installations. The series is an investigation into the politics of emergent sound composition. By imitating the ways in which natural systems organize matter, these sound installations self-organize sound and compose music.

Musicians have long drawn inspiration from the natural world. Predetermined musical structures are used to fit the fluid and complex sounds of the natural world into patterns of discrete pitches and durations. The origins of Western music can be traced to the harmonic relationships Pythagoras derived from the hammering of blacksmith’s anvils. In

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Fig. 3. Nathan Thompson, *Black Field Plates*, sound installation, steel, fur, effects pedals, speakers and piezo transducers, 2014. Shown here at Audio Foundation, Auckland NZ, September 2014. (© Nathan Thompson)

order to create his musical system, Pythagoras separated sounds from their materials and divided them into mathematical ratios. This separation of sound from its materials created a political division between noise—defined as the sounds of the world—and music, which adhered to discrete mathematical ratios. The works I have created in the series *Black Field Plates* (2014) challenge this exclusionary politics with emergent systems that generate audio feedback from basic materials such as steel, electricity, copper, piezo crystals and standard effects pedals. The process is a political one in which the power of the composer is redistributed from a predefined and hierarchical musical structure to an adaptive material system. The emergent sonic ecologies of *Black Field Plates* challenge the use of predesigned musical systems as the only way to produce music.

Composed of suspended black steel plates in two sizes, each installation consists of multiple audio feedback systems placed in dialogue with one another (Fig. 3). The installation as a whole models the complex behavior that can arise from simple materials and electricity. The works in the series explore relationships among feedback, systems of self-organization, nature and sound. The plates are paired: One plate contains a speaker resonator and the other a piezo transducer. Together these form vibrating plate speakers and reverberant microphones. The plates form compositions that respond to movement within the environment, including movements in the air, talking and incidental noises. The sets of plates are augmented by a variety of tuned phaser and effects pedals that break the feedback into adaptive rhythms and patterns.

Black Field Plates sits within an expanding lineage of musical compositions that use feedback to connect materials and environment. Alvin Lucier's *Vespers* (1968) employed sonar location technology to create a composition that maps an environment with sound, drawing attention to nocturnal navigational processes associated with bats. Lucier's work challenges the politics of traditional musical notation by replacing a musical system with a communication system. David Tudor's electronic works replace musical notation with meticulously tended networks of electronics. Nicolas Collins's work *Pea Soup*

(1974) produces an adaptive composition from a combination of audio feedback and phasing effects that sonically mutates beyond its score. More recently, Usman Haque's *Evolving Sonic Environment* (2009) presented an interactive sonic environment that built a representation of its occupants through a network of sound and sensors. This work also draws from its environment in a way that moves beyond traditional musical structures. These works rely on a systems-based approach to composition that is grounded in the interactions that connect us to the natural world. Haque specifically references the work of cyberneticist Gordon Pask, who was one of a number of mid-century cybernetic researchers to explore the adaptive processes that composed the biological, social and physiological worlds via material systems.

Pask's *Musicolour* (1953) operated within theater environments and engaged participants and observers in symmetrically adaptive relationships. The music in *Musicolour* was not specifically controlled by a composer, a device or the audience; rather, it was self-organized directly from a recursive environment composed of light, sound, simple electronics and human interaction. Pask's work built on that of other cyberneticists, including Ross Ashby and W. Grey Walter. Ashby's *homeostat* (1948) modeled biological processes and self-stabilizing physiological processes; Walter's *Machina speculatrix* (1948/1949)—robots that resembled tortoises—demonstrated how emergent behavior could be modeled by small groups of wheeled robots armed with little more than a series of simple recursive electronic processes. Pask, Ashby and Walter each presented devices designed to facilitate emergent activity beyond their physical designs.

Emergent material systems connect both cybernetics and experimental music to ecological systems. Emergent compositions, whether they are formed within cybernetics or experimental music, do not rely on instruments for their composition; instead they form music from the connections between elements in the system. Emergent compositions, such as *Black Field Plates*, are systems built from the ground up, and their operations are directly linked to their material constructions. The construction of *Black Field Plates* generates indeterminate behavior—a connection to nature that was explored extensively by John Cage [1]. Cage's replacement of musical systems with indeterminate systems associated with nature is no less political today than it was when he first conceived of it. In this context, the adaptive nature of *Black Field Plates* challenges composers to think beyond the constraints of pre-structured musical systems.

The *Black Field Plates* series explores connections between nature and adaptive systems by grounding them in the interactions between simple physical materials. Some installations of the *Black Field Plates* have used a linked double feedback loop that produces a kind of dynamic stability in sound. In these cases, the two plates are networked so that when one speaker-plate combination increases in volume, the other draws energy from it, creating a shifting dynamic equilibrium. Using stiff wires that create an

additional physical connection between the speaker cones and the plates can add further sonic complexity.

Emergent compositional systems de-emphasize the role of the composer by integrating his/her role within the wider context of the environment, blurring the boundaries among the composer, the environment and live performance. The adaptive processes that compose the natural world provide a rich resource for musicians and offer a challenge to determinate musical structures. By using simple networked materials, sound generated by *Black Field Plates* produces complex emergent ecologies of sound that intrinsically link audience, composer and architecture—organizationally and materially—to the environment.

Reference

- 1 Benjamin Piekut, "Chance and Certainty: John Cage's Politics of Nature," *Cultural Critique* 84 (Spring 2013) p. 134.

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SOUNDSCAPES OF THE POST-SOVIET WORLD TODAY: RESOUNDING LITHUANIA

Sandra Kazlauskaitė

ABSTRACT *Soundscapes of the Post-Soviet World Today* is an ethnographic sonic art project that aims to reveal the soundscapes of contemporary post-Soviet countries. In this statement the author presents the project's first case study: the soundscapes of Lithuania.

An ocean of sound relentlessly pulsates, vibrates and resonates in and through our bodies. Some sounds remain unexplained, unidentifiable, mystical and unrecognizable, while others find their source and origin, thus becoming visible. Most are heard; however, not all are attended or listened to. As a practicing sound artist and a researcher of sonic environments, I search for noises, hidden sounds and silences buried under the dominance of the visual—flashing lights, digital images, billboards and faces. I search for sound in order to inspect and define my immediate territory and embody new meanings. I choose to close my eyes, exit the audiovisual complex, locate and sustain the discovered sound objects, and patiently wait for the sounds to reintroduce me to soundscapes that compose the contemporary world. With this in mind, I began my search for

a sonic world that is an integral part of my social identity and artistic essence: the post-Soviet bloc.

Lithuania, a country that faced harsh political, economic and social clashes during World War II, lost its independence in 1944 and became a part of the Soviet Union, where its identity remained until 1991. In wartime, Lithuania was a noisy place; sounds of military, machinery, political resentment, social injustice and the partisan resistance movement were audible. However, during the postwar period of its occupation, the country's voice was slowly muted and assimilated by the oppressive voice of the occupying forces. Since the dissolution of the Soviet Union, Lithuanian landscapes have been gradually acclimating to the aural constructions of the West, consequently obscuring the gap between Western and post-Soviet urban and rural soundscapes. Here I present a selection of field recordings from *Soundscapes of the Post-Soviet World* to showcase the modern soundscape of Lithuania.

Soundscape #1: Town Suburb

In creating this soundscape, I was located in a small Lithuanian suburb, facing a sonic landscape that encompasses the echoing bark of animals, a resonating electric hiss, the sound of snow on gravel roads, creaking metal, reverberating tones of populated rooms, gardens, television sets, record players and voices—a cacophony of natural and mechanical human-made sounding events.

Soundscape #2: Living Room

Sonically, the household in this recording reveals a dissonance of internal and external voices, incidental unidentifiable sounds, sonorous ambience composed of mechanical objects and musical noises that interrupt the spoken words. Language shifts from Lithuanian to Russian; words resonate, bounce back and then shift again. Suddenly, language becomes secondary; it is all noise and vibration that melts into discordant aural accidents.

Soundscape #3: Laisvės Alėja (City Centre)

Once a buzzing, raucous sounding space full of voices, conversations, background noises, hums and roars, the city center is now a place of sonic abandonment: The central department store now resembles a construction site; the fountain has become a pile of rust, ice and mold. The place produces minimal incidental noises; some mechanical, some organic in nature. The place has lost its sonic time. It is deserted; sporadic voices and muffled footsteps become audible at points; however, the overall sonic landscape lies there still, filled with minor harmonies.

Soundscape #4: Public Transport

This short but compelling aural event recorded in a minibus in Lithuania captures a combination of radio sounds, car-induced mechanical sounds and leading vocal parts of two individuals. A somewhat existential, yet banal, conversation between two strangers becomes melodic in nature; it forms a special sonic space that is shared with the rest

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The full project sonic library can be accessed at <sandra.unmute.co.uk/projects/post_soviet_soundscapes.html>. See also <mitpressjournals.org/toc/lmj/-/25> for audio, video and other supplementary files associated with this issue of LMJ.



Fig. 4. Sandra Kazlauskaitė, Curonian Spit National Park, Nida, Lithuania, where *Soundscape #5: Nida Airport, Lithuania* was recorded. (© Sandra Kazlauskaitė)

of the minibus audience. The minibus presents itself as an exclusive, private space where secrets can be shared.

Soundscape #5: Nida Airport

The sonic image of this piece escapes the urban soundscape—it evades/flees noise pollution (Fig. 4). The silent environment foregrounds sounds that are usually ignored. In this extreme soundscape, we cannot identify any human voices, movements, screams or machines. Instead, the acoustic environment is filled with natural life: voices of the sea, moving trees and wind. A sudden realization follows—the industrial world has not entirely receded. The low-frequency humming of ship and port noises invade the listener's ears, and we surrender back to the

contemporary landscape. Ultimately, nature cannot escape the industrial noise.

The Cacophonous Landscape of Contemporary Lithuania

While trying to determine Lithuania's newly transformed sonic identity, I have so far discovered a sonic landscape that appears to be more ambiguous than initially expected—an environment surrounded by nonlinear, disparate sounds, where the notion of sonorous independence is yet to be embodied. The new conditions of contemporary culture have neutralized the national soundscape: Sounds of religion, tradition and rituals are dissipating. Fables, myths and sonic constructions of tradition are contained within dedicated, separated spaces and tend not to leak to public consumerist spaces or even rural environments. Sonically, I face a world of contemporary capitalism and urban noise production: sounds of consumption, electricity, networks, connectivity, automation and labor power. This soundscape is not stable or linear but fragmented, malleable and constantly evolving, according to the unspoken laws of capital. Such a construction produces a hybrid sonic environment that has yet to find its identity.

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Return to SOURCE

Contemporary Composers Discuss the Sociopolitical Implications of Their Work

ALYCE SANTORO

ABSTRACT

During the heat of the fraught political climate of 1969, the editors of *SOURCE: Music of the Avant Garde* invited 20 innovative composers and musicians to respond to a single question: “Have you, or has anyone, ever used your work for political or social ends?” Forty-five years later the author posed the same question to 20 unconventional composers working today, resulting in a provocative contemporary update to the original 1969 *SOURCE* article.

Between 1967 and 1973, over the course of just 11 issues, multimedia magazine *SOURCE: Music of the Avant Garde* established itself as a wellspring of information and inspiration for those engaged in sound-oriented arts. Edited by a consortium of practitioners with ties to the University of California, Davis, each issue—published in an edition of 2,000 copies—consisted of an oversized spiral-bound bundle of graphic scores, vinyl records [1], articles and artworks by pioneering musicians and composers of the day.

Original copies of *SOURCE* are rare, but its spirit lives on in many forms (including *Leonardo Music Journal*, in print since 1991 [2]). A *SOURCE* anthology edited by Larry Austin and Douglas Kahn was published in 2011 [3], but a “live” encounter with an original issue of *SOURCE* is a multimedia phenomenon unto itself: Among the memorable features were Jon Hassell’s MAP2, a 6-inch square of recorded cassette tape to be “realized” with a handheld magnetic playback head in Issue No. 5; John Cage’s *Not Wanting to Say Anything About Marcel*, *Plexigram IV*, consisting of word fragments silkscreened on eight sheets of acetate in Issue No. 7; and Nelson Howe’s “Fur Music,” a piece in four “movements” for fingertips on patterns of faux fur glued to the pages of Issue No. 9.

The cover of Issue No. 6 features a photograph of a machine gun resting atop a bucket stuffed with reams of blank

orchestral manuscript paper shot through with bullet holes. The image is a still from the creation of Dick Higgins’s “Symphony #585.” A single page of the gunshot-riddled score, a one-of-a-kind artifact, is bound into the magazine as its first leaf.

According to the introduction to the first article in Issue No. 6 (released in July 1969), the editors of *SOURCE* had been struck by the overwhelming number of submissions influenced by the political and social conditions of the day, and as a result decided to dedicate the issue to explorations of the subject. As a feature of *SOURCE* No. 6, the editors invited composers to expound upon the question: “Have you, or has anyone, ever used your music for political or social ends?”

The resulting article features responses by 20 composers: Harold Budd, Robert Ashley, Robert Moran, Daniel Lentz, David Tudor, Jerry Hunt, Barney Childs, Dick Higgins, Phil Winsor, Roger Reynolds, Terry Riley, John Cage, David Behrman, Charlotte Moorman, Steve Reich, James Tenney, Andrew Stiller and Lukas Foss provided their responses via phone interviews; Morton Feldman and Frederic Rzewski responded by way of previously written essays—Feldman with his essay “Neither/Nor” and Rzewski with “Parma Manifesto” [4]. Replies varied in length from a few sentences to several paragraphs and fell along the spectrum between “no, not at all” (Barney Childs and David Tudor) and “yes, absolutely” (Daniel Lentz, Charlotte Moorman and James Tenney) [5].

In response to the *Leonardo Music Journal*’s call for papers for *The Politics of Sound Art* special issue, I was inspired to pose the question once again to unconventional composers working today, two of whom—Terry Riley and Frederic Rzewski—answered the question 45 years ago, and six more of whom—Pauline Oliveros, Alvin Curran, Annea Lockwood, Jon Hassell, Christian Wolff and Larry Austin (an editor of *SOURCE* and an instigator of the original article)—had works published in *SOURCE* on other occasions. I contacted these composers first, along with artists with whom I have personal relationships. Several of the initial round of

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respondents generously suggested colleagues, whom I subsequently invited to contribute to the project. The new article, inspired by the original 1969 one in *SOURCE* and featuring the responses of 20 contemporary composers [6], is available in full online at <mitpressjournals.mit.edu/toc/lmj/-/25>.

Larry Austin replied to the question on behalf of *SOURCE* as a whole:

SOURCE came into being as a statement, political and social, and most of the pieces and articles that were included in every issue had such a bias. So, Yes!

References and Notes

- 1 An archive of *SOURCE* sound files is available at <www.ubu.com/sound/source.html>.
- 2 Of particular relevance here is *Leonardo Music Journal* 9 (1999), "Power and Responsibility: Politics, Identity and Technology in Music." Frederic Rzewski's 1969 "Parma Manifesto" was published in this issue, pp. 77–78.
- 3 Larry Austin and Douglas Kahn, eds., *SOURCE: Music of the Avant-garde, 1966–1973*, (UC Press, 2011).
- 4 Rzewski [2].
- 5 The original *SOURCE* article is available online in its entirety at <www.alycasantoro.com/politics_of_sound_art.html>.
- 6 The 20 contemporary composers featured in the article are Pauline

Oliveros, Terry Riley, Annea Lockwood, Kristin Norderval, Rinde Eckert, Billy Martin, Jon Hassell, Anne LeBaron, Elliot Sharp, Brenda Hutchinson, Stuart Dempster, John King, Rhys Chatham, Pamela Z, Ben Neill, Alvin Curran, Frederic Rzewski, Ben Barson, Christian Wolff, and Laurie Spiegel.

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ALYCE SANTORO is a conceptual artist whose work often mixes the sonic and visual. Her "philosoprops"—multimedia devices used to illustrate an idea—include Sonic Fabric, an audible textile woven from cassette tape recorded with intricate collages of sound, and Graphic Charts of the Modes Commonly Used in Western Music. More information is available at <alycasantoro.com>.

Cantos Cautivos

Online Archive of Songs of Political Captivity in Pinochet's Chile

KATIA CHORNIK

ABSTRACT

Cantos Cautivos (*Captive Songs*) is a recently launched online archive of songs created, performed and listened to in the context of political detention and torture in Pinochet's Chile (1973–1990). This article contextualizes the project, provides an overview of the archive's current materials, outlines a selection of challenges, and highlights its contributions of music, accounts and documentation.

Cantos Cautivos (www.cantoscautivos.cl) is an online archive that I have conceptualized, created and managed to compile songs that were written, sung and listened to in political detention and torture centers in Chile during Pinochet's dictatorship (1973–1990). The Chilean Museum of Memory and Human Rights and ex-prisoners were my associates in developing this project, which also includes the stories behind the songs. *Cantos Cautivos* is the first online archive of music and state violence from all contexts that uses crowdsourcing to compile its content. It is also the first online resource providing content related to music and dictatorship in Latin America.

Launched in January 2015 and now permanently hosted by the Museum of Memory, *Cantos Cautivos* is an ongoing project that is part of my broader Leverhulme-funded research project "Sounds of Memory: Music and Political Captivity in Pinochet's Chile," which investigates connections between music, human rights, testimony, cultural memory and commemoration, and involves ethnographies of both victims and perpetrators of human rights violations. In this article, I contextualize the *Cantos Cautivos* project, provide an overview of the content it currently hosts, outline a selection of challenges I have encountered, and highlight its contributions.

The main reason for developing the archive is the need to collect music and accounts of music from survivors as quickly and from as many sources as possible. The task is

vast—there were over 1,000 political detention and torture centers during Pinochet's dictatorship [1]; and the time to collect materials is very limited—it is estimated that over half of the survivors have already died [2].

Each *Cantos Cautivos* entry is linked to the museum's interactive site *Recintos* [3], which provides details of the detention centers identified by the Valech Commission [4]. Entries that refer to prisoners who disappeared and prisoners who were executed are also linked to the museum's site *Victimas* [5], containing records from the Rettig Commission [6]. *Cantos Cautivos* users are thus able to access information about the precarious conditions and repression under which the prisoners developed their musical creativity.

At the present time, approximately 20% of the archive's entries contain accounts of composing in detention, while 45% contain accounts of performing, and 35% contain prisoners' accounts of listening to music performed live by fellow prisoners, played on records or broadcast on the radio. Among the archive's most unique materials are several recordings from Chacabuco concentration camp, made while the musicians were detained.

Most of the accounts collected to date relate to activities initiated by the inmates; a small number are concerned with music used by the system as indoctrination, punishment or torture during detention. The archive contains songs from a range of countries (Argentina, Bolivia, Chile, the former Yugoslavia, Ecuador, Germany, Italy, Mexico, Spain, the Ukraine, the U.K., Uruguay, the U.S. and Venezuela), covering a range of popular genres (Nueva Canción, tango, bolero, cumbia, ranchera, romantic ballad, easy listening, rock, pop, blues, chanson, cabaret, music from films, anthems, military marches and pieces from the conservatory tradition).

We received the largest number of contributions around the project's launch date at the Museum of Memory, coinciding with wide national and international press coverage. At present, the archive holds materials relating to detention centers located in six of fifteen regions of Chile: Tarapacá, Antofagasta, Metropolitana (Santiago), Valparaíso, Bío Bío and Magallanes. Most of these contributions are from ex-

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The *Cantos Cautivos* archive is available at <www.cantoscautivos.cl>.

prisoners currently living in the capital, which suggests that information about the project has not been effectively disseminated in the provinces. The lack of contributions from the remaining nine regions may also be due to ex-prisoners living in the provinces feeling unmotivated or excluded from participating in a project hosted by an institution based in the capital.

The current status of the project highlights the need to engage with potential contributors face-to-face, particularly with those living in regions that are still unrepresented in the archive. Other factors that make crowdsourcing challenging for this project are technological gaps and limited IT access among ex-prisoners, issues associated with the institutionalization of memories, and the range of psychological barriers imposed by the archive's format, which may become substantially more significant in situations involving trauma. As ex-prisoners are encouraged to send their experiences in written form, they are solely able to employ propositional

language, as a result of which prosody and nonverbal communication cannot be conveyed, and subjectivity diminishes or disappears.

Despite these difficulties, the project has been successful in obtaining and exhibiting valuable materials that were previously unknown. The website has had a steady number of visitors from all continents (with about 20,000 hits in the first three months, and subsequently approximately 2,000 per month) and has generated wider debates on political violence—particularly through reader forums at online media outlets. I expect that *Cantos Cautivos* will be utilized in future research and other areas of educational activity. For example, it is now being promoted as a classroom resource among teachers attending the University of Chile's course in Education, Memory and Human Rights. Above all, *Cantos Cautivos* constitutes an act of retribution to the heritage of Chile and, particularly, to the community of victims of the Pinochet regime.

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- 2 This estimate is based on available statistics on prisoners' age at the time of detention, which mostly occurred in 1973–1976. At that time, 25.4% prisoners were 31–40 years old and 12% were over 41 years old. See [1] p. 562.
- 3 Recintos: <190.98.219.232/~interac/recintos/> (accessed 29 May 2015).
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KATIA CHORNIK is a Leverhulme Early Career Fellow at the University of Manchester, U.K. She specializes in music and political conflict, Latin American popular music and music in literature. Her forthcoming monograph *Alejo Carpentier and the Musical Text* discusses the role of music in the writings of the Cuban writer, musicologist and music journalist Alejo Carpentier (1904–1980). Her research on music and political captivity in Pinochet's Chile has received wide national and international attention through print, radio, TV and online press coverage, as well as her own contributions to media outlets including the BBC, The Guardian and Al Jazeera.

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Sonic Commentary: Meaning through Hearing

CURATED BY *Lukas Ligeti*
Leonardo Music Journal
Audio Series Volume 25

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Sonic Commentary: Meaning through Hearing

AS AN ARTIST working with sound and an individual whose family history was shaped by historical and political circumstances in Central Europe, I should find “The Politics of Sound Art” a highly relevant topic—and I do, although I wonder what this title actually means.

Wikipedia, not necessarily a source of reliable information, defines “music” as “an art form whose medium is sound and silence.” Is “sound art,” then, a form of music that does not include the possibility of silence? Initially, that seems like an absurd notion. But when listening closely, we must admit that there is no such thing as absolute silence, as even John Cage, whose emancipation of sounds hitherto not considered “musical,” was crucial in enabling the emergence of sound art as a distinct art form, readily admitted. And thus sound art is, perhaps, really that form of music that does not include silence. As we consider sound a phenomenon in and of itself, not created for the purpose of music per se and yet available as a compositional tool, the sheer act of listening embarks us on a search for meaning.

Yet what is the “Politics” of sound art? The artistic framing of political agendas by means of sound? Aural agit-prop? Discourse on the politics and intrigue among and between sound artists?

In my choice of artists and pieces for this compilation, I hope to address various possibilities. I contacted as diverse a set of living, active artists as I could, and looking at the featured pieces, interesting parallels emerge. A product of our modern, technology-driven age, sound art tends to appear more globalized than localized in its aesthetic conventions. Yet the U.S.-based contributors, Burtner and Ibarra, both focus on nature—might that be due to the historical disconnect between art and politics in a country with no ministry of culture and no official cultural agenda on the part of government? Or perhaps it is related to that country’s deficit in certain aspects of environmental consciousness, which artists are trying to raise? The South African contributors, Orecchia and Webb, on the other hand, tell stories about urban space: perhaps that’s no coincidence in a country where ethnic

groups were geographically segregated during apartheid, and where the division of agricultural land and the desegregation of cities remain hotly discussed topics? Might Adachi’s Twitter mashup be indicative of Japan’s symbiotic relationship with technology, as Hujairi’s reflection on pedagogy in Bahrain may represent a region where religious fundamentalism and enlightenment are engaged in a struggle for power in education and everyday life? Is Huber’s nihilistic piece a response to central Europe’s obsession with intellectuality and social criticism in art, where populist complacency is felt to harken back to an epoch of genocide? And does Ogboh’s soundscape show how music is connected to African social and political life by demonstrating the musicality of everyday sounds of Lagos, putting in question the delineation between deliberate and accidental music?

These interpretations are certainly questionable, but not unreasonable. Yet it also seemed important to me to include pieces where sound evokes politics and history, without concrete references. The pieces by López and edGeCut are examples of this.

What, then, can we conclude about the “Politics of Sound Art”? Perhaps that’s a question best left unanswered so as to recognize the breadth and diversity of how sound and music can speak of politics today—for better or worse, good or evil.

LUKAS LIGETI

LMJ25 Audio Curator

LUKAS LIGETI is a composer, improviser and sound artist whose music explores new directions in rhythm and timbral and cultural juxtaposition. He has been commissioned by Bang On A Can, the American Composers Orchestra, Kronos Quartet and the Goethe Institute and has performed with John Zorn, Marilyn Crispell, John Oswald, George Lewis, and others. An innovator in experimental intercultural collaboration, he co-leads Burkina Electric, the first electronica band from Burkina Faso, and has collaborated with artists around Africa. He is Assistant Professor of Music at the University of California, Irvine. See <www.lukasligeti.com>.

Sonic Commentary: Meaning through Hearing

CURATED BY *Lukas Ligeti*

See mitpressjournals.org/toc/lmj/-/25 for full access to the LMJ25 audio tracks.

ADACHI TOMOMI: TORTURING TWITTER (5:59)

Contact: Adachi Tomomi. Email: <atomo@adachitomomi.com>. Web: <www.adachitomomi.com>.

Performed by Tomomi Adachi at the IMRC Center at the University of Maine, 30 September 2014. Recorded live by Duane Shimmel. This performance was made possible in part through the support of the IMRC Center at the University of Maine at Orono.

Torturing Twitter is an Internet-based interactive performance in which I read and sing a real-time stream of several Twitter hashtags and search words in a destructive way. Some hashtags are used consistently in performances of the piece: #power, #war, #cooking and #sex. Additional interim hashtags and search words are also added. The Twitter timeline works as a real-time text generator or live score for the performance. The timeline is an epitomical text of people's thoughts, politics and society that does not discriminate between public and private. The performance is a radical and funny cut-up of a textualized world.

During stage performances, the Twitter timeline is projected on a screen, and the audience is encouraged to send tweets in real time—as was the case in this recording. When the performance is broadcast live (for example, WFMU hosted the performance on 10 October 2014), some hashtags are announced beforehand. In performance I read English and Japanese but also try to read other languages and non-languages.

Conceptually, *Torturing Twitter* is an updated version of an older performance piece *Newspaper Singing*, which I performed frequently in the mid-1990s and in which I freely read and sung a newspaper of the day. Since Twitter is faster and more unpredictable, the swamped speed and inevitable lack of preparation are important aspects of the performance.

TOMOMI ADACHI, born in Kanazawa, Japan in 1972, is a Berlin-based performer, composer, sound poet, installation artist, and occasional theater director. He studied philosophy and aesthetics at Waseda University in Tokyo. He has played improvised music with voice, live electronics and self-made instruments. He had composed works for his own group "Adachi Tomomi Royal Chorus," which is a punk-style choir. He has performed contemporary music: vocal, live-electronics or per-

formance works by John Cage, Cornelius Cardew, Christian Wolff, Tom Johnson, Dieter Schnebel, Takahashi Yuji, Yuasa Joji and Fluxus, including world premiere and Japan premiere of Cage's Variations VII, Europera 5 and Waterwalk. He performed Kurt Schwitters's Ursonate for the first time in Japan. He has made several sound installations and original instruments (e.g. "Tomomin," a handmade electric instrument familiar to many musicians). In the field of theater music, he has collaborated with experimental theaters and dancers. He also has organized many concerts of experimental music, sound art, collaboration work and interdisciplinary performance in Japan and Germany, including concerts with Chris Mann, Trevor Wishart, Nicolas Collins and STEIM. He founded the "Ensemble for Experimental Music and Theater" with his students in Tokyo in 2011, to work with pieces by Fluxus and recent conceptual composers.

Adachi has given lectures at Tama Art University, Yotsuya Art Studium, School of the Art Institute of Chicago, Mills College, Bard College and London College of Communication. As a critic, he has written about visual art, music and performance art in papers and magazines. He had participated in an art theory bulletin "Method" 2000–2001. He stayed in New York 2009–2010 as an Asian Cultural Council grantee, and he was awarded the DAAD invited composer for Berlin 2012. His CDs were released from Naya Records, Tzadik and Omegapoint.

Recently, he has been focusing his activities on solo performance (with voice, sensors, computer, self-made instruments), sound poetry, video installation and workshop-style big ensemble with nonprofessional voices and instruments.

FRANCISCO LOPEZ: UNTITLED #333 [FOR A+A] (6:02)

Contact: Francisco López. Web: <www.franciscolopez.net>.

Created at "mobile messor" (Den Haag), July 2015.

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FRANCISCO LÓPEZ is internationally recognized as one of the major figures of the sound art and experimental music scene. Over more than 35 years he has developed a sonic universe, absolutely personal and iconoclastic, based on a profound listening of the world. He has realized hundreds of concerts, projects with field recordings, workshops and sound installations in over 70 countries of the six continents. His extensive catalog of sound pieces (with live and studio collabo-

rations with over 150 international artists) has been released by more than 350 record labels/publishers worldwide. He has been awarded four times with honorary mentions at the Prix Ars Electronica festival competition and is the recipient of the Quartz Award 2010 for best sound anthology.

HASAN HUJAIRI: 10000 SIMPLE STEPS TO PERFECTLY DRAW AN ARABIAN HORSE (9:31)

Contact: Hasan Hujairi. Email: <info@hasanhujairi.com>. Web: <hasanhujairi.com>.

Electronics and *yangeum* by Hasan Hujairi, voice samples taken from YouTube <<https://youtu.be/eXKjsV7w8QM>>, Seoul, South Korea, November 2014.

This work originally appeared in a sound installation that was presented in the *NEVER NEVER LAND* group exhibition at the Edge of Arabia Gallery in London in November 2014. The work involved audience members sitting at a school desk, putting on a pair of headphones, and attempting to draw an Arabian horse according to the instructions embedded in the recording to which they were listening. The following text was attached to the installation:

Arabian horses are beautiful. Everyone knows that if you can draw an Arabian horse then you are a true artist. It is very easy to draw an Arabian horse using a pencil and an eraser. Listen closely to these simple instructions and you too will be among the elite artists of the world. Imagine how popular you could become if you can draw an Arabian horse without even seeing one in front of you.

The focus of the work on Arabian horses is a commentary both on national-narrative kitsch and art education as a whole. The source of the voice heard in the work is a YouTube video of a boy from one of the Arab Gulf states giving instructions (in accented English) for how to draw a horse. When I first saw the video, I remembered how upset I felt in my art classes when I was in elementary school just because we were forced to draw horses all the time. I remember our art teachers praising the students who drew horses according to their instructions, while I was sometimes scolded for expressing my dislike for this odd exercise (although I enjoyed drawing whenever we were allowed to draw anything else). The work also includes sounds from my early attempts at practicing the *yangeum* (Korean hammered dulcimer), which I was learning to play at the time of the recording. Again, this is related to the idea of music/art education and what is expected of a student.

HASAN HUJAIRI (1982) is a composer, sound artist and researcher from Bahrain based in Seoul, South Korea. His performances and installations often build on his “post-esoteric (oriental) art music manifesto” (2011). He is presently pursuing his DMA in Korean Music Composition at Seoul National University’s College of Music. Hasan’s academic background includes a BSBA in Finance from Drake University (Iowa, USA) and a Master’s degree in Historiography from Hitotsubashi University (Tokyo, Japan). He acted as curator at Al-Riwaq

Art Space (Bahrain) and is involved in other independent art initiatives in Bahrain. Hasan is also an active oud player.

MATTHEW BURTNER: SIX ECOACOUSTIC QUINTETS, NO. 1: WATER (ICE) (4:47)

Contact: Matthew Burtner. Email: <matthew@matthewburtner.com>. Web: <www.matthewburtner.com>.

Composed by Matthew Burtner, 2011. Performed by Omar Carmentates, Stephen Bevels, Hannah Carlson, Rebecca McDaniel, Emily Salgado. Recorded by John Parks, Greenville, SC, U.S.A., 2015. Recorded with support from the Shi Center for Sustainability.

Ecoacoustics offers a methodology for integrating human action and environment into an art practice. Ecoacoustic techniques connect the musical systems directly to vital energy changes in the real world. The *Six Ecoacoustic Quintets* for percussion quintet combine percussion performance technique with natural materials and interactive acoustics. The percussionists play materials as musical instruments, and these sounds are amplified and processed by the computer. In each quintet I start with a dynamic material relationship such as water/ice or sand/stone and then design a methodology for navigating that transformation. In this way, the “instrument” encompasses both the material and its states of transformation. Each movement also expresses a dynamic human/nature interaction.

In *Quintet No. 1: Water (Ice)*, the percussionists gather around tubs of water with large chunks of ice suspended within. Hydrophones frozen inside the ice and suspended in the water capture the sound underneath the water and inside the ice. Air microphones above the water capture the sound of the water close to the surface. In this way the technology allows us to hear across the material threshold in a way we cannot with our normal hearing. The listener hears the sounds of the air, underwater and inside the ice simultaneously, observing how the human energy ripples through various hydrologic states of gas, water and ice. Four performers play the surface of the water, and one performer applies varying degrees of heat to the ice, which creates sounds of melting that are amplified through the microphones/computer. The performers then submerge resonant tubes into the water to capture the changes in the water as harmony. Finally, the performers segment the water into containers of different sizes and shake the containers like rattles.

MATTHEW BURTNER is a composer and sound artist whose work bridges human imagination and environmental systems. Born and raised in Alaska, he is a first-prize winner of the *Musica Nova International Electroacoustic Music Competition*, an *IDEA Award* winner and an *NEA Art Works Grant* winner. He directs the environmental arts nonprofit organization *EcoSono* <www.ecosono.org> and he is professor of composition and computer technologies (CCT) at the University of Virginia (www.virginia.edu). He has been an invited researcher at IR-CAM, provost fellow at UWM’s Center for 21st Century Studies and a Howard Brown Foundation fellow of Brown University.

JOÃO ORECCHIA: STORAGE 1896–2015 (4:00)

Contact: João Orecchia. Email: <info@joaoorecchia.com>. Web: <www.joaoorecchia.com>.

Composed by João Orecchia, Johannesburg, South Africa, 3 August 2015. Recorded at Old Fort, Constitution Hill, 11 Kotze Street, Braamfontein, Johannesburg. Eight separate recordings were played through speaker objects made of material found (stored) in the space and hung from hooks at different heights in one room.

The Constitution Hill precinct is located at 11 Kotze Street in Braamfontein, Johannesburg, near the western end of the suburb of Hillbrow. The original prison was built to house white male prisoners in 1892. The Old Fort was built around this prison by Paul Kruger 1896–1899.

Built into the northern wall of the fort are a series of rooms, concrete on all sides. The doors, no longer on their hinges, are stacked in the furthest room. They are thick steel doors with small sliding openings. Hooks hang from bars close to the ceiling in each room.

A long corridor leads to isolated rooms, mirrored below by identical rooms accessed via heavy wooden trap doors in the floor. There is a tunnel that leads from these rooms to the city morgue and the Hillbrow Police Station. The official story is that these rooms were used for file storage during apartheid.

Storage comprises recordings of these empty rooms; resonant frequencies are amplified in an attempt to call out from the dark empty spaces a felt presence.

JOÃO ORECCHIA is an artist who makes things with sound, in the form of music, installation, performance, pirate radio and events. Orecchia performs globally as a solo artist, as an improviser in various configurations and with his band Motèl Mari. His discography spans more than a decade of albums, remixes and film scores. Orecchia has coordinated, curated and co-written a large-scale public performance project called United African Utopias, which included over 40 performers guiding the public through an abstract universe superimposed over Johannesburg, examining the role of imagination and perspective in the creation of day-to-day reality. Another ongoing project, Invisible Cities, is a series of curated events that engage artists, musicians and the public in a collaborative, experimental spatial relationship with the city. Invisible Cities fleetingly inhabits transitional spaces, creating momentary realities and exposing hidden layers of possibility for what life in Johannesburg might be like with a bit of imagination. Born out of this is ICR / Invisible Cities [Pirate] Radio, which equally seeks to interrogate our relationship with the city by questioning established formats and practices of commercial radio.

EMEKA OGBOH: MONDAY MORNING IN LAGOS (4:19)

Contact: Emeka Ogboh. Email: <emeka@14thmay.com>. Web: <www.14thmay.com>.

Recorded and edited by Emeka Ogboh, Ajah Bus Station, Lagos, Nigeria, 2011.

Lagos is impossible to imagine without the Danfo bus, an old VW transporter painted cadmium yellow with two black

stripes. This is a simple description of a ubiquitous feature of the megacity. The Danfo bus is just another yellow bus until one experiences its peculiar sounds—be they different kinds of monophonic or polyphonic vehicle horns, bus conductors calling out bus routes, hawkers verbally advertising their wares, passengers' dialogues, monologues and various forms of self-assertion, or other occasional rhetoric of the city, all seemingly trapped temporarily in this mobile space.

Lagos bus stations, from which these Danfo buses depart, are sound driven: One has to rely on one's ears as the main medium for reading the cacophonous landscape. Visual signs for the destinations of the buses are sometimes lacking, and the endless sea of human traffic and countless yellow buses merging in and out obstruct one's vision. In these bus stations, visitors are not just potential passengers for the Danfo bus; they are also a potential customer to the hawkers selling everything imaginable—and most likely, they are potential benefactors to the occasional beggar soliciting alms in this space. *Monday Morning in Lagos* is an audio piece that captures a moment in time inside the Danfo bus while waiting for it to be filled with passengers. It is a documentation of how this space works and how different parties utilize it.

A Monday morning featuring the bus conductor, the navigator of Lagos bus routes, and an icon of the city's sonic map; a singing beggar, the persistent alms solicitor; and the bus passengers, the irritable audience and occasional actors in the Danfo theatrics.

EMEKA OGBOH works primarily with sound and video to explore ways of understanding cities as cosmopolitan spaces with their unique characters. His work contemplates broad notions of listening and hearing as its main focus. His sound recordings also consider the history and aural infrastructure of cities—Lagos, Nigeria, in particular. These Lagos recordings have produced a corpus of work entitled Lagos Soundscapes, which he has installed in different contexts. The installations often require a phenomenological immersion and an engagement with imagination and the imaginarily such that the viewer encounters Lagos without being physically present in it. Ogboh has exhibited both in Nigeria and in several international venues. They include the 56th International Art Exhibition of the Venice Biennale, Venice; Centre for Contemporary Art, Lagos; Dak'Art Biennale, Louisiana Museum of Modern Art, Denmark; Whitworth and Manchester city galleries; and Museum of Contemporary Arts Kiasma, Helsinki.

JAMES WEBB: LE MARCHÉ ORIENTAL (2:20)

Contact: James Webb. Email: <jameswebb@mweb.co.za>. Web: <theotherjameswebb.tumblr.com>.

Composed and recorded by James Webb, Cape Town, South Africa, 2008. Courtesy of the artist, blank projects, and Galerie Imane Farès.

This 2-minute intervention occurred inside Cape Town's disused Oriental Plaza, an apartheid-era shopping mall designed to control Cape Malay trade. On the fourth day of Ramadan, 2008, Sheikh Mogamat Moerat of District Six's

Zeenatul Islam Majid mosque was invited to sing the *Adhan* (call to prayer) inside the empty remains of the building a few weeks prior to its demolition to make way for luxury apartments.

District Six was one of the most politically charged areas in South Africa. Created as the Sixth Municipal District of Cape Town in 1867, its central location and proximity to the harbor made it the home of many merchants, freed slaves and immigrants. It was a racially mixed neighborhood comprising a high percentage of Malay people, brought, along with Islam, to the Cape Colony by the Dutch East India Company.

To quote art critic Rory Bester, “Part of the power of *Le Marché Oriental* is its located-ness in the machinations of apartheid’s distortions of space. When District Six was bulldozed, only the Moravian Chapel and the Zeenatul Islam Majid mosque were left standing. Cape Malay traders were clustered into an apartheid shopping mall called the Oriental Plaza. In asking the Zeenatul mosque’s Sheikh Mogamat Moerat to sing a call to prayer inside the derelict and about-to-be-demolished Plaza in 2008, Webb creates a poignant lament to the destruction that has gone before.” (*Art South Africa*, September 2012)

JAMES WEBB is a South African interdisciplinary artist based in Cape Town. His work, framed in large-scale installations in galleries and museums, or as unannounced interventions in public spaces, often makes use of ellipsis, displacement and détournement to explore the nature of belief and the dynamics of communication in our contemporary world. Webb is acclaimed for his sophisticated practice, which employs a variety of media, including audio, installation and text, referencing aspects of the conceptualist and minimalist traditions as well as his academic studies in advertising, comparative religion and theater.

SUSIE IBARRA: MIRRORS AND WATER (11:04)

Contact: Susie Ibarra. Email: <susieibarra@gmail.com>.

Composed by Susie Ibarra. Sound design by Wayne Grim. Recorded by Paul Howells. Performed by Min Xiao Fen, *pipa*; and Susie Ibarra, drum set and percussions. Animal sounds are of the 12 Chinese Zodiac Animals.

Commissioned for Ai Weiwei’s *Circle of Animals: Zodiac Heads*, for the Sculpture Trail at the National Museum of Wildlife Art, Jackson, WY, U.S.A., 1 July–11 October 2015. Courtesy of the National Museum of Wildlife Art.

Mirrors and Water is a music installation commissioned for Ai Weiwei’s *Circle of Animals, Zodiac Heads* along the Sculpture Trail of the National Museum of Wildlife Art. The piece is inspired by description of the original fountain clock of zodiac heads in Yuangming Yuan, the Garden of Perfect Brightness, as well as National Museum of Wildlife Art’s vision to merge an audience experience with nature. Eleven animals and one mystical animal sound are placed into the musical composition. For more information, see the YouTube link and description at the *Mirrors and Water* website, created for *Circle of Animals* and the Sculpture Trail at the National Museum of Wildlife Art at <WildlifeArt.org/weiwei>.

SUSIE IBARRA is a composer, percussionist and educator who creates live and immersive music that explores rhythm, Indigenous practices and interaction with the natural world. She is cofounder of digital music company *Song of the Bird King*, with an emphasis on cultural preservation of indigenous music and its ecology. Ibarra is a Yamaha, Paiste and Vic Firth drum artist.

Her recent work includes *Circadian Rhythms*, commissioned for Earth Day 2013 at RPI EMPAC, inspired by endogenous rhythms for 80 percussionists and 8.1 surround sound of Macaulay Library recordings; *The City*, a Radio Radiance commission for Young Peoples Chorus of New York City; *We Float*, a 2014 commission by Ecstatic Music Festival with singer-songwriter Mirah, a sonic retelling of space explorations; *The Cotabato Sessions*, a digital music film and album in collaboration with filmmaker Joel Quizon and National Heritage artist Danongan Kalanduyan that captures one family legacy of gong-chime music in Mindanao, Philippines; and *Digital Sanctuaries*, in collaboration with Cuban American composer/percussionist Roberto Rodriguez, interaction designer Shankari Murali and computer scientist Rommel Fera, a modular music app walk that remaps cities with sanctuaries of music, most recently installed in New York City and Pittsburgh. *Digital Sanctuaries* was commissioned by Lower Manhattan Cultural Council, New Music USA, National Endowment for the Arts, Artplace America and The City of Asylum, Pittsburgh. Susie Ibarra is a 2014 TEDSenior Fellow and a faculty member at Bennington College. She teaches percussion and performance and at the Center for Advancement in Public Action, with focused advocacy on human rights extended equally to women and girls and rebuilding cities with the arts.

EDGE CUT + DIFFUSED BEATS: LISTENING STILL (8:00)

Contact: Ish S. Email: <ish@soundreasons.in>.

Web: <soundreasons.in>.

Composed by edGeCut + diFfuSed beats, New Delhi, 1 August 2015. Classical Guitar, Analog and digital Synthesis. Also presented as a 6–8 channel spatial audio installation called *Sitting Still* under the project diFfuSed beats. Recorded by Sound Reasons Studios, New Delhi. Edited by: Ish S. Commissioned (partially) by Pro-Helvetia (Swiss Arts Council). Thanks to Sudarshan and R.S. Shehrawat, Konrad Bayer and Chandrika Grover.

This is a track about listening to the slightest movements and minimal details, which for me is the most important aspect of sound that I try to bring forward through my works. I started with developing this idea as a sound sculpture, and it was presented as a spatial installation under another project of mine called *diFfuSed beats*. Here in this piece are some implied rhythms and bar lines, which in the process of development eventually disappear. The subjective nonlocational movements, and eventually listening, drive the subsequent creative direction of this track. Here the work as a linear piece develops spatially, and its discovery unfolds itself in the present, bringing with it the experience of sound and minimal movements that evoke a distinct listening process in the

form of compound rhythms and layered harmony/implied melody. As an artist I am interested in the areas where concepts of both musique concrète and sound intersect and I can manipulate one in relation to the other in an “inclusive form.” Hence, coming up with newer rules to follow via experimentation, manipulation and synthesis is the main driving point here. The important part is not to create figurative music or to imply a sound or a compositional criteria but to bring forward subtle changes that can be processed by the listener in the form of a heterogeneous experience. These slight changes and processes in turn bring with them the newer experience of sound/music and direct the attention to pure listening as a sonic event, as a track/song or as a sculpture in the form of a sound installation. Sound here is broken into frequencies and rhythms for compositional purposes that are almost generative, in order to narrate, outline and fill while being ephemeral. This work/track therefore is actually created in the listening of it and its invention is in the imagination of the listener pulled into it. The knowing here is the subjective experience of listening to the complete sounds and music as they develop the heterogeneous temporal relationship—not between things but “the thing itself.”

ISH SHEHRAWAT (ISH S) is a composer, sound artist and musician from New Delhi. His primary fields of interest are sound art and installation, along with electroacoustic music, and he has been presenting some of his works as sound installations and mixed media works. He is also an electronic musician and has trained as a classical guitar player. Producing creative works under different pseudonyms and projects such as *edGeCut*, *diFuSed beats*, *Khayali pulao* and *4th World Orchestra*, he creates, collaborates and produces a wide spectrum of music and sounds ranging from jazz to classical and from ambient to experimental electronic music and has developed his own style over a period of time. He has produced various sound art installations and albums and composed music for independent short films, plays, performances and contemporary dance recitals. In 2009 he founded the music label *Sound Reasons* to promote contemporary and electronic music, and it has released a number of albums since then.

Ish S also curates the *Sound Reasons Festival* for sound art and experimental electronic music, which takes place in India and the South Asia region in the month of November. Having collaborated with many international artists, he has performed live, and some of his works have been presented and installed around the world: at the M Bar, *BeatWave Festival*, Helsinki; Queen Elizabeth Hall, London; *World Information City conference*, Bangalore, India; *Electron festival*, Geneva; *Art Basel*, Estonia; *Goethe Institut*, India; *Electrogonner*, Vienna; *F+F Schule für Kunst und Medien Design*, Zurich; *Inter Arts Center*, Malmo, Sweden; *Mahem*, Copenhagen; *Blue Frog*, Mumbai; *London College of Communication*; *The British Council*; and other venues around the world. His sound installations and compositions for contemporary dance have been presented and performed at the *Centre Pompidou*, Paris, and *Theater Gessnerallee*, Zurich.

RUPERT HUBER AND ROBERT ADRIAN X: APPLAUS (12:12)

Contact: Rupert Huber. Email: <piano@ruperthuber.com>. Web: <www.ruperthuber.com>, <www.kunstradio.at>.

Original length: 30'30". Composed by Rupert Huber and Robert Adrian X, and edited by Rupert Huber. Recorded and engineered by Anton Reininger, Orf funkhaus studio 2, Vienna, Austria, 1996. Clapping by Robert Adrian X, Rupert Huber and Anton Reininger. Commissioned by Orf Kunstradio. Included on Rupert Huber, *Flugstunden/applaus*, CD, 1996.

There is nothing to say about the piece. It is just applause—applause per se, pure applause.

RUPERT HUBER, composer, was born in 1967 and currently lives and works in Vienna. He integrates space and the electronic and/or psychological projection of musical or tonal content into his compositions. Dimensional music as a musical format forms the basis of all his work. Compositions in this format have been commissioned by, among others, *Wiener Festwochen* (Private Exile, 2004), *Centre Pompidou* (Sonic Process, 2002) and *Ars Electronica* (Radiotopia, 2002). *Tosca*, the duo formed in 1994 by Richard Dorfmeister and Rupert Huber, has released seven CDs and nine remix albums over the last 14 years, including *Opera* (1997), *Suzuki* (2000), *Dehli 9* (2003), *No Hassle* (2009), and *Odeon* (2013). In recent years, *Tosca* has performed in live shows in the USA, South America and Europe, including such prominent festivals as *Coachella* (Palm Springs, USA) and the *Ars Electronica Festival* (LINZ, Austria). Huber was guest of the *Berliner Künstlerprogramm des DAAD* (1997). He was nominated for the *World Technology Award* in 2010. He was member of the *Jury of the Prix Ars Electronica* in 2007 and 2009. Piano music and sound installations in public spaces are among Huber's main areas of interest. Radio music, music for media projects and film music are the fields in which he does most of his creative work. Recently, Huber has been working on a multichannel sound installation for the Vienna airport, the sounds of which are controlled by airplanes (2012).

ROBERT ADRIAN X, artist, was born in 1935 in Toronto and lived in Vienna from 1972 until his death in September 2015. Beginning in 1957, he produced installations, radio art and sound artworks, and had worked and experimented in the field of telecommunications art since 1979. Adrian X organized a number of projects involving fax, slow-scan TV, amateur radio, *Bulletin Board Systems*, etc. during the 1980s and 1990s. He worked in a number of media, including installations, model making, photography, painting, sculpture, radio and computer works. His work has been included in many international exhibitions, such as at the *Biennale in Venice* (1980 and 1984), the *Biennale in Sydney* (1986) and a number of times at *Ars Electronica* in Linz, Austria. In April 1995 Adrian X initiated *Kunstradio On Line*, the website of the ORF radio art program *Kunstradio*, and continued as its webmaster until April 2000.

Art, Science and Politics in *Leonardo* and *LMJ*, 1968–2015

A Reading List

While certainly not exhaustive, the following reading list presents a selection of articles and special sections published *Leonardo* and *Leonardo Music Journal* over the last 48 years on works and ideas relating to politics and political issues. The articles below can be found online via <www.mitpressjournals.org> and via other venues such as <www.jstor.org> and <www.muse.jhu.edu>.

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CALL TO CURATORS

Leonardo seeks art | science galleries for print and on-line

CALL FOR LEONARDO GALLERIES

The editors of *Leonardo* invite proposals for curated galleries for publication in *Leonardo* journal and on the Leonardo On-Line web site. Galleries should include an introduction by the gallery curator and showcase a number of artists working within a common theme or milieu falling under the broad rubric of art + science.

SUBMISSIONS

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LEONARDO NETWORK NEWS

The Newsletter of the International Society for the Arts, Sciences and Technology and of l'Observatoire Leonardo des Arts et Technosciences

HAPPY BIRTHDAY LMJ!

In case you hadn't noticed, LMJ has reached its 25th year of publication with the issue that you now have in your hand or on your screen. We'd like to take a few minutes from scurrying to meet LMJ's press deadline to express our appreciation to a number of key players in LMJ history. We give our heartfelt thanks to Founding Editor Larry Polansky, who convinced Leonardo back in 1990 that it was time to spin off a sister publication devoted to contemporary music and the sonic arts (and we thank Roger Malina, for listening to Larry). We also thank our longtime leader, Editor-in-Chief Nic Collins, who has wisely steered the ship and the editorial staff with good humor for 18 years. The LMJ Editorial Board members also deserve our sincere thanks, for providing wisdom and guidance throughout the years. And last, but not least, we thank all the authors and composers who have contributed their words, music and sound to the discussion for the last 25 years! Since *Leonardo's* 50th anniversary is right around the corner (and reminding LMJ of her little sister status), we plan to combine forces in 2 years for a great celebration all at once. Stay tuned for upcoming party invitations!

THANK YOU TO DRAP AND THE SDM 2.0 RESIDENTS!

We'd also like to take this opportunity to give thanks to Margot H. Knight of the Djerassi Resident Artists Program and her amazing staff for a fascinating and inspiring month of art/science collaborations, ideas, explorations, "think tank" activities, and overall excitement generated at this year's Scientific Delirium Madness residency. We also thank the SDM resident artists and scientists themselves (Allison Cobb, Writer; Luca Forcucci,

Composer/Media Artist; Deborah Forster, Primatologist/Cognitive Scientist; Eathan Janney, Composer/Scientist; Christine Lee, Visual Artist; Rachel Mayeri, Media Artist; Guillermo Muñoz, Physicist; Kate Nichols, Interdisciplinary Artist/Designer; Karl Schaffer, Mathematician/Choreographer; Laurel Shastri, Choreographer; Eleni Sikelianos, Writer; Tami Spector, Physical Organic Chemist/Writer; and Caroline Wellbery, Medical Doctor/Writer) for taking a full month out of their busy schedules to explore together in residence. We are also grateful to the National Endowment for the Arts, whose support has been instrumental to the success of the project.

The artists and scientists participating in our annual Scientific Delirium Madness art/science residency have shared their explorations of sometimes explosive ideas together in the Leonardo On-Line blog over the month of their residency. Scientific Delirium Madness is a collaborative initiative of Leonardo/ISAST and the Djerassi Resident Artists Program that explores and expands on connections in the creativity of scientists and artists. Visit <www.leonardo.info/blogs> to read posts from participating artists and scientists, along with posts from guest bloggers from the *Leonardo* and *LMJ* communities.

LEONARDO @ SIGGRAPH 2015

The successful Leonardo-SIGGRAPH collaboration continued at full pace this year at the SIGGRAPH 2015 conference in Los Angeles, where the 2015 Art Papers were presented live by the artists to conference attendees, as well as documented in article form in the 2015 Leonardo special issue dedicated to the arts at SIGGRAPH (*Leonardo* 48, No. 4). Additionally, Leonardo community members and curious conference attendees

gathered for the Leonardo Birds of a Feather meeting to present their work in art-science, whether as individual artists, educators or cross-disciplinary teams. The featured presentations were followed by lively discussions of Leonardo's role within the SIGGRAPH arts community and the educational sphere, along with other avenues to be explored! In addition to these more cerebral events, there was plenty of celebration as well—at the Art Gallery reception, hosted by Leonardo and MIT Press, and at several evening social gatherings of art-science-technology revelers. Leonardo expresses special heartfelt thanks to Leonardo Co-Editor Sheila Pintel for helping to make Leonardo @SIGGRAPH 2015 a smashing success!

SUPPORT OUR COMMUNITY OF INNOVATORS

Since 1968 Leonardo has supported the community of individuals, institutions and organizations working at the intersection of art, science and technology. We share their work throughout the ever-growing Leonardo Network in print, online and at conferences, symposia and events all over the world. You can help keep the important resources and opportunities Leonardo provides alive and continuing to thrive. Leonardo/ISAST is a non-profit organization, and donations are tax-deductible. As an added perk: All donors are eligible for complimentary listing in the Leonardo Electronic Directory. Visit <www.leonardo.info/isast/donations.html> for more information.

For the latest in Leonardo/ISAST news, as well as announcements and opportunities of interest to the art/science community, sign up for our bi-weekly e-newsletter at <www.leonardo.info>.