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Erik Granly Jensen & Brandon LaBelle

INTRODUC- TION

With the evolution of structures and forms of media, the means by which individual imagination comes to apply such media in turn takes evolutionary steps. Technology and imagination are bound to a reciprocal mutuality, affecting and causing effect, introducing and influencing new possibility as both real operations as well as fantasies of connection, sensation, and production. In this way, science and art convene, intersect within the technological apparatus as a device for production as well as the outpouring of new hopes: technology takes its cues from a repertoire of existing solutions while in the very same move generating virtual projects as expressions of creative imagination.

Radio's history exemplifies such movement. As a technology born from electronic invention it takes its first steps in the late 19th century according to the imaginary possibility of being wireless and connective, of extending the very broadcast of the body — its voice, its fevers, its flows — toward greater proportions, while in the same move facilitating ideas around industrial productivity, whereby communications equate with improved manufacturing, trade, and its regulation. Communications technology in general is both a vision of mass production, militaristic effectiveness, informational stock, national identity, and at the very same instant, within the very same broadcast, a blast against such effectiveness, as pure expenditure aligned with libidinal force binding the human body to its own shadows which gain momentum through bending circuits. Radio is the very embodiment of this intersection: in this way, we might call it “dialectical media” in so far as it embodies an oscillation of oppositional forces that in the end manifest through the same means, coming to make claims onto the space of frequency. Radio has come to occupy a space within everyday life, situating itself within the circuitry of every kind of economy and business, as the means by which communications becomes extensive, while in turn finding place within increasingly personalized and eccentric renderings.

It has been such ideas that have led to this anthology, and the very project to engage radio as technology wed to an often contentious and unresolved argument, for radio continues to both promote productive efficiency, facilitating the communicational networking of broadcast as witnessed in the cellular grid, satellite communications, and their related public services, while being bent toward networks of activism, resistance, and the ongoing questions around what it means to be a body and a self. While radio has certainly changed since its beginnings, surprisingly it has remained consistent. As Dan Lander states in his introduction to *Radio Rethink* from 1994: “For those who wish to autonomously express themselves through the medium of radio, a barrier exists that is now so firmly entrenched it represents a crisis of democracy and freedom of expression.”¹ The tensions between autonomous expression and corporate or state-sponsored broadcast continue to define radio, finding deeper intensity with the advent of digital information networks, and current forms of digital radio. While digital ra-

dio and its related networking has stimulated autonomous radio expression, it has in turn facilitated the music industry, and related corporate sponsorships, with new conduits for effective promotion and dissemination of marketable goods that only further intensifies the unstable relation of media and property. Such current questions may extend back to recognize radio's early situation, when the radio spectrum demanded deeper legislation and control while at the same time galvanizing popular dissent. As Robert W. McChesney observes:

Radio broadcasting emerged dramatically between 1920 and 1922 in the United States, capturing the popular imagination in a manner that was rare, if not unprecedented. By the end of the decade the modern network-dominated, advertising-supported system of radio broadcasting had come into existence. By 1935 the system was entrenched economically, politically, and ideologically, and it would provide the basis for the eventual development of television in the 1940s and 1950s. Between 1928 and 1935, however, some elements of American society actively opposed the emerging commercial set-up and attempted to have significant portion of the ether set aside for non-commercial and non-profit utilization.²

Questions as to what exactly radio should broadcast, and in what manner it should generate content, were at the core of radio's unsettling intervention onto modern society. From this perspective, we might point toward radio as the beginning of a debate in which mass media becomes a political issue and informational dynamics a question of ideology, challenging and aiding in what ways notions of community and self were understood. Such issues remain at the center of radio as it continues to both reflect larger cultural and social values while promising a diversity of expression.

To follow such interweaving *Radio Territories* is comprised of a number of fields or versions of radio, which include critical essays on the history, technology, and culture of radio production, reports from radio producers on currents in radio services and cultures, and artistic documents and creative projects engaging radio as media in forms of cultural making. Through this grouping it is our intention to gauge current attitudes toward radio, as media applied and made applicable to a number of different contexts, yet specifically arising from a critical cultural space or perspective. In short, our attention has its origin and focus on cultural works and thinking that seek to occupy the peripheries and margins, and that dwell upon that "significant portion of the ether" often difficult to locate, whether histories that trace under-represented figures or actions that aim to trouble dominant radio productions. Further, *Radio Territories* aims to update or initiate an understanding of radio in light of digital information networks, which, while unsettling previously fixed borders, brings the very notion of

place and its definition forward ever more urgently. In this way, radio may still function as an engaging means to talk through the ongoing debate as to media's relation to geography, technology, and collective identity, especially in view of current policies in media accessibility, where the promise of connection becomes a question of global politics.

Conducting our editorial process has been an overarching recognition as to the particular way in which radio may come to condition sound as significant: radio, in being sonorous and sonic media, comes to territorialize the phenomena of sound, overlaying specific messages, codes, and productions onto its flow and subsequent techniques of listening. Radio organizes sound in particular ways, sculpts it for certain kinds of receptions, making it accountable toward specific ends. In this way, radio is always already a territorial project, whether by supplying nations with an infrastructure of transmitting entertainment, news, emergency signals, and educational programming, or through its appropriation for the broadcast of counter-cultural signals, aiding in establishing links for micro-communities, a piracy whose affective constructions draw out the significance of location. Thus, ether and place are dynamically interlocked by radio, demanding a two-fold analysis and appreciation.

Our project has been guided by an interest in bringing to light these intersections, highlighting with particular attention forms and histories of radio in which territories become unsettled, debated, or appropriated. An important (public) example of this is the history of pirate radio, which is discussed in several of the essays in this collection. In telling the stories of micro-communities, these essays also point to or outline larger mass media constructions that, by virtue of being public service institutions, come to exert tremendous influence on defining notions such as democracy, national identity, and cultural heritage. For instance Mikkel Bolt Rasmussen's critical history of Radio Alice examines the Italian pirate station, developed in the 1970s in Bologna, with a view to contextualizing their activities against the backdrop of Italian politics and culture at this time. The ways in which Radio Alice and policies around illegal broadcasting in Italy intersect, come to exemplify radio's territorial tensions, manifest not only in content programming, but also, notably, in the performativity of the voice. Such work is further developed in Steve Goodman's essay on "virology" and piracy in contemporary terms. Taking the example of a London-based pirate station, Goodman extends his reading into larger questions of digital piracy, translating this into a theoretical understanding where viral contagions arrive in sound particles, and in doing so, complicate the seeming opposition between central and marginal radio. As Goodman outlines, virology supplies us with a theoretical language sensitive to the reciprocal means by which state-sponsored and illegal traffic overlap. Through such attention to piracy an understanding of what is at stake in radio practice surfaces.

Illegal broadcasting thus becomes an operative theme throughout *Radio Territories*: by staking out that which is criminal, piracy brings into relief in dramatic ways the larger structures that have come to govern the medium. Exemplified in the works of neuroTransmitter, Kristen Roos / Jackson 2Bears, and LIGNA, their projects stand out as instances where the traditions of oppositional and pirate radio take on more active, mobile, and intimate proportions. Aiming to position radio within specific locations, from railroad stations to parking lots, their works usurp the boundaries of public and private space, and public and private knowledge, to forge micro-communities. Working with local transmissions that covertly occupy radio spectrum, broadcast space and territorial space are brought into contact, harnessing the inherent politics of what it means to broadcast. In both the essays on pirate radio and in the related art works the notion of a “collective acoustic space” plays a recurrent role – how radio holds within it the potential of a radically flexible and dynamic shared experience. With the example of LIGNA’s political works, Erik Granly Jensen explores the historic ground for this collective acoustic space, drawing upon Bertolt Brecht’s and Walter Benjamin’s texts on radio from the 1930s.

If the above-mentioned theories and art works tend to understand radio as a micro strategy, the Chilean artist, elpueblodechina a.k.a. Alejandra Pérez Núñez in turn seeks to tease out the inherent tension built into broadcast on a much larger scale. For her, this surfaces through the coding and decoding of specific messages, and their related contexts. For Núñez, geographic territory is also deeply integrated with what she refers to as the “mediascape,” as an event-space deeply connected to governmental policy and agenda. Her decontextualized broadcast work interweaves Radio Baghdad with interviews conducted with feminist activists in Chile, broadcast to charge the airwaves with marginal messages. Such works identify radio media as powerful weapons with territorial edges.

Against the charged politics of illegal broadcast, pirate radio, and the disruption and appropriation of signals, specific histories of radio, and related technologies, are included. These aim to provide a structure and context to the ongoing evolution of radio and its related discourse, while pointing toward ways of understanding questions of contemporary media. Achim Wollscheid’s reading of car radio provides a glance into the workings of market forces, and how the industries of cars and music intersect specifically to define and utilize the new acoustic space of the driver. Tracing such history through policies in Germany in the 1920s, Wollscheid reveals the unresolved and potential application of new music to the experience of listening while driving. A seemingly more abstract notion of acoustic space can be found in Douglas Kahn’s article. Kahn, for his part, turns to Thomas Watson who in 1876 was the first person ever to hear “sferics” when he, as the assistant of Graham Bell, received the first telephone call in history. The background noise that Watson heard was the sound of the Cosmos or “natu-

ral radio." Before broadcasting and information technologies, "natural radio" was already there, an insight that for Kahn serves as the basis for describing a number of avant-garde art works that put to use VLF (Very Low Frequencies). A related re-interpretation of the history of radio can be found in James Sey's article. Through readings of the Serbian-American scientist Nikola Tesla and the famous radio play by Orson Welles *The War of the Worlds*, Sey argues that the notion of "imaginary wavelengths" may serve to establish an alternative discourse to the dominating visual paradigm of modernity.

Throughout the essays, histories, and reports, the place of radio art continually stands out. Radio art, in this regard, holds a special place, and may reveal points at which radio, and its inherent territorial, or dialectical tensions, are put into performance. For radio art in general gives expression to a certain belief in the medium's power to not only forge community, transmit illegal signal, or promote various messages, but to question the inherent assumptions around such beliefs. Thus, radio art is an experiment with and onto the mechanics, and related drives, of radio itself. This is realized in the essay by Ellen Waterman whose questioning of radio art's own historicization seeks to expose, or to leave open, radio art's own cracks. Following the work of three Canadian, women radio artists (including herself), Waterman asks in what way radio and the body come to perform in and against the other. And how do artistic strategies come to utilize radio media that bring the intricacies of embodied relations and the specificity of identity to the surface. Such applications of "performative radio" find playful interpretation in the work of Kabir Carter. Carter's radio performances invite us into games of bodily movement by threading the radio dial through the body, turning listening into lo-fi choreography. These questions are furthered in Sabine Breitsameter's and Heidi Grundmann's essays. Both radio producers and theorists, Breitsameter and Grundmann trace the development of radio under the influence of digital networks, which are seen to radically unhinge radio, as determined by analog transmission and reception, to realize a new relational coordinate, that of digital connection and networking. This digital influence brings forward a new understanding of radio. As the essays reveal, radio art has been at the forefront of media art, seeking to draw out the potentiality of an extensive network system for the exchange of files, information, and input and output, across global territories. While utilizing the networking of radio, as in the works traced by Breitsameter and Grundmann, the work of Sophea Lerner sculpts such networking through the guise or trope of the cook out, and the metaphor of food. Where food distribution spins an extensive network by which the gestures of cooking and feasting operate as social occasions of sharing, Lerner overlays this across the radio network, to construct moments of get together across geographic borders. Thus, digital networks supply radio with a more complex sense of territorial questions, detailing the embedded tensions of

the medium as it comes to perform across borders. This is further explored through the work of apo33, analyzed in Sophie Gosselin's essay, which meditates not only on the group's projects, but also on the implications and consequences of the digital in general. In what way do digital networks displace radio's mechanism of transmission and lead to a new understanding of mass media? Alongside such questioning of radio art, digital networks, and a globalized perspective, the experiential relation of radio and everyday life is detailed through Brandon LaBelle's article. Describing a project on radio memories LaBelle developed, the interaction of radio and personal listening is explored, suggesting deep connections and conversations between radio and its place, both in terms of territory as well as social exchange: radio becomes the medium not only for placing or displacing borders, but for describing their surprising appearance through narratives of auditory life and sharing.

Narratives of auditory life as a feature of the radiophonic are further explored through reports by radio producers, whose work occupies the edge between journalism and art, reportage and montage, analog and digital. As Marie Wennersten demonstrates, the development of SR c as part of Swedish National Broadcasting suggests forms of using radio for making surprisingly personal stories. Sharing intimate details of ordinary life, spinning tales of various phenomena, capturing the shadows of biography, or reporting on the minutiae of life and death, SR c's programming becomes a kind of adventure in narrative, equipping radio with a grammar of oral history and imbuing programming with affective sonority. In conjunction, Kate Sieper reports on the developments in rural broadcasting in the outback of Australia, where she conducts her radio work for an often under-represented audience and community. In this way, radio is not only medium for reporting news, but a vehicle for reflecting back to a given community its very own culture and events. Such conditions, as Sieper reveals, take alternative routes when met by podcasting and new forms of digital radio, which at times contradict the built-in temporal-spatial understanding of analog radio. Yet, this slippage is also a new potential, not only for radio art, but also for the making of new informational dynamics, where reporting can also be an act of social narration and sharing. Such reports in turn reveal in what way cultural programming and reporting can operate within larger national broadcasting services. Whereas the debates around radio access is ongoing (notably in the United States), alternative voices may be heard not only through illegal channels, but also as carved-out niches within state-controlled broadcasting.

To complete the anthology, the inclusion of an audio CD seems necessary, to both illustrate and complement the texts and supply the form of the book with a much needed sonorous component. The works on the CD derive from artistic actions that span the radiophonic dial, from networked actions as in Steve Bradley / John Hudak / Joe Resinel's project, which brings to-

gether three artists in three different locations in the making of an improvised sound-sharing, to Anna Friz's construction of radio narrative through micro-broadcasting: to place recorded sound on-air, for the project of making an audio recording, conditions the sounds according to what radio seems to promise, echoed in Lander's questioning of autonomous expression – the ability to intervene, through oppositional or personalized sonority, onto the mediascape so prevalent today. This mediascape, as Kahn and Sey historically locate in the “radio of the sphere” and the “wavelength” is given force in Jason Kahn's and Joe Bank's recordings of electromagnetic energies located from the farthest points of the galaxy to the underground of London. The force of these phenomena come to both define and agitate the spectrum of radio possibility, by supplying a vision of a pure channel already occupied by a static that in itself contains no message while delivering pure differentiation: as James Sey / James Webb's audio fictions expose, radio requires the power of terror in order to carry its messages. Such an observation seems to return us to the question as to radio's dialectical challenge: of bringing into contact the radically oppositional ways in which radio as mass media is utilized, according to sets of values that place us upon an equally diverse spectrum. Radio, it seems, may remain bound to an unsteady negotiation, transmitting not only programming, signals, and information, but the very debates that come to define society.

Notes

1: Dan Lander, *Radio Rethink* (Banff: Walter Phillips Gallery / Banff Center for the Arts, 1994), p. 14. 2: Robert W. McChesney, *Telecommunications, Mass Media, and Democracy* (New York/Oxford: Oxford University Press, 1993), p. 3.

James Sey

**SOUNDS
LIKE THE
CULT OF
THE IM-
AGINARY
WAVE-
LENGTH**

Ostensibly, the governing technological paradigm of our era, especially the recent history of “information capitalism,” is that of prosthetic vision. Apart from the obvious tropes of 24x7 broadband culture and our age of paranoid CCTV surveillance, it has become a truism to speak of the biological sense of sight, the psychological trope of the gaze, and revelatory technology — endoscopes, monofilaments, nuclear telescopes — in the same *weltanschauung*. It is of course a simple epistemological step to trace this outcome, of a culture dominated by technologies of vision, from the recent histories of military and industrial technologies, as theorists such as Friedrich Kittler and Paul Virilio have done. However, most theorists, Kittler excepted, fail to trace one of the most vital and elided technological and epistemological trajectories of the last one hundred and fifty years at least — that of the sound frequency and its associated wavelength technologies.

This essay sets out to argue firstly that the elision of a cultural and technological history of the wavelength has to do with the corresponding dominance of visual paradigms in industrial culture. It then attempts to recuperate a more persuasive and thorough account of the importance of sound waves and sound technology to the development of our contemporary technoculture. In this regard it is crucial that sound technology manifests a hidden and misunderstood relationship to psychoanalysis. The arch high modernity of Freud’s science of the mind stands in a difficult and agonistic relation to technology *per se*. Indeed, Freud theorized in his great work of anthropology *Civilisation and its Discontents* that technology was a means to further realize the death drive in culture. But, as Friedrich Kittler points out and as this essay argues, sound recording technologies and the “absolute faithfulness” of sound waves seriously undercut the role and importance of the figure of the analyst in culture. Psychoanalysis, in this view, serves as a symbol for the “compulsion to confess,” the impulse — indeed, the imperative — to reveal the hidden and the unconscious. Sound waves, and their technologies, reveal more in that they do not censor or revise the output of the analysand as the analyst does. But these technologies and sound waves are also an elided part of technological culture, bypassed in favor of the visual and the written — as in the examples of the “truth” of the photographic camera and the psychoanalytic case study. The essay concludes with an investigation of some examples of an alternative or counter-cultural history of sound waves and sound interventions, suggesting ultimately a new manifesto for an aesthetic of sound and its associated technologies in order to establish a parallel mode of understanding culture and extending the boundaries of the known.

In the dominance of the visual paradigm for culture and science, there has been a major thematic — the attempt to visualize time and space as forms, an attempt which has as many variations as there have been machines to measure it. One of the most important theorizations of the thematic of the dominance of visual culture in our era is Walter Benjamin’s

paradigmatic essay *The Work of Art in the Age of Mechanical Reproduction* (1970 [1936]).¹

In it he sets out an essential agenda for culture under the sign of visual technologies — an agenda that reflects a shift from art as a medium to access the divine and sacred to art as a technologically reproducible commodity. The technologies that enable the shift are of course photography and film. But, apart from changing the nature of our relation to art and the aesthetic, the characteristic 20th century scientific paradigm of technological vision was from the first associated with ballistic or propulsive technology, in sciences like ergonomics, military logistics, medical science, and so on. Most attempts to visualize the human body in motion were geared to extending human capability more efficiently into space in an attempt to approach the speed of light — the speed of those light waves which govern the workings of the camera. The speed of light itself is the governing visual trope of the era of the “space race,” that ultimate expression of the attempt to extend our presence out beyond our planetary boundaries and defeat the effects of time by going ever faster.

And yet, despite the obvious dominance of these paradigms and machines of technologized vision, another history was being written at the same time, built around another kind of wavelength — that of sound. The obfuscation of this history has much to do with the evanescence of sound as a medium, as well as its seeming lack of content. The content — the meaning — of a transmission, after all, is the sum of what is carried by the wavelength. Its contextualization and decoding are absolutely necessary for it to emerge from the “noise” of its carrier. In the absence of the kind of valorization we can now give to the carrier itself in digital media — our fetishization of binary coding — sound waves became buried under the bright new dawn of the more obvious and glamorous techno-visibility of modernity. And yet, from the first possibilities of electronic technologies, sound frequencies have been prominent harbingers of the future.

Friedrich Kittler makes the crucial point about the development of what he calls “phonographic” technology at the beginning of the 20th century. It is to provide a technological means of accessing sound without meaning, without censorship or structure:

Thanks to the phonograph, science is for the first time in possession of a machine that records noises regardless of so-called meaning. Written protocols were always unintentional selections of meaning. The phonograph, however, draws out those speech disturbances that concern psychiatry... [In the era of the talking cure] everything that speakers, because they are speaking, cannot also think flows into recording devices whose storage capacity is only surpassed by their indifference.²

This condition of inclusive representability present in sound technology is what Kittler defines as a “media technology,” and is what he consistently opposes to technologies of vision. In this way, sound technologies in the phonographic era of one hundred years ago are a more accurate forerunner to the overwhelming cacophony of information contained in today’s digital technologies than are the ostensible inheritors of that mantle, digital technologies of vision, which are in the historical lineage of photography and film. As Kittler puts it, “Evidently, psychoanalysis competes with technological sound recording. Its enemy...is the phonograph, not film as Benjamin concludes from global parallels.”³

Kittler’s positioning of psychoanalysis here is vital. He makes the point that psychoanalysis provides the epistemological and scientific underpinning for the centrality of both trauma and “nonsense” at the forefront of our experience of modern culture. The sensory overload which characterizes modernity is indeed traumatic and cacophonous, and is allied from the first with technologies of war. But the centrality of sound in communicating the nonsense which underpins and activates the conscious structures of modernity is constantly denied, even now. Why is this?

The Space Age lasted barely 15 years, from Gagarin’s first flight in 1961 to the first Apollo splashdown **not** shown on TV in 1975, a consequence of the public’s loss of interest — the brute-force ballistic technology is basically 19th century...while advanced late 20th century technologies are invisible and electronic: computers, microwave data links...are the stuff of which our dreams are made. Perhaps space travel is forever doomed because it...recapitulates primitive stages in the growth of our nervous systems... — a forced return to infantile dependency. Only intelligent machines may one day grasp the joys of space travel, seeing the...space flights as immense geometric symphonies.⁴

The great J.G. Ballard nods here to the influential visual template and accompanying soundtrack invented by Kubrick in *2001: A Space Odyssey*, but his point is that our vision of space in the era of the “space race,” and how to conquer it, are precisely driven by visual technologies, those of extension and duration. As he points out, it is becoming more and more apparent that the technological paradigm of our era, the post-combustion era, has gone beyond that of both the ballistic rocket which penetrates space and its visual representation. The physical conquering of outer space through the ballistic propulsion of the phallic rocket is “infantile.” Baudrillard agrees, in his remark that the best we can come up with in relation to space travel is the sending into orbit of a “two-room apartment with kitchen and bath” — the “space shuttle.”⁵

Photography and the cinema may have been the technological vehicles for changing fundamentally our relation to visual perspective, and thus

the psychology of our point of view. The reason these technologies of light have been so influential is that they hold out the promise of self-present instantaneity — for they have unravelled the quirk in our perception that, according to Bergson, leads us to unconsciously create time-based narratives out of the succession of moments which constitutes our being. Without going into the technological history of that shift, it is crucially inflected when frame speed comes to represent a co-extension with real time. Light is thus not invisible, it is illuminating. It shows us both ourselves and the workings of our perception — it reveals.

One of the consequences of the organization of the modern urban socius around technologies of labor and leisure and the organization of space and time was the necessity to control the traumatic effects of industrialization on the population. Urban planning and transport systems are only the most visible manifestations of this twin impulse, as are the great arcadias of sound and vision, the cinema and the concert hall.

As we have mentioned, it was the great counter-science of psychoanalysis, developing contemporaneously with such material technologies of labor and leisure, which was the first to establish an account of the mode of psychological being appropriate to dealing with modernity. How would the mind react to the huge flood of traumatic psychic impressions it was subject to — assailed by technologies of duration and extension; technologies of war, labor and leisure, by the mode of “speed and dynamism.”

According to Kittler, the psychoanalytic account of trauma, which is most relevant to understanding media technology — especially phonography — was predicated on the “principle that consciousness and memory are mutually exclusive.”⁶ Kittler points to the absolute inclusiveness of experience which new media technologies allow in the 20th century era of extension and duration, and how the function of memory as such becomes censorious or selective — thus, he argues, for the first time, case studies can become media technologies:

Producing psychoanalytic case studies, that is, putting into writing what patients have said, requires that one record whatever the two censors on and behind the couch want to render unsaid: parapraxes, puns, slips, signifier jokes. Only technological media can record the nonsense that (with the one exception of Freud) technological media were alone able to draw out into the open... [H]is principle that consciousness and memory are mutually exclusive formulates this very media logic. For this reason it is consistent to define psychoanalytic case studies, in spite of their written format, as media technologies. Freud introduces his “Fragment of an Analysis of a Case of Hysteria” with the audacious avowal that his written record of hysterical speeches has a “high degree of trustworthiness,” though it is not “absolutely —

that is, phonographically — exact.” Psychoanalytic texts are thus haunted by the absolute faithfulness of phonography.

For Kittler it is crucial that sound technology trumps the receiving capacity of the highly trained analyst, precisely because nothing escapes the recording angel’s sound reception. The “absolute faithfulness of phonography” includes everything in its ambit — the sonority of the analyst’s treatment rooms, the white noise of the street outside, the parapraxes of analysts as well as analysts which might otherwise be misheard or misremembered, for any number of reasons, conscious or unconscious. It is phonography, the inscription of sound, which presents the fullest media representation of the unconscious in action. This is directly counter to the argument Benjamin proposes for lens-based media technologies. In his well-known formulation from *The Work of Art in the Age of Mechanical Reproduction*,

... a different nature opens itself to the camera than opens to the naked eye — if only because an unconsciously penetrated space is substituted for a space consciously explored... . Even if one has a general knowledge of the way people walk, one knows nothing of a person’s posture during the fractional second of a stride. ... The camera introduces us to unconscious optics as does psychoanalysis to unconscious impulses.⁷

The technological ability to reveal such hidden processes encapsulates the chief ambivalence of modernity itself — not only an ambivalence about the prosthetic logic of technology, but an ambivalence about modernity’s own conflict between regulation and mechanization on one hand, and novelty and contingency on the other. This is an ambivalence which is true for all media technologies.

Taylorism and Fordism, and the industrial ergonomics of the Gilbreths, were major outputs of the huge socio-economic apparatus built up around the meticulous recording and decomposition of space and time, most emblematically in the form of human motion studies, and most typically in the service of a more productive industrial labor complex, during the hundred years or so of the high industrial era.

But in order for the mechanical-industrial labor complex to operate as a social regulatory mechanism, and obey its own logic of mass capitalist production, time and space had themselves to be regulated, as we have mentioned. Stephen Kern, in his book *The Culture of Time and Space*, recounts how world standard time was only instituted fully on the morning of July 1, 1913, when the Eiffel Tower sent the first time signal transmitted around the world. Thus, a global electronic network — in effect, one based upon a phonographic representation of an abstract temporality, a sound or radio signal — enabled the implementation of a system of standardization that had been agreed upon by the most powerful 25 industrial countries decades

previously, at the Prime Meridian Conference in 1884. Ironically, the pressure to institute a global time standard came initially from military logistics planners.⁸ Hand in hand with the standardization of time came the regulation of space, in the division between the laboring space of the factory, and the leisure spaces of the city, the amusement arcades of the emergent techno-utopias or urban arcadias.

The key to unlocking the value in regulating modern time and space was of course the ability to understand and regulate the human body in motion, and the technophysiological arsenal of devices — not only photographic cameras but also sphygmomanometry and other physiological metrics — which arose in these decades between the end of the 19th and the middle of the 20th centuries to record human physical processes, point to this holy grail. Among the most important consequences of the search for the body's secrets of duration and extension was a solution to the problem of entropy, the loss of potentially productive energy in any system dictated by the Second Law of Thermodynamics.

The technological armature developed during the industrial era was therefore in the service of understanding and regulating growing urban populations in order to control them. The rise of statistics as a science of populations in the 20th century is the chief outcome of this technological drive. But the other side of this systemic regulation was the thrilling shock of the new — the increasing familiarity of modernity with the conditions of trauma and contingency.

Mary Ann Doane discusses the nature of the relation between regulation, contingency and trauma:

Rationalization must entail a reduction or denial of contingency. In Taylorism...the body's movements are purposeful and efficient, and time becomes the measure of that efficiency. But modernity is also strongly associated with epistemologies that valorize the contingent, the ephemeral, chance...in modernity meaning is predetermined not in ideal forms but in a process of emergence and surprise. And new technologies of representation...are consistently allied with contingency and the ability to seize the ephemeral...and focus upon the particular, the singular, the unique, the contingent.⁹

Doane argues that the valorization of contingency or shock by aesthetic forms is an attempt to reinstate a sense of aesthetic freedom outside of the structuration and regulation of labor and leisure space and time. It is a valorization that is definitive of the avant-gardes, such as Surrealism, Dada and Futurism. Surrealism's vain attempts to productively release the contents of the unconscious, for example, were already prefigured by the ability of photography and film to mimic and replicate memory. Of the avant-garde movements only Futurism took up the other technological possibility — that

of sound as a formal technological disturbance of the modern cultural condition — in the form of Russolo's *intonarumori*. Built to illustrate his theory of music in modernity, the aesthetic dimension of these machines is given in one of the conclusions to his emblematic *The Art of Noises*:

The variety of noises is infinite. If today, when we have perhaps a thousand different machines, we can distinguish a thousand different noises, tomorrow, as new machines multiply, we will be able to distinguish ten, twenty, or thirty thousand different noises, not merely in a simply imitative way, but to combine them according to our imagination.¹⁰

In common with the rest of the manifesto driven futurist utterances, Russolo valorizes the machinic component of noise — but we should pay attention to the avant-garde attempt to underpin the technological capacity to produce noise with an aesthetic agenda.

Doane also points out that the relay between the rationalization of space and time and the valorization of contingency, whether this was aesthetically driven or not, is a constitutive or productive ambivalence for modernity, rather than an exclusionary choice.

Benjamin, in *The Work of Art* essay, discusses the use of photography, especially portrait photography, as an *aide de memoire*. Significantly, the permanent record of the moment that is the photograph would also be used to identify the dead in the nascent science of forensic photography, now such a staple component of the contemporary televisual imagination in numerous crime programs. The use of photography in the mode of memory would also suggest, as Benjamin discusses in the essay *On Some Motifs in Baudelaire*,¹¹ that these technologies compensate for the lack of psychical depth and full engagement with experience that is the consequence of modernity's fascination with contingency. In this way, the products of mechanical reproduction, while they erode the aura of traditional art works, also aid us to deal with the constant sensorial shock to which the contingency of modernity subjects us, in the forms of traffic, electricity, advertising, and so on. Benjamin provides an account of the psychical impact of shock underpinned by Freud's view of the psychic apparatus in *Beyond the Pleasure Principle*. As we have seen in Kittler's example, a distinction is drawn between consciousness and memory. Consciousness is forced to act as a "stimulus shield," deflecting the worst of the shocks of the new, but paying the price of a loss of engagement with affective experience. Now, technological analogues provide us with a means of preserving experience and prosthetically extending consciousness. But these analogues are quintessentially visual, as Benjamin argues in *The Work of Art* essay. Kittler's account, on the other hand, raises the fascinating possibility that it is phonographic reproduction — sound frequencies — that ally themselves more closely with what is more representative of modernity — the contents of the unconscious.

That is, if photography and the cinema stand in for, or provide an analogue of consciousness and conscious perception in modernity, it is sound recording technology that enables the otherwise unheard myriad of sounds that make up a phonographic *unconscious*. Kittler is thus deliberate in his choice of technological descriptor — sound recording technology is graphic, it provides an inscription of everything we can hear and that which we have no capacity to pay attention to. The phonograph thus captures the non-sense — the whispers, rustles, hisses, crackles, bangs, laughs, verbal tics and screams which form the backdrop of our everyday lives in any city.

While the technological trajectory of visibility has been prominent for over a century, from *A Journey to the Moon* to super slow-mo and monofilament cameras, its prominence has tended to elide how we can think of our sonic technological future outside of the cul-de-sac of reducing time and space through the operation of light — how we can think through that absolute exactitude of the phonographic. What enables us now in the post-industrial era to engage once more with the possibility of phonographic media technology is the propensity that it has to bring together the most characteristic technology of our age with the enculturated body.

In the visual scientific and aesthetic paradigms the body becomes at once the object and subject of the seduction between the signal carrier — the camera, the screen — and the sign itself, the human body in motion, in action, in emotion. By contrast, the idea of the sonic as an aesthetic and technological sphere has become more possible as the visual paradigm, like the ballistic and entropic engines which drove it, begins to run down. Phonographic exactitude — and the ubiquity of sonic wavelengths, of signal carriers — presents the possibility of the *imaginary wavelength*. The imaginary wavelength is not music, though it may contain music — it is not necessarily even the idea of a sound itself, whether or not this has social or psychological effects. Neither is it innocent in the sense of the aesthetic sublime. Such an extreme promise, of pure frequency, without information, pure sound, still holds out the promise of the sacred aura that Benjamin understood would disappear with technologies of reproduced vision. It is comprehensible, but not apprehensible in the experiential mode we are used to through the dominance of the visual in our sensorium. Rather, it resonates in our cells and allows us to share the experience of it with inanimate things — with entire cities. As a simple carrier it is thus truly invisible, masking a sensory dimension of our existence that forms a context for all else — even the deaf feel resonance. But such an account is also utopian. What needs to be delineated in the notion of an imaginary wavelength are the ways in which such auratic aspirations for art, and for the post-industrial psyche, have been contextualized by the technological and ideological forms which they now take, which have been almost without exception visual forms.

Most aesthetico-political accounts of sound and the wavelength focus on *content* at the expense of the concept of an invisible and content-agnos-

tic medium. This is the case with one of the most influential contemporary accounts of the social provenance of sound, *Noise*, by Jacques Attali.¹² His focus on the social categories which sound plays a role in creating and sustaining culminates in the post-industrial category of a “compositional” culture, where DIY sound technologies such as personal playback machines and sampling equipment meet with the narrowcast medium of the Internet. But such an account elides the enabling concept of the frequency itself, the sound carrier, which meets, in our contemporary version of the avant-garde, with the aesthetic possibility, with the ideational contingency which drives culture forward. This is the imaginary wavelength. If sound needs to be compared to speech, inscribed in culture as it is in the idea of the phonograph (which records, plays back and inscribes sounds and their meanings), then it can do so as the *langue* to the *parole* of speech. In the linguistic sense, *langue* refers to the field of a language, out of which are selected the instantiations of individual speech acts. Consider if we widen the notion of the *langue* to that of the possible field of sound itself, out of which must come the sounds we can hear and understand — a field, that is, of imaginary wavelengths.

How would such things sound? How would they be explored, as photographers and filmmakers have explored their fields of possibility? There are examples of a “cult” of the imaginary wavelength at work through modern history, which demonstrate the clash of an idea with a technologically mediated natural phenomenon, and provide us with some pointers as to what possible shapes this sound art of the future may take, the aesthetic and social provenance it may have.

The Serbian-American inventor and scientist Nikola Tesla was responsible for the invention both of the alternating current electrical system and the discoveries that led to the invention of radio itself. He was also responsible for dozens of other patents which portend some of the most important technological developments of our times, all based on his convictions about the ubiquitous and uniquely powerful nature of naturally occurring wavelengths. In his middle years, around the turn of the 20th century, he produced experiments in his laboratory at Colorado Springs based on wireless telegraphy. Tesla wished to demonstrate that the earth was a conductor of electricity, and that the ionosphere was full of radio and other electrical signals. He was able to produce artificial lightning under laboratory conditions, and observed the existence in nature of many different wavelength forms. This experimental work was instrumental in the development of radar, and rumors persist that one of the applications of Tesla’s work in later years was to develop a so-called “death ray.” This was rumored to be based on focused and immensely powerful sound waves, or on the naturally occurring terrestrial electricity Tesla had successfully harnessed. It was at Colorado Springs too that Tesla recorded signals of what he believed to be extraterrestrial radio broadcasts, ideas that were rejected by the scientific com-

munity. The regular signals, which appeared in specific groups, we now know to be ionospheric phenomena which may be due to the relative positions of the planets at given times. Tesla ultimately, although these experiments are now largely discredited and are normally explained by the scientist's failing mental health, spent much time trying to signal Mars via radio broadcast. By the end of his life he wished to unify his wavelength experiments by proving the earth to be a great satellite dish — a cosmic transceiver. He wished to demonstrate the notion that interplanetary resonance was the only medium to facilitate human evolution. Along with these cosmic ambitions, and long before his succumbing to mental illness, Tesla also chose to demonstrate the natural occurrence of wavelengths in nature by letting electrical frequencies flow through his body in order to light wireless lamps! All of Tesla's experiments with radio and electrical power lie at the very heart of the notion of an imaginary wavelength, bringing inextricably together the body, the signal, and the aesthetic and scientific possibilities of wavelengths as supernaturally exact media.

A little time after Tesla's major work, and shortly before his death, when commercial broadcast radio was already a well-established part of the information and leisure soundscape, Orson Welles broadcast his dramatization of H.G. Wells' *War of the Worlds*, in 1938. Welles, intuitively grasping the nature of fictional content in broadcast forms, thus became the first to broadcast a "reality" show. The script for the broadcast transposes the events to an actual, contemporary American landscape from 19th century England, and proceeds by a number of double blinds, using the normal radio drama broadcast format on commercial radio (which has remained largely unchanged). Thus, the "normal" broadcast is "interrupted" by a bulletin of a strange phenomenon observed shooting from the surface of Mars, and the fragmented and panicked structure of the piece, dramatically depicting a very real-sounding apocalypse for the United States at the hands of merciless Martian invaders, proceeds through the aural accounts of different characters.

The performance is famous, of course, for having produced widespread hysteria across the United States. Despite the clear identification in the broadcast of its fictional nature, listeners were much more ready to assume the truth they heard in that CBS broadcast, that the stars had come down and had brought alien invaders on the sound waves. The social fabric of America, for that instant, fell apart — and all because of a radio show. The damage caused led to Federal commissions and further regulation of content on the national airwaves, a tendency to rein in the power of the wavelength that continues unabated.

What Tesla and Welles were interested in, in their different ways, was the notion of alien communication, but communication of any kind is not really the issue. As Tesla discovered, at the forgotten ends of the audible frequency spectrum are ionospheric phenomena, which some continue to

think natural, and some think manufactured. The regular, keening pulse of whistler signals and the eerie crackle of sferics are among these. The imaginary wavelength connects us thus to terrestrial and cosmic phenomena, allowing us to capture and re-use this literal “music of the spheres.”

The memorable concluding soliloquy of the lead character Scott Carey (Grant Williams) in Jack Arnold’s 1957 sci-fi classic *The Incredible Shrinking Man*, makes this point very cogently. At the end of the film, the eponymous hero, shrunk to a size bordering on microscopic by a mysterious ocean-borne cloud, ponders his experience as he stands on the threshold of the known, physical universe. He muses that he is now able to draw together the “infinite and the infinitesimal,” the atomic and the cosmic, as he is about to disappear from the visible physical universe.

In the same way, the imaginary wavelength draws together the microcosmic, such as the resonance of sound frequencies at the level of individual cellular structures, with the macrocosmic, like the mysterious sound phenomena at the outer limits of the frequency spectrum we are able at this point to access. Kittler’s theory of the phonographic intuits this fundamental characteristic of the imaginary wavelength — that it can connect the conscious experience of culture in forms of sound art with the absolute realm of possibility normally excluded from conscious experience but inscribed in our recording angels, our absolutely faithful phonographs. This means of connecting the cultural, the enculturated and visualized body, with an unconscious emerging from sound frequencies, these sounds and wavelengths form a new condition of possibility for us. The rediscovery, redirection and reapplication of frequencies are nothing short of a last frontier for human culture, not another message, not simply more information. Indeed, seen as an avant-garde, it could be that sound is the aesthetic without representation — since there is no visual object or use of language. Can any other medium hope to achieve as much, without relapsing into the infantilism of technology? What do your dreams sound like?

Notes

- 1: Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction” in *Illuminations* (London: Pimlico, 1970).
- 2: Friedrich Kittler, *Gramophone, Film, Typewriter* (Stanford: Stanford University Press, 1999), pp. 85-86.
- 3: Ibid, p. 89.
- 4: J.G. Ballard, *The Atrocity Exhibition* (San Francisco: Re/Search, 1990 (1969)), p. 43.
- 5: Jean Baudrillard, Two Essays: “Simulacra and Science Fiction” and “On Ballard’s Crash” in *Science Fiction Studies* # 55, Vol 18, Part 3, November, 1991.
- 6: Friedrich Kittler, *Gramophone, Film, Typewriter*, p. 89.
- 7: Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction”, p. 230.
- 8: Stephen Kern, *The Culture of Time and Space 1880-191* (Cambridge: Harvard University Press, 1983).
- 9: Mary Ann Doane, *The Emergence of Cinematic Time* (Cambridge: Harvard University Press, 2002). p. 11.
- 10: Luigi Russolo, *The Art of Noises* (London: Pendragon Press, 1987 (1913)).
- 11: Walter Benjamin, “On Some Motifs in Baudelaire” in *Illuminations* (London: Pimlico, 1970), pp. 152-196.
- 12: Jacques Attali, *Noise: The Political Economy of Music* (Minneapolis: University of Minnesota Press, 1985).

Mikkel Bolt Rasmussen

PROMISES
IN THE AIR:
RADIO
ALICE AND
ITALIAN AU-
TONOMIA

Radio Alice retransmits: some music, news, gardens in bloom, a torrent of words, inventions, discoveries, recipes, horoscopes, magic potion, love, war bulletins, photographs, messages, massages, lies.

Radio Alice

It is not a matter of liberating the "Me," but of liberating oneself from the "Me" and thus liberate history from its origins. And right away. Without further delay. The moment is now, the time of the end of suffering is the time where suffering becomes insupportable.

Giorgio Cesarano: *Manuale di sopravvivenza*

Looking back on the radio station he helped create, Franco "Bifo" Berardi offered the following summary comments of the accomplishment of Radio Alice: "The voice of Radio Alice was the symbol of a social class without power acquiring a voice; acquiring richness and communication; it was the symbol of a cultural transformation, it was the symbol of a revolt."¹ As historical observers we have to agree with Berardi's claimed link between Radio Alice and the social movements of the same moment. Radio Alice was characterized by a critical stance towards the institutions and disciplines that dictated how one was to live, i.e. work and consume in the spectacular-commodity society. As such Radio Alice was part of a much wider movement that stretched back to 1968 when students and workers all over the world refused the identities that the bio-political machines and the communications-networks of the capitalist state offered them. Radio Alice took part in the *Autonomia* movement sweeping through Italy in the 1970s emphasizing the self-organizing power of labor and everyday practices. Influenced by the Situationists' critique of everyday life and Gilles Deleuze and Félix Guattari's politics of desire *Autonomia* rejected representational politics and the Stalinist party with its centralized leadership model in favor of a loose structure of locally based groups living differently. Radio Alice was part of a generation who shared a sense of possibilities and opportunities and who refused to live the lives of their parents. Instead they wanted to forge new identities based on the negation of existing divisions: the hierarchy and competition of the consumer society was to give way to self-management, individual self-determination and cooperation; instead of nationalism and racism they wanted international solidarity and egalitarian humanism; rather than the accumulation of wealth they fought to end poverty; instead of passive consumption and sterile work they wanted an everyday life characterized by creativity.

Radio Alice played a central role in a larger movement that not only challenged the existing institutions but also tried to live differently: "Let's take control of our lives" (*riprendiamoci la vita*) was the catchphrase of this vast experimental wave of groups, vanguards and collectives that swept across Italy during the 1970s. Just as factory workers paralyzed industry

through strikes and fought for control over production and profits, just as feminists called into question the institution of the patriarchal family and developed alternative structures of support and agency, just as youth groups refused the structure of the family and squatted houses, so Radio Alice took control over the radio waves and tried to reinvent the medium of radio and use it as a laboratory for the creation of a new mao-dadaistic life.

For this reason Radio Alice occupies a position of great importance in recent cultural history – it stands as a test case, a rare opportunity to evaluate the state of the relations between the medium of radio, the post-neo-avant-garde and an emergent leftist culture. In a certain respect Radio Alice was allied to the events of 1977 as Courbet was allied to the political events in 1848, Mayakovsky to the events of 1917 and Debord to the events in 1968. Radio Alice played a dramatic role in the insurrections taking place in Bologna in 1977, when it forwarded information from phone-kiosks to gangs of demonstrators about police movements during the fighting, until the police stormed the station and closed it down. As such Radio Alice stands out as a privileged test case for the intermingling of radical politics and experimental art. By playing a pivotal role in the turbulent events of 1977 where the combination of a systematic political crisis and growing popular opposition culminated in a militant revolt against the established system, Radio Alice remains an important reference point in discussions about the connections between art and politics in late capitalism. Confronted with the attempts to control and direct the accelerated movements of globalization, artists and activists presently struggle with problems not dissimilar to the ones Radio Alice struggled with in the middle of the 1970s. Although Radio Alice was deeply rooted in a wide movement of protest that has not yet materialized in the present conjuncture – where the anti-war protest has not been able to articulate a real alternative to the so-called war on terror that military neo-liberalism has waged – both situations are characterized by the confrontation between a counter-revolutionary logic and a revolutionary potential. In the 1970s the Italian state responded to the enormous challenge of the *Autonomia* movement not only by violent repression but by removing all the obstacles to the even flow of exploitation and its reproduction; what happened was a revolution in reverse, an impetuous innovation of capitalist modes of production, forms of life and social relations.² Today the American bourgeoisie tries to impose on the world a new set of rules of the capitalist mode of production. The globalization of American interests demands the deconstruction of national sovereignty and the logic of territorial borders and the recomposition of national elements into functional branches with transnational vocations as part of a reunification of this balkanised world under “the natural leadership” of the United States.³ When reacting to this development it might be relevant to look into the experiences that earlier protest movements acquired. Radio Alice presents itself

as a privileged point of such an inquiry that might help us move away from some of the most dangerous pitfalls of an artistic-political engagement.

New airborne spaces for freedom

After the Italian Constitutional Court in 1975 ruled that the state monopoly of the airwaves was illegal a swarm of free radio stations were set up all around the country. Less than a year after the ruling of the court more than 800 radio stations were broadcasting. Many of these were of course commercial stations but others like Radio Alice in Bologna functioned as cultural laboratories for the new social movements that were making their presence felt on all aspects of life in Italy. Young people all around Italy refused the life that had been prepared for them as workers and consumers and dropped out of the existing civil society and instituted various counter-cultural mores. In cities like Rome, Milan, Turin and Bologna they organized themselves into collectives, squatted in buildings and set up free radio stations. As an attempt to counter the colonization of everyday life the social movements created their own counter-public sphere with radio, journals, leaflets and sheets. Inspired by the conclusions of the Frankfurt School and the Situationist International the new social movements believed the mass media was a major method of social control in capitalist societies. As a replacement of earlier religious means of enforcing public discipline the Keynesian-Fordist societies used more flexible methods of social control. After the Second World War different emotion machines like radio and television that circulated representations consolidating the consumer society had saturated the cultural field. Radio and television were powerful instruments of social control, which stitched everybody into the fabric of the new affluent society. Compared to newspapers and print media, radio and television were far superior in capturing the attention of the masses: round-the-clock broadcasting created potentially permanent listeners. The new social movements fully understood this development and were engaged in a vicious battle over the control of the new apparatus of symbol management. A veritable guerrilla warfare of the airwaves was launched between bourgeois rationality and the new revolutionary subjectivities that refused the predicates the image and sound machines transmitted.

In an attempt to subvert the bourgeois models of desire that commercial radio was promoting Radio Alice did not only broadcast political counter-information but transmitted in a poetic-frenzied style. "Radio Alice did not only propose to transmit an alternative content through the language of the radio. It first and foremost proposed to explode the language that radio had inherited from five decades of radiophonic communication following the semiotic and functional criteria of political and economic authoritarianism."⁴ Radio was not to be used as the equivalent of a party newspaper; radio frequency was not to be used as an extra outlet for the revolutionary truth already defined by the (avant-garde of the) revolutionary movement.

The transmission of an already fixed truth would not challenge anything. The transmission of non-sense was a much more earthshaking approach. But it was not only the content of radio that had to be changed in order to challenge the enormous symbolic production apparatus of capital. It was the very structure of radio that had to be subverted. Bombastic messages propagandizing for the revolution would only reinforce the complex workings of the commercial radio that seduced and reduced the listener into a passive receiver. Instead the listener was to be provoked by recitations of nonsense poetry, anecdotes about everyday life and experimental music, free jazz and live transmission from marches and strikes. Radio Alice wanted to explode the language that the ruling order used; it tore it apart and exposed its complicity with the present order of things. Language was not a neutral instrument at the disposal of everyone. Therefore a new language had to be invented, an irrational mao-dadaistic language beyond the separation of poetry and politics. Rationality was to be substituted by the irrational. The creation of this new irrational language went hand in hand with the subversion of ordinary radio. The radio should no longer mirror the world outside but should create an alternative and just as real autonomous world where the commodity did not rule. "Radio Alice will give a voice to anyone who loves mimosa and believes in paradise; hates violence but strikes the wicked; believes they're Napoleon but knows they could just as well be after-shave; who laughs like the flowers and will not be bought by love gifts, who will steal and will not sail away, to smokers and drinkers, jugglers and musketeers, the absent and the mad."⁵ Radio Alice created a space outside the institutionalized channels of communication. Within mass media any new or unforeseen event was inevitably turned into another example of the same and thereby confirmed the distance between speaker and listener. In Radio Alice everyone could (at least ideally) speak back and raise their voice no matter how bizarre or unreasonable.

Instead of the passivity that characterized the way the capitalist state used new media such as radio and television, Radio Alice sought to activate the audience. "Information" was collectively created. The traditional roles of the listener and the speaker were thus exploded in Radio Alice where information or entertainment were not commodities produced outside the communication network. Everything took place *hic et nunc*; and the information or the messages that Radio Alice transmitted were not the private property of the radio station or a reporter but was everyone's. A space for freedom beyond ownership was opened. One of the means for achieving this space for freedom, where the role of speaker and listener was dissolved, was the phone-in. People just phoned-in and talked, sung or read out poetry on the air without any control of the radio station or the journalist. The dialogic matrix of the telephone infiltrated the one-way communication of the radio. Unlike commercial radio stations Radio Alice did not have a delay-device that put people's voices on air some seconds after they had spoken en-

abling the station to cut out obscenities or undesirable utterances. Instead everyone was on the air direct. The phone-in made radio accessible in a completely new way, making it possible for people to gain a voice in the public sphere. Testimonies that would not normally be heard in any mass media context would suddenly reach a fairly large audience. Unmediated and immediate communication expressed in popular language rather than the dissemination of an already established party line. Private confessions, denunciations and swearing attacks on factory bosses suddenly filled up air-time. With the medium of radio it was all of a sudden possible to create a direct democracy dreamt of by the Dadaist, the Spartakists and the Russian avant-garde and the Council Communists during the revolutionary moments between the wars. Radio Alice did not seek to impose programming on targeted segments of mass audiences using marketing criteria. Instead Radio Alice sought to challenge the relationship between speaker and listener, democratizing the radio by making it transmit as well as receive. The usual passivity of the listener was to be challenged, transforming the radio into a network of counter information. The merging of ears and mouths transformed the radio into a virtual piazza. The traditional hierarchical structure of the radio gave way to an egalitarian flow of voices and sounds not necessarily meant to be comprehensible as political statements or meaningful utterances. With the use of radio, Radio Alice was well on its way to realizing the age-old dream of a fusion of everyday life and poetry.

(The supersession of) Italian politics

Unlike anywhere else in Europe Italy experienced a wave of protest in the 1970s where millions of students, immigrants, feminists and workers protested and challenged the control mechanism of the social order. Whereas the protests that culminated in May 1968 in most European countries died out after a few years, in Italy the conflict escalated and led to a series of confrontations between a vast social movement and the established political order. This confrontation between a broad social radicalization and the functionaries of Italian capital within the state apparatus and the established political system was not only the outcome of the desperate actions of an obstinate subject composed of workers, students and the unemployed. Rather, the confrontation was the result of a century long political development. The political scene in Italy had since the late 19th century been characterized by a special political process in which political conflicts were neutralized. The fierce protests were partly a response to this tradition where all major political actors work together to prevent real political challenge and keep the nation together as a single entity.

The existence of "Italy," Italy as a nation, has never been certain. Although Italy's roots extend back to antiquity, the regionalism of Italy is so intense that it often threatens to subvert the actions of a national government. As Antonio Gramsci, among others, pointed out the national entity of

radio alice

Radio Alice, poster, 1977.





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Italy has always been uncertain and the belated unification into a nation-state was always an incomplete phenomenon.⁶ Since the unification of the Italian nation in 1870 Italian political life has been characterized by a difficult process whereby the state and the dominant political actors had sought to unify the nation and prevent the heterogeneous social and cultural field from exploding. This was accomplished through a process called *il trasformismo*, where political life is organized so as to prevent real opposition and resistance by giving all influential organizations and parties a share in the exercise of power.⁷ This depoliticization makes it possible to contain revolutionary potentialities through a flexible recuperation of all radical demands. Before World War One both the Catholic Church and the labor movement were implicated in the decision-making process and when Mussolini took power in 1922 he sought to uphold the flexible political system. After the end of World War Two and the fall of fascism the different fractions of the resistance movement constituted a government where communists, socialists, liberals and Catholics took part.

The post-war years were a period of intense transformation for Italian society. After the Second World War most of the economy was in a state of chaos but within a few years the economic situation of the country was startling different with high rises in output, productivity and consumption. A massive modernization of Italy was carried out with large-scale industry leading the way. Following the development of large-scale industry in the North of Italy (Genoa, Turin, Milan) a huge number of people migrated from countryside to city, from South to North. But the economic growth of the immediate post-war years died out in the 1960s and was replaced by a rise in prices and a drop in economic competitiveness on the international market. Despite a one billion dollar loan from the USA Italy experienced severe economic problems in the years from 1966 and forward. Workers started protesting against low wages and a speeding-up of the work process. Disappointed with the political parties and increasingly frustrated with the labor unions workers simply stopped showing up for work while students occupied universities.

The protests exploded in the autumn of 1969 in a series of strikes where workers fought the police. The strikes marked the prelude to a massive wave of worker's struggles that fed into a broader social radicalization. During the early 1970s there was an outbreak of struggles autonomous from the trade unions and the Communist Party. Factories, workplaces and universities were occupied. These struggles caused a crisis in the more orthodox Marxist-Leninist organizations like *Potere Operaia* led by Toni Negri, organizations that had been playing a hegemonic role in the struggle since 1968. A loose collection of local groups with diverging views but with a shared commitment to autonomous struggle against the established political system replaced the traditional vanguard groups. Feminists, students, unemployed and workers constituted a vast movement of protest.

The political establishment tried to accommodate the growing tensions by forming a number of successive governments that however were unable to end the conflict as the functionaries of Italian capital were unwilling to improve work conditions and pay. As the conflict escalated more and more workers and young people mobilized and advanced still more radical demands while the functionaries of capitalism fiercely fought the advent of socialism. Both the political and the economic situation of the country deteriorated during the 1970s and led to growing mistrust towards the political system, which was unable to solve the problems and direct the chaotic development. The corrupt and authoritarian regime was in a state of advanced decay. Crime and political violence rose drastically, fascists murdered left-wing activists and urban guerrillas like the Red Brigades were formed, abducting state officials and trade unionists and robbing banks.

The resistance culminated in 1977 with violent clashes in several Italian cities between protesters and the police. Students and unemployed youths desperately protested against the climate of economic crisis and political conformism that marked the regime of national solidarity. The situation in Italy in 1977 was characterized by huge tensions; the Italian state and the national bourgeoisie had more and more problems controlling the alienated and discontent subjects that refused the roles as workers and consumers they were supposed to play in the advanced capitalist economy and the political system. Confronted with the challenge of the protest movement the political system showed its strength and flexibility: repression and unity in which all political parties – including the Communist Party who came to the rescue of the Christian-democrats – joined forces against the protesters. The Communist Party helped to bale Italian capitalism out and offered a “historic compromise.” The party gave its backing to a series of governments led by Giulio Andreotti and helped overcome resistance to the government’s program of austerity measures, thereby helping to stabilize Italian capitalism. The Italian state responded to the protests with determination: thousands of people were arrested and youth clubs and radio stations including Radio Alice were closed down; a state of emergency was declared that led to the repression of the protest movement and made it impossible for the different groups to function and advance a radical critique without being accused of committing a crime.⁸ The counter-revolution accelerated and destroyed the revolutionary movement.

Autonomy

The protest movement, which Radio Alice was part of, was wide and very diverse, including a range of very different groups united in the resistance towards the political system. The groups of the *Autonomia* movement were highly skeptical towards political parties as well as unions, which were considered nothing more than part of the machinery of the state and capitalism. The aim of the post-political actions of *Autonomia* was not the

conquest of the state but the creation of zones of self-organization. Rather than contestation and directs attacks on the state *Autonomia* practised exodus and refusal.

Although the *Autonomia* movement in Italy strictly speaking wasn't formed until 1973 and 1974 the reference to autonomy was older. During the 1960s the concept played a role alongside the concept of *Operaismo*, workerism.⁹ Italian workerism first manifested itself through the militant sociological journal *Quaderni Rossi* founded by Raniero Panzieri in 1961. Most of the contributors to the journal were somehow connected to syndicalism, the Communist Party or the Socialist Party. In 1963 a split occurred when Mario Tronti, Negri, Sergio Bologna and Alberto Asor Rosa among others founded the journal *Classe Operaia*, which agitated for a more direct involvement in class struggle than Panzieri wanted. In this period Tronti advanced his controversial revision of Marxism when he proposed that the driving dynamic in capitalist development was not the domination of labor by capital but on the contrary the resistance of the working class, labor's ability to resist capital.¹⁰

Following the events in 1968 and 1969 two new organizations were created that united radicalized workers from Fiat and other militants with intellectuals like Negri and Bologna, while Tronti joined the Communist Party. These organizations, Lotta Continua and Potere Operaio, played a significant role in the strikes and campaigns of the early 1970s but they both collapsed as the economic crisis intensified and new antagonistic subjects like the women's movement and radicalized students made their appearance on the scene. These subjects introduced new actions not recognizable within the framework of the workers' movement that was still to a large extent dominated by an old fashioned vision of political actions. The territory on which the struggle against capitalism and the bourgeois state was fought was expanded to include not just the work place but also the urban territory and everyday life. As the economy got worse new forms for struggle led by the unemployed, feminists and students supplemented or replaced the more traditional working-class struggles directed by groups dominated by Leninist ideas about the revolutionary organization. The movement included a wide range of different groups broadly united in two fronts; on the one hand the more orthodox *operaismo* inspired groups that went under the name of *Autonomia Operaia*. This front included groups in Rome led by Paolo Virno and groups in Milan and Padua with Toni Negri as a front figure. On the other hand the *Autonomia Creativa* movement, which privileged struggles outside the strictly economic sphere and included feminists and the so-called metropolitan Indians that ran Radio Alice.¹¹

The *Autonomia Creativa* was organized in small groups mostly composed of unemployed and students and primarily focused on a revolution of everyday life. The engagement on behalf of the working class as the subject of history was no longer tenable according to Radio Alice and the creative

wing of the *Autonomia* movement. As Franco “Bifo” Berardi, the leading figure in the group running Radio Alice, wrote, the totalizing pretensions of the traditional left had to be thrown aside in favor of flight and active desertion. As the graffiti said: “After Marx, Aprile.” The problem with the workers’ movement was that even its most advanced actors like the Situationists – which had severely critiqued the idea of a Communist Party leading the revolution – expected happiness from history, from the realization of communism and the arrival of a non-alienated totality. Radio Alice and the metropolitan Indians instead fled the political scene and refused to present themselves as a new totality in the making.

Who said that the political was the place from where liberation and communism could come? The political – with its pretensions of administration from a general point of view – is incapable of understanding and integrating the conduct, the needs and the desires of the subjects that are formed in the big cities. As long as Communism remains imprisoned in the territory of the political the subject will only express itself through passivity, (auto)destruction, flight, terrorism. “[T]he revolutionaries are more powerful when they place themselves on the territory of autonomy, dissemination, the practice of desire, appropriation, sabotage, and weaker on the territory of confrontation, of organisation and the use of violence in the taking of power.”¹²

Drawing on Deleuze and Guattari’s *L’Anti-Œdipe* as well as Giorgio Cesarano and Gianni Collu’s *Apocalisse e rivoluzione* “Bifo” and his comrades advanced an anti-political stance beyond the traditional workers’ movement and its insistence and reliance on a Marxist-Hegelian understanding of politics and history.¹³ They wanted to go freely on their path, to exit from the obsession with the historical totality.

The groups constituting the creative wing of the *Autonomia* movement, in which Radio Alice played a central role, were characterized on an organizational level by a refusal of the party form and the creation of a myriad of small groups, which were organized around different social practices like running a radio station or a journal. As “Bifo” Berardi phrased it: “the movement [...] has no head.”¹⁴ Cultural and aesthetic experiments played a large role in the practice of these groups that had a penchant for the deliberate bizarre that for instance took the form of fantasmatic identification with American Indians. People lived differently and dressed like Indians with feathers and face paint, occupied houses and practised autoreduction.¹⁵ The *Autonomia Creativa* groups were attempting to transgress the divisions that society had created through a use of new media like the radio and telephone and through an experimental use of language. The techniques enabled the constitution of a zone of linguistic self-organization of the movement in alliance with other areas of auto-organization such as the factory and especially with non-institutional zones of experimentation with ways of life.

It was the hope that *Autonomia's* anti- or post-politics could escape the logic of both capitalist power and of conventional political forms of resistance practised by the party or the avant-garde. Therefore the new antagonistic subjects did everything *not* to conform to the traditional ideas of the workers' movement of what constituted a political subject and a political action. As "Bifo" explained: "Dissolution, unruliness, celebration: that's the terrain on which the behaviour of youth, women, students, workers are situated. And if that isn't politics for the bureaucrats, so be it! It's our own politics, and if that annoys you, we can give it another name. Appropriation and liberation of the body, collective transformation of interpersonal relations: such are the forms under which a project today is elaborated against factory work, against every order predicated on expropriation and exploitation."¹⁶ As such, autonomy did not mean the autonomy of the working class — the grandiose and abstract project of the proletariat as advanced by the Communist Party was a thing of the past — the autonomy of workers meant the autonomy of workers in regard to their role as workers, it meant refusal of work, or sabotage and absence from the factory or workplace. The autonomy of women meant the refusal of domestic work, the autonomy of women in regards to their role as women in a patriarchal civilization, women refusing to silently reproduce the masculine work force. Autonomy meant the autonomy of youngsters and unemployed who refuse their roles as excluded, who did not want to shut up and invaded the political scene demanding social salary, demanding a wage for not doing anything, not doing anything "productive." As such the *Autonomia* movement and its anti-political practice was not so much the entry of new subjects — young people, women, homosexuals, unemployed — onto the political scene as a violent desubjectification, the rejection and betrayal of the role as subject. This was what united all the groups allied to the *Autonomia* movement despite their differences; they distanced themselves from society, they did not want to partake in it. "For my own part I do not see the history of class consciousness in a Lukacsian sense, as some future all-embracing recomposition; on the contrary, I see it as a movement of intensive rooting within my own separateness. I am *other*."¹⁷ This detachment was not an affirmation of an essential difference but a flight. Capitalist society would like nothing more than the affirmation of yet another identity it could package and sell, the metropolitan Indians, the young proletarians and the feminists argued withdrawing whenever the press got interested in their dances and experiments. The means to fight capitalist society was interior desertion. Only by being absent was it possible to live differently and construct another culture while showing indifference to the values of the spectacular commodity society. Autonomy meant desertion from the family, from the factory and the office, desertion from the school, desertion from the role as men and women, father and mother, desertion from all the roles society used to capture people including the role of the militant. As Giorgio Cesarano wrote: "We know the possibility of

other vital insurrections, but we also know that their rareness in history [...] indulges us in this mythology of subversion and the subversive self that is among the most efficient means for avoiding revolutionary life.”¹⁸ Endless desertion.

Taking its cue from Deleuze and Guattari’s schizoanalysis the young proletarians thought of themselves as being nomads on the run, fleeing the privatized production of capitalism. According to the two theorists, capitalism made universal history possible but at the same time hindered its realization by recoding and reterritorializing for the sake of private surplus accumulation. “Why, at the same time as it [capitalism] discovers the subjective essence of desire and labor — a common essence inasmuch as it is the activity of production in general — is capitalism continually realienating this essence, and without interruption, in a repressive machine that divides the essence in two, and maintains it divided — abstract labor on the one hand, abstract desire on the other: political economy *and* psychoanalysis?”¹⁹ Labor had been freed from objective pre-determination under capitalism only to be re-enslaved as commodity. The aim of schizoanalysis was to bring both psychoanalysis and political economy to the point of auto-critique where their asceticism and axiomatization would explode, elevating difference and multiplicity over unity and reconciliation. By stressing the creativity of being — resistance is primary — and explaining the role of capitalism as a mediation and capture of the always active work of the desiring machines Deleuze and Guattari made it possible to conceive of a different kind of politics, a desiring politics that had nothing to do with the political actions of the Stalinist party or the Leninist avant-garde. Directing actions from above the party or the avant-garde represented the interests of the masses to the masses themselves; thereby the party or vanguard constituted the masses as a subjugated group. Schizoanalysis would free labor-power from specific means of production and free desire from established organs and objects like the nuclear family and the œdipal representations of desire promulgated by psychoanalysis. Everything was to take place on the surface, there was no interior, there was no lack, no specific object to be desired. The revolution was not something authentic; the revolution was artificial. Continual reinventions all over the place.

The Deleuzo-Guattaristi autonomists expanded the struggle against capitalism from a mere focus on the workplace to a fight over the urban territory, the composition of an ethical fabric on the basis of detachment. The metropolitan Indians, the feminists, the homosexuals and the young proletarians wanted to have nothing to do with the capitalist world of commodities, slogans, politicians, refrigerators and movie stars. They refrained from communication to this world; they had nothing to say to this world. Therefore the different acts of destruction and sabotage were not followed by explications or an appeal to History. Whenever politicians and the functionaries of Italian capital asked: “but what do you want?” The young proletarians

replied: "Nothing, we are not citizens, we do not belong to this society, and we will never accept your point of view, the point of view of totality. We refuse to play this game, that's all." "Don't take power" ("Non prendere il potere"), as it was written on the cover of Radio Alice's journal *A/Traverso*. The diffuse guerrilla of the *Autonomia* movement did want to be recognizable as a political subject, they did not want to produce nor consume neither take power. They did not want to ameliorate society, to transform it, not even destroy it. Society no longer existed; it had imploded. "[T]hey want the masses to speak. Mini-parliaments and school councils, district councils, cultural decentralisation, thousands of delegations in which the real conditions are not changed and in which we get no power whatsoever: employers send a sociologist, a psychologist, an anthropologist, a reformer, and finally a cop with a stick. They want us to speak, but we have nothing to say to them. [...] Their politics, their culture, it's like denouncing oneself. We keep silent."²⁰

Communication between art and politics

The realization of art, the unleashing of desire, was to take place through the creation of autonomous spaces where it was possible to live beyond capitalist logic. As more and more people got infected with autonomy capitalism would crumble. The defeat of capital was already happening. Radio Alice was a platform for desiring behavior. It was a concrete attempt to use the experiments of the avant-garde as means towards creating a new life through the transmission of subversive communication. Cultural production as a place for revolution. Theory, delirium, madness and aggressive enthusiasm mixed when Radio Alice played Patti Smith or Frank Zappa, recited Wilhelm Reich, David Cooper, Raoul Vaneigem and Guatarri and opened the microphones for everyone.


Everybody could speak on Radio Alice including ultra right wing activists that threatened to bomb the radio. "Dirty communists, we will make you pay for this, we know who you are."²¹ A radical democratic public sphere was created where more or less everything imaginable was broadcast. The borders separating speaker and listener were blurred, everyone could speak; there were no representatives, no responsible delegates speaking for the masses. The old centralized media system was challenged by the dirty communication of the masses, by voices without any designable status. The pluralization of voices, the "headless" communication, made it impossible to extract a common statement or a claim the state could identify. "Radio Alice transmits everything: what you want and what you don't want, what you think and what you think you think, the things you come here to say or when you telephone this number 66 or 271428 or 80."²² The "a" in *A/Traverso* stood for alteration, anonymous, alternative, a-socialism and the millions of Alices who did not have a voice. "The first letter of a new alphabet for those who start screaming, communicating, talking about themselves without first having responsibility."²³

Following Dada, Surrealism and the Situationists, Radio Alice strove to abolish not only the separation between speaker and listener, between artist and audience, but also between art and life. "Let's start from the lesson of Dadaism."²⁴ Provocation, theoretical analysis, political action and creative experiment fused in a heterogeneous praxis. The anarchistic imagination, which had survived in art, had to be released and set free in everyday life. This did not mean that fragments of everyday life were to be transformed into art works in order to challenge the institution of art. The point was to make the anti-artistic techniques of the avant-garde available in everyday life. The strategies that the Dadaists, the Surrealists and the Situationists had developed and used should be the means through which a new life could be created. That the institution of art would be transformed in this process was a side effect. It was life that had to be revolutionized. As the Situationists had made clear in the 1960s, it was in everyday life that the struggle against capitalism was to be fought.

Through the experience of the radio it was possible to situate rage and desire in the everyday. It was there that the battle was to be won. "Terror strike root in everyday life, the terror of the prison and the asylum, of the barracks and of unemployment, family and sexism. Terror against the desires in order to reduce the everyday to the miserable form that the church, the family, the State have always confined it to."²⁵ The radio made it possible to regain control over the everyday and create zones of linguistic self-organization where it was possible to experiment with life, art and politics. Radio Alice was such an autonomous zone beyond the reach of capitalist forces. At least until the police literally stormed through the front door and closed down the radio and arrested more than thirty people involved in running the station.

Inspired by de Sade, Lautréamont, Majakovsky, Artaud, Reich, Dada and Surrealism, Deleuze and Guattari, Agnès Heller and the Situationists Radio Alice created mao-dadism, where "dada" was the critique of the separation of art and life, of praxis and theory, and "mao" was the materialist dimension that transcended this structure. "Majakovsky's instruction: writing, creativity, communication can exit from the separate world where art lives and become subversion. The historical condition for the realisation of this instruction is the level of maturity of the working class, of the young proletariat that incarnates [...] the refusal of the performance of work. The communicational means of the radio is the territory on which writings' practical and subversive modality becomes possible."²⁶

Radio Alice was not so much counter-information as an attack on the very structure of mass media. Giving desire a microphone. Inform/Ation (*Inform/Azione*): Action that informs and communicative praxis that transforms. If one just transmitted another information one risked reproducing the paranoid communication system that ultimately supported capitalist society. The function of transmitter was to be rejected; the passive audience



E' ora che le tribù degli uomini si uniscano
per scacciare dalla terra
i falsi amici dell'uomo

Abbiamo
dissotterrato
l'ascia
di guerra

I Circoli
Proletari Giovanili
di Milano
propongono
a tutta la gioventù
creativa un

Happening nazionale del proletariato giovanile

Due giorni per stare insieme,
discutere e organizzarsi
per conquistare la gioia a viva forza

MILANO, 27-28 NOVEMBRE UNIVERSITA' STATALE
E' ASSICURATO LO SPAZIO FISICO PER DORMIRE
PORTARSI I SACCHI A VELO

was a thing of the past, the audience was on the air and out in the streets transforming everyday life. Experimenting with communication was part of the political practice of a wide movement where work, political action and poetry became indissociable. The medium of the radio made the present eternal, there was no interval in communication, just a material and bodily present where people phoned in and asked if someone had seen their bicycle while others were busy trying to catch the noise of grass growing. The seriousness of politics was questioned by this joyful militancy. A speaker talked about the current drug prices followed by a recitation of a passage from Roland Barthes' *Le plaisir du texte* interrupted by an interview with a worker on strike. No one was safe; politicians were tricked into believing they were talking to colleagues on the phone when really they were broadcast on the air, caught saying too much or expressing their distaste for the masses.

"An invitation not to get up today, staying in bed with someone, fabricating musical instruments and war machines."²⁷ Thus started the regular transmissions of Radio Alice on the 9th of February 1976. Just stay in bed, don't go to work, flee. This "non-activity" or laziness exposed a potentiality, the possibility to be otherwise or not be at all. The flight from the state's subject-producing biopolitical apparatus as well as from the authenticity cravings of identity politics had begun. Without the capacity to apply representations the hope was that the capitalist state would die as the young proletarians erased and desubjectified themselves. The capitalist state tried desperately to identify human beings with a social destiny. Autonomy was the continual change of social relationships, sexual identification and disidentification, the destruction of all the identities the spectacular market society offered human beings. "No to the specialists of rebellion!" (*No ai specialisti della rivolta*). Concrete political struggles fused with the emergence of new behaviors and modes of life. The linguistic rebellion with the political discourses of the parties and political organizations created an uncertainty, it was impossible to recuperate the movement because it did not present any recognizable slogans or common codes. The enemy was buried in a roar of laughter. Radio Alice was an immanent expression of this materialist transversal politics; it was in that sense that the sky finally had fallen to the earth (*Finalmente, il cielo è caduto sulla terra*), as "Bifo" wrote.

The promise of Radio Alice was met with a violent response by the Italian state, which closed down the station and imprisoned a large group of people involved in its running. The *Autonomia* movement was defeated by government repression. Supported by the Communist Party the government drastically restricted civil liberties and put thousands of activists in prison. The movement was not able to respond, it was torn between state repression and the terrorist activities of the Red Brigades. In a few years Italian capitalism regained strength and the rise of Silvio Berlusconi was to become the great symbol of the resurgence of capitalism on the Italian pen-

insula in the 1980s. In retrospect, the *Autonomia* movement seems to have triggered a process in which the refusal of capitalist rule was translated by capitalism into deregulation, immaterialization and flexibilization of work and downsizing. The experiments of the 70s were the preparation of capitalism to acquiring a new post-Fordist form in which the radical subjectivities were fully incorporated into neo-liberalist capitalism.

This is where we are today; looking back at the actions and transmissions of Radio Alice we can observe that their experiments were different in tone from earlier artistic movements associated with emergent leftist political cultures. Compared to the bravado of Tretjakov or Debord, Radio Alice was strangely contradictory and without grand designs. The ideal of the avant-garde finally became obsolete and gave way to self-organization. *Autonomia* was desertion and subtraction, not a new totality in the making; the claim to historical agency was replaced with nonsense and disappearance. Whether these are still useful weapons faced with the deterritorializations and reterritorializations of contemporary capitalism remains an open question.

Notes

1: Franco "Bifo" Berardi: "L'insurrection", *Le ciel est enfin tombé sur la terre*, trans. Pierre Rival (Paris: Éditions du Seuil, 1978), p. 147. 2: Cf. Paolo Virno: "Do You Remember Counterrevolution?", trans. Michael Hardt, Michael Hardt & Paolo Virno (eds.): *Radical Thought in Italy: A Potential Politics* (Minneapolis: University of Minnesota Press, 1996), pp. 241-242. 3: For an analysis of the present situation, see Robert Kurz: *Weltordnungskrieg. Das Ende der Souveränität und die Wandlungen des Imperialismus im Zeitalter der Globalisierung* (Bad Honnef: Horlemann, 2003). 4: Franco "Bifo" Berardi: "Les radios libres et l'émergence d'une sensibilité post-médiatique", trans. Giselle Donnard, *Multitudes*, no. 21, 2005, p. 19. 5: Collectif A/ Traverso: *radio alice, radio libre*, trans. Danièle Guillerm and Marco Montesano (Paris: J.-P. Delarge, 1977), p. 23. 6: Antonio Gramsci: "Notes on Italian History" [1935], *Prison Notebooks*, ed. and trans. Quintin Hoare & Geoffrey Nowell-Smith (New York: International Publishers, 1971), pp. 52-120. 7: See Percy Allum: *Italy – Republic without Government* (London: Weidenfeld & Nicholson, 1973); Giorgio Galli: *L'Italia sotterranea: Storia, politica e scandali* (Bari: Laterza, 1983); Paul Ginsborg: *A history of contemporary Italy. Society and Politics 1943-1988* (Harmondsworth: Penguin, 1990). 8: For presentations of the *Operaismo* tradition and *Autonomia Operaia*, see Yann Moulier: "Introduction", Toni Negri: *The Politics of Subversion* (Cambridge: Polity Press, 1989), pp. 1-42; Paolo Persichetti and Oreste Scalzone: *La révolution et l'état. Insurrections et 'contre-insurrections' dans l'Italie de l'après-68: La démocratie pénale, l'état d'urgence*, trans. Françoise Liffra (Paris: Dagorno, 2000); and Stewe Wright: *Storming Heaven: Class Composition and Struggle in Italian Autonomist Marxism* (London & Sterling: Pluto Press, 2002). 9: "Workerism" is not an accurate translation of *Operaismo*, as the Italian workerists distanced themselves from traditional workerism that models itself on the Keynesian worker who benefits from a certain number of social guarantees. The Italian workerism referred to precarious work and advanced a general critique of the category of work. 10: See Mario Tronti: *Operai e capitale* (Torino: Einaudi, 1966). "Today, the working class need only to look at itself to understand capital. It need only combat itself in order to destroy capital. It has to recognize itself as political power and deny itself as productive power.

For proof, we need only look at the moment of struggle itself. During the strike, the 'producer' is immediately identified with the class enemy. The working class confronts its own labour as capital, as a hostile force, as an enemy — this is the first point of departure not only for the antagonism, but for the organization of the antagonism. [...] From now on, throughout this process, the enemy must constantly be attacked with the only subversive weapon capable of reducing him to a strategically subordinate position: the threat of denying him the mediation of the working class in the capitalist relations of production." pp. 261-262. **11:** Fabrizio Calvi: "La révolte des exclus", Fabrizio Calvi (ed.): *Italie 77. Le 'mouvement', les intellectuels*, Paris: Éditions du Seuil, 1977, pp. 29-30. **12:** Franco "Bifo" Berardi: "La fin du politique", *Le ciel est enfin tombé sur la terre*, pp. 12-13. **13:** The influence of Deleuze and Guattari's book and a lesser extent Cesarano and Collu's text on *Autonomia Creativa* cannot be overestimated. When Cesarano and Collu wrote their book *Apocalisse e rivoluzione* they were associated with the influential journal *Invariance* led by the French Bordigist Jacques Camatte. **14:** Franco "Bifo" Berardi in conversation with Bruno Giorgini, Toni Negri and Gérard Soulier: "Autonomie — Autonomies", *Recherches*, no. 30, 1977, p. 99. **15:** Auto-reduction is a practice where "consumers" though the use of force reduces the price of a product or a service. In Italy in the 1970s it was practiced individually and collectively and included not paying for electricity, telephone, transportation, stealing in supermarkets and shops and getting entry to cinemas or concerts without paying. **16:** Franco "Bifo" Berardi: "Le jeune proletariat", *Le ciel est enfin tombé sur la terre*, p. 22. **17:** Toni Negri: "Capitalist Domination and Working-Class Sabotage" [1978], trans. Committee April 7, *Working-Class Autonomy and the Crisis* (London: Red Notes, 1979), p. 99. **18:** Giorgio Cesarano: *Manuale di sopravvivenza* [1974] (Torino: Bollati Boringhieri, 2000), p. 46. **19:** Gilles Deleuze and Félix Guattari: *Anti-Oedipus: Capitalism and Schizophrenia* [1972], trans. Robert Hurley, Mark Seem and Helen R. Lane (Minneapolis: University of Minnesota Press, 1983), pp. 302-303. **20:** Collectif A/Traverso: *radio alice, radio libre*, p. 90. **21:** *Ibid.*, p. 42. **22:** *Ibid.*, p. 22. **23:** Maria-Antonietta Macciocchi: *Après Marx, avril*, trans. Michèle Causse, Danièle Guillermin and Yann Moulier (Paris: Éditions du Seuil, 1978), p. 180. **24:** "scrittura trasversale e fine dell'istituzione letteraria", *A/traverso*, juni 1976, p. 4. **25:** Radio Alice quoted in Félix Guattari: Des millions et des millions d'Alice en puissance" *radio alice, radio libre*, p. 5. **26:** Franco "Bifo" Berardi: "L'insurrection", *Le ciel est enfin tombé sur la terre*, pp. 148-149. **27:** Collectif A/Traverso: *radio alice, radio libre*, p. 42.

Steve Goodman

CONTA-
GIOUS
TRANS-
MISSION:
ON THE
VIROLOGY
OF PIRATE
RADIO

The tower block, condemned as a vertical slum by a Control that would rather update its architectural dimension into forms more amenable to representation. . . becomes an "incubator." The thicker the forest of towers, the more antennae perched above the city, the more the Radiant City, botched, radiates.

Matt Fuller, *Media Ecologies*¹

The summer of 2003, holed up in a small room on the 12th floor of a residential tower block in Bow, East London, the sweat running down the inside of the walls. The floor is carpeted in grime and dust. The room is built inside a larger room, a hastily constructed endo-architecture to cocoon the studio, protecting the pirate transmission and transmitters from intruders. The electricians are sporadic but functional. A decimated fan makes what little air there is, circulate in the room, generating a turbulent microclimate of dust and smoke. Wires snake their way out of messily drilled holes (also working as steam valves), out through windows, trailing and flapping against the outside of the block, leading up to the transmitter on the roof. Inside this pirate radio studio, the megalopolis is screaming through the MCs, at a rapid rate, which seems to exceed the limits of the human system of vocalization. The pressure of millions channelled via a few mouths. They call out the name of their rivals in a lyrical assault and battery so cutting, so acerbic that even the DJ winces at the verbal violence as he drags the record backwards, halting the proceedings only to return to the edge and roll again, this time building the intensity level that little bit higher.

For a moment, the scene freezes. The MC stops insulting and becomes an "encryptor."² His mouth becomes a modem, transmitting an asignifying stream of digits to the audience distributed across London's airwaves: "out to the 365, the 768, the 976, 315. . ." Signalling that you are locked into the station's transmission is made via phoning the studio number, letting it ring once, then hanging up. Acknowledgement of this signal is provided by the host/DJ/MC reciting the last 3 digits of phone numbers from his log of missed calls on the studio handset. The connection made, the transmission swells, the rate of text messages incoming to the studio escalates, while the studio phone vibrates. Matt Fuller has noted how, within the media ecology of pirate radio, mobile phone rings "have developed as a way to use the telecommunications architecture at no cost to receiver or sender and to process a relatively large number of feedback signals at speed. . . they work as password. In this case, they don't so much allow the user to gain access — they are that access."³ Unusually, one caller persists. A private number. Most callers hang up on one ring, the missed call functioning as a request code for the DJ to rewind the current track to the beginning. But the phone keeps ringing. The MC's focus shifts from his rivals to the DTI (Department of Trade & Industry), and now Ofcom,⁴ the branch of the British state responsible for policing the radio spectrum. "You know how we do. . . no pri-

vate numbers. DTI get bun!” Answering the mobile phone to a private number potentially allows Offcom, monitoring signal transmissions via the airwaves, to locate the studio much easier. A whole circuit of connection and disconnections, of contact and evasions. A veritable sonic war machine temporarily occupying a slice of radiophonic territory, hacking the national grid in a logistics of infection. Offcom, a centralized radio disease control agency monitoring outbreaks of “viracy” in the frequency spectrum.

Although London pirate radio has its own specific history of predator and prey, Offcom’s low intensity war on “viracy” now converges with a global tendency that has been tagged “war in the age of pirate replication.”⁵ Piracy, in all its strains, pulses blocks of affect in from the system periphery, either external or internal, feeding the viral nature of digital capitalism. The auditory dimension of this viral culture is exemplified by the contagious transmissions of East London pirate radio. Conceptually, a set of problems is thrown up by this focus, problems that demand piecing together a specifically tuned methodology. We call this methodology, “audio virology,”⁶ implying the transcription of the dialectical terminology of “underground” and “mainstream” sectors of the music industry into a materialist ecology of sonic markets and anti-markets; individual artists or producers, for example, become carriers, events become epidemiological incidents, scenes become fields of contagion, trade, an exchange of contagious sonic fluids or particles, radio a literal transmission network, mixtapes, CDs and vinyl as contamination vectors, and acoustic cyberspace, in both its analog and digital domains, becomes an epidemiological field of affective contagion.

The first problem confronted by an audio virology concerns this planetary context of “war in the age of pirate replication.” The early 21st century is a strange time to be an audio pirate, whatever the strain. Under the slogan of “piracy funds terrorism,” the war on terror has made a point of forging together the vast secret economies of pirated media (producing millions of unlicensed copies of CDs & DVDs particularly from South East Asia), anonymous, illegal online file trading (using an array of p2p platforms) with ubiquitous, decentralized insurgency networks such as Al Qaeda. From the point of view of agencies of control attempting to produce one global system, this multitude of targets is linked via the general dread of trans-medial viral invasion — electromagnetic, biological, terrorist, audiovisual. In fact, the virus constitutes the model for all threats to cybernetic control societies. Ubiquitous digitalization has intensified pirate replication, fuelling the viral nature of cybernetic capitalism. During the first wave of mp3 panic/excitement, gangsta rapper Ice T compared the file format to a biological weapon unraveling the cell walls of a global organism constituted by the major entertainment megacorps. Yet there is no necessary contradiction between unrestrained file trading and the subsequent reterritorialization of this into pay-for-downloads — merely a change in speed of propagation.

Trading activity is channeled through a labyrinth of credit card transactions, slowing transmission but simultaneously untapping a potential for escalation both by feeding cash back into production labs *and* bolstering the zone of parasitic mediation which sustains corporate bodies in capitalizing on and monopolizing mass listening.

A second, and related problem derives from the politicized discourse of underground media versus mainstream media, and the mutual parasitism between them. Whether as temporary autonomous zone of pirate utopias⁷ in “parasitic rejection”⁸ of, or in a campaign of resistance via “guerrilla semiotic warfare”⁹ against major techno-cultural networks, the fear is of incorporation into the body of the beast which feeds off its innovations. However, such formulations tend to be overly unilateral, ignoring the symbiotic relationship that characterizes emergent media ecologies within the intrinsically viral culture of late capitalism. Pirate radio is parasitic of a state media space only in so far as this bandwidth is already colonized by parasitic anti-market media systems. Instead of incorporation therefore, modelled on the hierarchical binary of underground-mainstream, an audio virology is concerned with transversal propagation vectors across an array of social machines, focusing on sonic potentials opened or closed by mutation, and transmission channels breeding in the cracks.¹⁰ It moves beyond the apparent contradiction between the intellectual property protection/radio licensing and its violation, focusing instead on the complementary, symbiotic functioning of these media ecologies, expressed in the movements of pirate deterritorialization and formalized reterritorialization.

Despite the rhetoric, global and local pirate economics does not merely function as a “parasitic rejection of the global order.” Rather these hybrid mixtures of formal and informal economy are the signs of a turbulent globalization in which waves of innovation sweep in from the periphery, which surrounds and transects the core. What is interesting is where tactical media (localized DIY pragmatism engaged in jamming, hacking and short circuiting communication grids) at the periphery converges with soundsystem cultures (see Shanty House theory below) and mongrelized music, synthesizing machinic assemblages tuned for affective mobilization. This leads us to the final problem to be untangled by an audio virology concerning the affective dimension of pirate radio. According to Gaston Bachelard in an essay “Reverie and Radio” (1993) radio engineers should be accompanied by what he calls a “psychic engineer” to aid in creating a mode of radio which communicates the unconscious; “it is through them that it will find a certain universality, and that is the reason for the paradox: the unconscious is something we know little about.”¹¹ But the average pirate radio broadcast from East London constitutes what is more accurately described as “affect engineering,” where the pulsing waves of sonic contagion across the radio waves are “processed directly in the body”. As Fuller points out, the “sonic unconscious is material that is collectively produced and is gated and in-

tensified by multiple layers of processing — it becomes malleable, potentiated, in reception. These are types of music that are fundamentally synthetic. They declare the whole spectrum of vibrations at any speed or frequency subject to their inventive power.”¹² Cerebral radio listening is short circuited to be overridden by the “full-body-ear-drum” of the skin, and a sometimes mobile,¹³ distributed network of bass delivery systems. Parallel sonic wars (in the age of pirate replication) are being waged across the planet by an array of viro-sonic microcultures.

While much of the war against pirate media takes place online, its earlier local frontlines across the analog sonic megalopolis persist. As urban critic Mike Davis outlines in an essay entitled “Planet of Slums,” the demographics of urbanization on 21st century earth are in terminal transition. The key agents in the emergent global configuration are the “new megacities with populations in excess of 8 million, and, even more spectacularly, hypercities with more than 20 million inhabitants,”¹⁴ as the result of massive unilateral rural-to-urban migration. For the first time in the evolutionary history of the human species “cities will account for all future world population growth, which is expected to peak at about 10 billion in 2050.”¹⁵ As de Soto notes in “Mysteries of Capital,” radio has functioned as magnet in this process, advertising the opportunities of urban living across the rural world.¹⁶ Radio, McLuhan’s “tribal drum,”¹⁷ thus acts as a mobilizing call to urban replication. “The Planet of Slums”, for Davis, is composed of “interchangeable and spontaneously unique” components, “including the bustees of Kolkata, the chawls and zopadpattis of Mumbai, the katchi abadis of Karachi, the kampungs of Jakarta, the iskwaters of Manila, the shammasas of Khartoum, the umjondolos of Durban, the intra-murios of Rabat, the bidonvilles of Abidjan, the baladis of Cairo, the gecekondus of Ankara, the conventillos of Quito, the favelas of Brazil, the villas miseria of Buenos Aires and the colonias populares of Mexico City.”¹⁸ This periphery, as turbulent zone of bass cultural innovation, does not reside exclusively in the 2nd and 3rd worlds but transects the core of the world system. The digital wars of viral economies thus parallel the massive exchanges of migrant populations, highlighting the frayed edges of McLuhan’s global nervous system as it undergoes cellular decomposition, molecular mutation and trade in sonic fluids.

The sonic anarchitecture of these emergent urban entities has usefully been tagged by music blogger, Woebot (Matt Ingram) via what he terms “shanty house theory,” referring to the coincident music network which has arisen out of these planetary locales, from the grime pirate radio stations of East London, Crunk from the Southern US, dancehall from Jamaica, Carioca Funk from the Brazilian favelas, Kwaito from South Africa, Reggaeton from Puerto Rica, etc.

For Ingram,

...shanty House is the new strain of post World Music engaging in the same cultural and social dynamics that have given us Crunk and Grime in the first world and Dancehall in JA. Detractors might bemoan the need to give Favela Funk, Kwaito and Desi a brand name. However, like it or lump it these forms are always going to exist on the peripheries of most people in the west's experience of music. If they aren't called something specific then they'll be less absorbable in their own right, and conversely will be viewed as an extension of World music. The concept of "World Music" is inextricably intertwined with concepts of the natural, the earthen, and the rooted. However, the new wave of global urban music is mercilessly hooligan in it's agenda, synthetic by choice and necessity, often produced in a crucible of urban existence yet more extreme, precarious and violent than that which characterises the temperature of New York, London, Berlin.¹⁹

In a somewhat condemning article in the Village Voice on M.I.A., the artist whose work masks as a "conference-call" between these degenerate locales of the planet of slums, Simon Reynolds elucidates the condition of shanty house theory as "world-is-a-ghetto musics: impurist genres. . .that typically suture bastardized vestiges of indigenous folk forms to pirated elements of rap, rave, and bass 'n' booty. Locally rooted but plugged into the global media sphere, these scenes don't bother overmuch with sample clearances, and vibe-wise they typically project ruffneck raucousness leavened with party-up calls to shake dat ass. They also speak, vividly if obliquely, of a new world disorder where Tupac Shakur vies with Bin Laden as a T-shirt icon and terrorists keep in touch via text messaging."²⁰

Drawing from strains of science fiction, epidemiology, and affective theories of sonic media, an audio virology is tuned to mapping what Matt Fuller has recently termed these "affordances," "potentials" or "activated relations" of "media ecologies" within the shifting bio-technical meshwork of pirate radio. An audio virology focuses on pirate radios zones of transmission, incubation, its electromagnetic war for bandwidth, its bacterial nomadism within the vertical city, its asignifying contagious trade in numerical code and sonic fluids, and its power to generate virtual collectivity. Instead of merely making connections between individual cells, an audio virology probes the mutational potential of pirate media, asking what cellular transformations, and what new modes of contagious collectivity such sonic microcultures may provoke.

Perhaps the infectiveness of such analog and digital sonic transmissions makes them an audio portal into cultural futurity, affording an optimal laboratory for synthesizing modes of collective distribution yet to come, and new sonic cultural machines of joy. Their abstract machines are never

purely sonic, and always possess a power of transduction and application into other social, cultural and economic fields. To engineer change in a radiophonic Babylon, we must pay more affective attention to the sometimes inaudible,²¹ vibratory, carrier waves which animate the babel of voices; how do the affective orientations of bass cultures and their deployment of sound systems, from pirate radio to the dancehall, work to produce invention in terms of movement and sensation. What is this simultaneously seductive yet forceful, contagious listening transmitted underneath and in between?

Notes

- 1:** Matthew Fuller, *Media Ecologies* (Cambridge, MA: MIT Press, 2005), p. 16. **2:** Simon Reynolds, *Energy Flash* (London: Picador, 1998), p. 231. **3:** Matthew Fuller, *Media Ecologies*, p. 50. **4:** See <http://www.ofcom.org.uk/media/news/2005/11/illegal#content> for recent anti-viral activities. **5:** See Govil in the Sarai Reader 2004, p. 378 available at www.sarai.net. **6:** Audio virology may also be understood as a mutant strain of machinic materialism. **7:** See Hakim Bey, *T.A.Z.* (New York: Autonomedia, 2003). **8:** Bruce Sterling, "The Sham Economy" in *Wired* (13.03) March 2005. **9:** Simon Reynolds, *Energy Flash*. **10:** In the UK, an interesting case study is the publicly funded digital channel, BBC1extra (<http://www.bbc.co.uk/1extra>) in which, simultaneously, underground music cultures are incorporated into/infect the body of State sponsored media. Contemporary capitalism is driven by the very tension between formal licensing structures and informal pirate radio markets. **11:** Gaston Bachelard, "Reverie and Radio" in ed. Neil Strauss, *Radiotexte* (New York: Semiotexte, 1993), p. 219. **12:** Matthew Fuller, *Media Ecologies*, p. 29-31. **13:** A key site of pirate listening is often in low frequency intensified car sound stereos. **14:** Mike Davis, "Planet of Slums" in *New Left Review*, 26, March, 2004, p. 6. **15:** *Ibid.*, p. 5. **16:** Hernando De Soto, *The Mystery of Capital* (New York: Bantam Press, 2000), p. 70. **17:** Marshall McLuhan, *Understanding Media* (Cambridge, MA: MIT Press, 1994). **18:** Mike Davis, "Planet of Slums", p. 14. **19:** <http://www.woebot.com/movabletype/archives/000850.html> **20:** <http://www.villagevoice.com/music/0508,reynolds,61282,22.html> **21:** Sometimes inaudible in the sense that an average radio speaker has limited bass response.

Sabine Breitsameter

FROM
TRANSMIS-
SION TO
PROCES-
SION:
RADIO IN
THE AGE
OF DIGITAL
NETWORKS

"Something shocking has happened!

Who on earth allowed all those people to speak?!"

"You-you-you-you are listening to Radio Ozone..." The trailer sounded like a machine, of remoteness and the presence of data. The compressed, robotic voice, the peeping and crackling during pauses, the minimalist composition — the electrons seemed to make all of this audible as they thrust their way from Riga, Latvia through data lines far and wide, to manifest on computer speakers the world over as sound. Aesthetically an adequate counterpart for radio during the epoch of the I/O principle and networks, it characterized its time much like the stern, atmospheric announcements with their gongs and their "Achtung, Achtung!" (at least in Germany) stood for the early terrestrial radio of the 1920s. The Latvian artist collective re-lab.net began broadcasting its Radio Ozone program in 1996; live on the Internet for an entire evening, at least once each week, with sounds that can broadly be categorized as Electro-pop or as part of the budding Electronica movement. re-lab.net belongs to the group of pioneers once referred to in the context of "webcasting" — a term analogous to "broadcasting," which was created to indicate the transmission of audio-visual programs on the Internet.

"The Net" didn't become a generally accepted term until the beginning of the 1990s. Originally conceived as a means of exchanging alphanumeric data, it didn't take long before audio content was being transmitted. In the middle of the 1990s the first streaming software became widely available, with RealAudio leading the way. It was now possible to listen to sound at the same time the audio data was being accessed and transmitted from the Net. The Internet had, indeed, already been able to transport sound, but only in data formats that demanded a painstakingly slow download to a computer. Streaming allowed most audio files to be easily accessed on demand. It was then possible for anyone with the proper hardware and software to practice on the Internet what had traditionally been reserved for radio stations, namely the broadcasting of programs — even live.

Instead of having to go through the burdensome (and in most cases highly complicated and unsuccessful) process of applying for a radio frequency, whose range was still limited to a specific territory, the Internet established a technical distribution structure that anyone could employ. Since then, everyone with the basic tools can have his own station and publish audio content on the Net. The first ones to systematically exploit the transmission of sound this way were artists² — of all kinds.

Anyone who experimented with the early versions of the RealAudio software will surely recall the noisiness and stuttering of playback. Would the industry attempt to force users to accept this poor sound quality in order to simplify their marketing channels? Would we have to get used to a sonic culture limited to sound bites, just because the flow of data within the networks could not be optimized? Would this be the future of listening?

For as much skepticism as there was, there was just as much celebratory anticipation — particularly by artists — about the opportunities the future would bring. It quickly became clear that the new medium of the Internet, which had been strongly characterized by its visual component, would realize great depth in the element of sound — an element inextricably linked to the corporeal and the three-dimensional, which opened the space beyond the monitor to create a new electro-acoustic, multidimensional space. Beyond these aesthetic-conceptual considerations, however, the Internet was mainly attractive because of the possibilities it offered to distribute audio content around the globe. This translated into independence from established radio stations and recording labels, which had previously been necessary for distribution. In a broader scope, this development became tangible with “Hybrid Workspace,” exhibited at the Documenta X (1997) in Kassel, Germany. Following that event, one festival after the other dedicated itself to the new frontier of webcasting. Parliaments, stockholder’s meetings, US police radio, and others followed suit. Soon it was possible to listen to thousands of programs from around the world on the Internet. The networked computer had become a global receiver.³

Skeptics, however, started to ask whether it could still be called “radio” if the transmission of sound is no longer achieved by the waves within the electromagnetic spectrum referred to as “radio waves.” According to Wolfgang Hagen, creator of radio content and theoretician, the Latin term “radius” refers to the circular rays that appear to emanate from lighted bodies. Hagen also refers to the fact that radio is a technical prefix, “which describes what engineers first saw — sparks of condenser discharge in the first transmission devices.”⁴ Internet radio has almost nothing in common with such a metaphor, as its mechanism is difficult to observe visually, and even when it can be observed it is in the context of a user interface belonging to the production or playback software. Neither one displays any sparks, nor does anything radiate from a central point. Instead, there is a branched transfer of data packets through a sometimes tightly and sometimes loosely woven network. The transmission of Internet radio is limited to the unspectacular physical incidents of the clatter of a keyboard and the clicking of a mouse. And, while traditional radio is a “push” medium, which throws⁵ its content out into the ether, the Internet operates on the “pull” principle. Data flows only if the user logs in and specifically calls up the bits and bytes to start moving in his direction. Finally, classical radio addresses everyone — technically speaking — in that an unlimited number of recipients can set a frequency and receive the currently available program. Those who log in to an Internet station, however, can be out of luck when the standard playback software allows access only to a limited number of users. Because the necessary software is prohibitively expensive, listener numbers that climb into the thousands only materialize on stations with strong financial backing.

The radio metaphors of sparks, rays, and waves, therefore appear to be rather unfitting when it comes to the Net, becoming instead quite secondary when one imagines how radio is experienced. Radio — radius; to put sound into motion, regardless of the medium, in order to transcend space and time. Such is the anthropologic stipulation of radio that has been used to describe the thousands of years-old longing to eliminate the bond between a sound event and its place of origin. This longing can be referenced in countless myths in human history.⁶ With the Internet, there is a new apparatus with which sound can be transported across distances. For a listener it is typically irrelevant which technical medium is used to transmit the sound he hears. If we look at the apparatus of the Internet more specifically, we can envision its specific properties: network characteristics, data exchange, data processing, etc. We may thus recognize that the audio options in the Net barely reflect these properties, but rather mimic those of its traditional predecessor, namely the broadcasting principle. The audio stream that I call up functions for me as a listener in a manner no different than the transmission of a normal radio station. One transmits while many receive. Even listening to audio-on-demand files, which are often referred to as a net-specific form of radio in terms of practical reception, occurs in a way that is based on the old model. The industrial design of standard playback software allows for nothing different. It continues to adhere to the idea of a defined mono-directional, linear relationship between transmitter and receiver. The latter has no opportunity to intercept or even to return anything. Software has not even provided for the simultaneous playback of multiple programs and the creation of individual mixes.⁷

The pioneers of Radio Ozone in Riga were not much interested in simple webcasting based on the standard model. For them, the central star-shaped broadcasting principle was obsolete — a consequence of their experience during the Soviet era and the period following the dismantling of the Iron Curtain. The unrestricted access of the Internet media structure appeared as if it had been specially ordered. Here they would be able to publish what they found important, without having to pass through the eye of the needle fashioned by the established media. It wasn't enough for them to portray Internet radio by means based solely on the concept of streaming. Their plan was to exploit the network characteristics of the new medium and to make the Net really start to sound off. At the end of the 1990s, their so-called loop actions were legendary. For the events, the Latvian artists met with other sound artists and independent webcasters, including some from Sidney, Banff, Amsterdam, Ljubljana, and Berlin. The principle was that every station would take a live stream from another station, add their own sounds, make them available to the next participant, who would then mix his own sounds into the stream and pass it on, until it was called up at its place of origin — with a delay of about 10 to 15 seconds. The loop was then closed. The more often the stream circulated, the noisier it became. The

sound quality still so poor at the time didn't trouble any of the participants, nor did it disrupt the random sonic results, which were created by the incalculable time delay of the Internet and which made a synchronous collaboration impossible. But this was of little consequence for the participants.

"Initially we were surprised that anyone would consider our experiment art. That was never our intention,"⁸ reported Rasa Smite, founder of the Latvian group. "Actually we wanted to make a break from art. But then it became obvious — we're artists. What we do, we do as artists. And it wasn't about a fixed result, but rather about the process of sonic collaboration on the Internet."

The loop actions of re-lab.net were an important prelude for artistic aural activities that make use of the Net as a medium of digital data exchange and divert from the star-shaped broadcasting principle. The potential of establishing a flexible, dynamic relationship between sender and receiver elicited a series of important artistic experiments, from which a new conception of radio was derived. Some places hurried to rave about the "new possibilities" of the age of the digital network. Indeed, it is useful to take a comprehensive look back into its history. It is safe to assume that the Riga artists were not aware of the connection, but the loops of re-lab.net had their forerunner in Max Neuhaus' "Public Supply" actions of the early 1970s. At that time, Neuhaus, the world-famous avant-garde percussionist, applied a principle very similar to that of looping to play with practically the entire National Public Radio network. Similar configurations are to be found in a number of other Internet radio projects. Precursors to network-based radio-Internet projects are to be found not only in the 1960s and early 1970s. Those wishing to truly understand the promise the Internet possesses to change the traditional notion of radio should secure a listening post from which they can tune their ears to the early history of radio broadcasting.

The first original German radio play, broadcast from a station in Frankfurt in October 1924, leads us directly to the electro-acoustic space of digital networks and its potential for a radio of interaction and participation. The title of the play was "Zauberei auf dem Sender" (loosely, "Radio Magic"). Its author was Hans Flesch, then director of the Frankfurt station and later director of radio in Berlin, one of the most innovative, politically daring, and media-savvy radio creators of the Weimar Republic. One of his main motivations with the medium of radio was to avoid forms familiar in newspapers, theater, books, concerts, and vaudeville. Instead, he called for the investigation and exploitation of the specific possibilities of the radio medium itself.⁹ Broadcast during a time when radio was the modern medium par excellence, "Radio Magic" told the story of a mysterious sonic disturbance. Instead of the Blue Danube Waltz that had been planned for the show, listeners were served up a concoction of noises, music, and human voices. No one had ever heard anything like it. The people working at the radio station are

bewildered. The program director is stunned: "Who on earth allowed all those people to speak?"

It seems as if an unidentified person seizes the station and its frequency and begins broadcasting cheerfully away. For the program director in "Radio Magic," the idea that some unauthorized person could be a broadcaster is categorically intolerable. "Where would we be if everyone did everything he felt like?" he wonders.¹⁰ He insists on restoring the order of the broadcasting principle, the transmission monopoly, and editorial authority, and demands to quickly determine the reasons behind the aural anarchy, then impose silence. The wild mix of audio, we finally discover, is the product of a magician. With his supernatural powers, he ties together all the sound and radio waves flying through the air, and casts them into a single program. This was likely how early radio sounded in the USA before the First World War. Every night, hundreds of radio amateurs would assemble in the ethers. Call and answer occurred on the same frequency — by the dozens, simultaneously. The whole thing was like a modern day Internet chat scenario, but you could hear every bit of it. Indeed, "Radio Magic" found its topic in the conflict between two concepts of radio — two different media architectures. It was a conflict that, back then in the middle of the 1920s, was still rather virulent. "Radio as broadcast" versus "radio as multi-user space." "One sends while many receive" versus "many communicate with many." A one-way versus a two-way medium.

Mono-directional broadcasting, as Hans Flesch elucidated in this first German radio play, is not the natural state of radio. Its media architecture is much more the result of a political decision that was made in the 1920s in Germany — as in most other countries. The fear of the propagandistic effect of the medium — the incitement of the masses — was very strong at the time. The broadcasting principle, the state-controlled transmission monopoly, seemed to the fearful German military and the reactionary political bureaucrats to be the lesser evil, if public radio was altogether unavoidable. This stipulation regarding the medium of radio as a state broadcasting monopoly and one-way communication medium would be criticized long into the next decade by artists and theoreticians such as Bertolt Brecht (1932)¹¹ and Rudolf Arnheim (1933). "Radio: one speaks without hearing and everyone else hears without being able to speak."¹² While Brecht called for democratization along with his push for a two-way medium, Arnheim very generally pointed to the communicative paradox of the broadcasting principle — to the power differential inherent in the face of an absence of options for direct response. In both criticisms is the reproach that that which is not call and answer or statement and response is neither dialectic nor truly enlightening.

The broadcasting principle also lays claim to substance and authority. As a consequence of its mono-directional structure, it benefits from both of these while it also encompasses — if not outright insists on — abuse as a result of the nature of a monopoly. The role distribution also becomes clear:

the one transmitting must take the initiative, while the receiver and addressee accept. Mission — transmission: the sacred connotation of the term never fails to resonate. The effect lingers from the time when it was considered a miracle that voices and sounds could travel magically through the air,¹³ and also points to the power discrepancy between those on the one hand who considered particular content worthy of broadcast and therefore operated with a certain “broadcast consciousness,” and those on the other hand who received the directive to shut up and listen — and to adopt the program as their own.

With much self-mockery, but not without regret, in 1924 “Radio Magic” heralded the victory of the broadcast monopoly over the network and multi-user principle. Beyond its political and communications-cultural objections, the first original German radio play additionally exhibits how a media architecture that is directed to participation and interaction also requires a reevaluated aesthetic criteria. The linear, defined program of the one-way medium challenges the polyphonic collaged improvisation of the multi-user space — a media architecture that seeks alternative materials, forms, and dramaturgical developments, requires other strategies of creating significance and meaning, and calls for a new concept of the artist, the recipient, and art itself.¹⁴

During the coming seven decades, radio and its imaginative and experiential world would develop almost exclusively from the mono-directional media architecture of the broadcasting principle. Interest in the concept of networked or two-way communication and interaction, however, continued to swell, requiring its own treatise in order to show how the principle of networking established the basis not only of the legendary 1938 American radio show “War of the Worlds,” but also a number of Nazi radio propaganda programs.¹⁵

The call for reshaping radio into a two-way communication medium — in the Brechtian tradition — once again increased in volume, particularly in the context of the anti-authoritarian movement in the middle and end of the 1960s. There were some attempts to allow the sentiments of listeners directly into programs by employing the telephone, even in a few radio plays.¹⁶ But the real push toward interactive art, which was so indicative of this period, hardly found its place in the medium of radio. At that time the Pentagon was having its first successes with technical networking experiments using computers, which gave birth to the forerunner of the Internet. However, it was known only to a very few artists and gatekeepers. Networking, de-hierarchization, and interactivity: all of these were key words for the arts of the time, which in the age of political emancipation were not part of the common vernacular. In beginning to realize these ideas, however, artists were soon confronted by the fact that neither interactive media architectures nor suitable technologies were at their disposal.

Despite the expansion of microelectronics and computers, the progress was slow for those artists who began to use early computer networks at the beginning and middle of the 1980s, such as the circle around the Canadian telecommunications artist Robert Adrian. Not long thereafter, composers and sonic media artists such as Alvin Curran and Bill Fontana created a stir with their net-based radio compositions, some of which were prize-winning, but which also showed that their excellent technical and audio quality was only achievable with very expensive equipment. Satellite connections, radio conferencing hook-ups, and stereo lines were all part of networks accessible only to those who gained access to public broadcasting centers and whose gatekeepers were able to be won over by off-beat ideas. This is not to say that they were not interested, in principle. If for no other reason than extreme cost considerations, however, such projects remained an exceptional adventure.

The digital networks of the 1990s were the first to provide the technical prerequisites with which the medium of radio could function with alternative communication systems, no longer exclusively within the broadcasting principle. The established media rarely explored principles and methods of making radio on the technical or conceptual basis of networked media architectures. But for that very reason, the exploration was more often undertaken by artists.

One prototype of early net-based radio experiments was "Horizontal Radio" from 1995, which was conducted under the auspices of ORF art radio and its editor Heidi Grundmann. This global 24-hour radio action set out to aurally implement the network principle as it entered the public consciousness through the World Wide Web — with the help of all available audio transmission technologies. Telephone lines, conventional radio transmission technology, ISDN, satellite transmission, and the Internet were all applied. Thirty radio stations¹⁷ participated in the project, from Jerusalem to Linz and Berlin to Australia, as well as eight Internet servers and over a hundred artists in their studios. Each of the participants was an equally valuable node in a global network. An autonomous audio event occurred at all of these locations simultaneously. Using the conglomeration of lines, each event was able to adapt the sounds of the other stations at their discretion and link it to their own productions. In this way, they created mixes from the surprising to the cacophonous, depending on whether the sounds were specifically coordinated between the creators or wholly spontaneous. The result could then be sent by online or on-air connections and thus made available to the participating audience. If, for example, Stockholm jammed with Berlin and Jerusalem over stereo radio lines, the mix could be heard on the radio at all of these three locations, depending on the range of the local stations. It was also simultaneously broadcast on the Internet and could be accessed by other stations in the global net and integrated into their own sound productions.

“Horizontal Radio” thus broke through the broadcasting principle to the advantage of unabashed transmitting and receiving. The kind of soundscape that was presented to the listener was dependent on the listener’s location, as well as on the networking between stations and the aesthetic decisions made there. “There were infinitely many variations of ‘Horizontal Radio,’” recalls Heidi Grundmann, “but none of the participants, including the radio listeners as well as the Internet users, could experience everything. That was impossible.”¹⁸ Those who wanted to listen to “Horizontal Radio” but were outsiders in the classical sense had a difficult time. The action was primarily designed for those who were directly involved. Only by participating was there a purpose for the direction of the data flows, for distance and proximity, and for the participating media and their qualities.

In this and similar undertakings, critics failed to find a concept or a sense of accountability oriented toward an end result. What randomly and unpredictably came out of the mixes was not always created for the purposes of pleasing the ear. Where the Internet was selected as the channel of audio exchange, the general result also suffered from the poor sound quality of the streaming software being used at the time. But what remained especially unsatisfying for many participants was that their carefully produced contributions were anonymously crammed into an expansive project while those who used and appropriated them failed to contextualize them according to original artistic intent. The promise of the Net to provide two-way communication for the purpose of power sharing did not pay off. For some of the participants, “Horizontal Radio” ended up being more of an experience of powerlessness.

A number of artists, however, came to the project with a different level of awareness. They understood the individual contribution to be a sort of building block that would be able to be integrated in ever-changing contexts, thus modifying the original work. “Horizontal Radio,” an early and wide-ranging attempt at creating networked radio, elucidates that propositions of its kind must not be disregarded on the outset, but instead evaluated based on a fundamentally redefined discourse. The perceptions of concepts such as author, artist-subject, program, work, editorial responsibility, and the implicit distinction between sender and listener that had been accepted until now all transport criteria that could not be properly addressed amidst the happenings of the 24-hour event.

The first thing we can say about such a project is that it is comparable to a carnival, in that small and large groups of participants in the alleys and streets of a city have their fun, sometimes meeting up with other players, amusing each other, then moving off to other parties, going along together in different sizes of groups, and then maybe finally integrating into a larger procession down Main Street, which then as a whole offers something to curious onlookers. Here, radio does not connote information or pleasing sounds, but is experienced rather as communication in the context of a son-

ic rendezvous, indeed a form of intercourse. The Net ends up presenting a structure capable of being filled with audio data, which can then be perceived only by those who participate. Just how gratifying this aesthetic-communicative experience is for each person depends on the individual's specific criteria. The question must remain open about exactly what this kind of net-based collaborative radio action offers listeners sitting in front of speakers, who follow the entire process as they would a program on a radio station.

The interactive radio play "The Wheel of Fortune,"¹⁹ broadcast at the end of September 2001 by the BBC, offered an indicative answer. Recalling a kind of acoustic hypertext principle, it worked with the technical principles and structures of a network. Three different radio plays, in which the content was carefully coordinated, were broadcast simultaneously on three different channels. One of the shows was to be heard on BBC Radio 3, one on BBC Radio 4, and the third as an Internet stream. At key points in the story, a recognizable signal was given for listeners and users to choose to switch to a different stream or channel, thereby selecting an alternative story progression. There were so many options that the probability was very high that each listener, depending on his selection (indeed, if he chose to make any selections at all), would hear a different version of the play. The concept of this acoustic hypertext was oriented around offering the listener a linear work — despite the selection options — that would approach the standard radio and radio play experience. Even if recipients chose not to navigate through the play, they were guaranteed to have a consistent experience. In any case, what they heard was a completely conventional radio play of traditional dramaturgy. But what should induce a listener to play within this conventional form, without actually being able to extend beyond the authorial frame of experience? Why select between options when a dedication to the linear flow of one version already achieves the desired and familiar listening experience? Those who stick with conventional forms will rarely have to worry about in-house conflicts. The station's concern about the consistency of the program and its reception was greater than its curiosity about plumbing the depths of the possibilities of appropriating a different media architecture and endowing it with meaning — a missed opportunity.

This question about the methods of appropriation and the endowment of meaning on the side of the listeners and users has been a focus of the "Tele-tap"²⁰ project from the Amsterdam artist group CUT-n-PASTE, which since 2001 has been exploring new configurations of networks, telephony, and broadcasting. The latter has benefited the project because it avoids the one-time event that hits the air waves for a brief time and is then considered to be celebrated history. In long periods of preparation, the artists continuously attempt to develop new forms of representation with which they can activate their Tele-tap system. Its underlying principle is based on mobile communications. A selected number of protagonists are sent off with a con-

tinuously connected mobile phone and plunged into the Amsterdam nightlife. What they experience there is transmitted throughout the course of the evening to an Internet server that produces live streams from the information it receives from the telephone, as well as to a radio studio and/or other venue. The individual streams of each of the mobile phones can be heard on the Web. Comparatively, the radio²¹ functions as a meta-channel, which linearly and successively reproduces and moderates the multiple happenings experienced out there by the eight protagonists, and “mediatizes” the anticipated audio experience, dramaturgy, and ways of representation and communication.

Anyone interested in listening to the players during their unadulterated nightlife experiences can hear each one individually in the Net and thus — as consciously calculated by the artists — succumb to his own aural voyeurism. Things get interesting at just the point where radio would normally discretely fade out because, for example, one of the protagonists finds himself in the red light district and his encounters become increasingly bizarre — all of which we are privy to, thanks to the microphone in the mobile phone. It was also exciting — particularly without a moderator’s commentary — to follow one of the participants, an expert on bats, as he intruded into a boarded up building one night, only to excite a mass of the winged creatures, which then flew wildly out. Broadcast and net versions complement each other well here, illuminating the different ways of creating meaning and context. The artists are in the process of further technically developing the setting in order to make additional flows of communication an essential component of the system. How would it be if the players could be contacted by listeners or other players using mobile or standard phones? What would the recipients perceive and experience if the Internet streams, which until now were separated, could be heard all at the same time? And what would change if the listeners — instead of a moderator — could control exactly what happens on the radio meta-channel?

The Tele-tap system demonstrates how the borders between intimate and public spaces break down in a mobile and interactively communicating society. This “reality radio” is not the result of staging or adaptation, but rather the media-architectonic concept of the artists. A number of media apparatuses were configured to coordinate with each other in order to activate alternative communication flows. They challenge expectations in recipients and provoke them to take a stance about their perception — listening, eavesdropping, and wiretapping as much as intervening in order to specifically influence one’s own audio experience. “Tele-tap” shows that, depending on its specific architecture, every listening medium generates its own ear — its own way of being sonically perceived. And it is not the medium that mediatizes, but rather the perceiver, who adjusts his attention appropriately.

With “Horizontal Radio” from ORF art radio and the loop actions of *re-lab.net*, it was still about affirmatively realizing the state of being connected and being networked, the result of which was the crystallization of the question of what the medium does with its users. While the BBC project cautiously assumed that the new, other medium “didn’t do anything” to its users — meaning it offered them nothing that conflicted with the user’s typical radio experience — “Tele-tap” specifically addresses the interplay between manipulation and being manipulated.

Indeed, the medium does something with the recipients because they do something to it. This concept is also the basis of Atau Tanaka’s radio-Internet play “Frankensteins Netz”²² (“Frankenstein’s Net”) from 2002. It used the Internet not only as a structure for data exchange, but mainly for data procession. The users could upload audiovisual data in order to construct a personalized, agile, digital creature that was processed by the system in accordance with a complex server programming, based on its own ever-changing dictates and moods. The man-made creature thus transformed based on user input, turned the user into a central component of its protean nature, and encouraged the participants to become engaged with its material basis for a period of several weeks. During the concluding event of a live performance, the data organism was to act as a virtual performer — that is, as an audio artist — who in the same way as the human musicians would process material live in concert, which the Internet users would upload to the creature during the performance.

The technical and dramaturgical basis of “Frankensteins Netz” was the programmed data process as controlling command, which merges and develops the input of listeners and users based on aesthetic criteria. However, the composer abandoned the idea just before commencing the live performance scheduled to travel through the ethers²³ because he was concerned that hackers would destroy the overall effect. Out of fear of failure, the artist salvaged the project within a programmed setting and protected himself from any loss of control. Failure in this case would have meant a collapse of the program — dead air instead of continuous audio data procession.²⁴ Thus did the interactive concept and its democratic participation end up being exactly the opposite.

Generally speaking, failure is an indispensable component of settings in which absolute control over content and input is abandoned. But in a cultural climate built on the ideal of the perfect work and on authorial accountability for the final product, transmitted with a fully realized and archivable message, the cultivation of failure hardly seems acceptable. Failure here connotes a collapse of the concept, and thus of the author. The model of procession, however, which is based on participation as well as the processing of input, addresses other premises. Hacking and other destructive interventions become a central component of the participation and communication experience. “Program as product” versus “procession as activity.”

At the place where radio and digital networks begin to meld, much has transpired since Radio Ozone's loop actions in the mid-1990s. The software that now enables webcasting no longer require much in the way of expertise to operate. Access to high-speed connections has also vastly expanded. Furthermore, sound quality has improved immensely, thanks to the mp3 revolution. Thus is the Web, now more than ever, full of both mono-directional and interactive radio. The structure of the Net, however, with its potential for exchange, participation, and processing, has remained focused on the aesthetic level of sound. It is still rare that forms are developed that transport complex verbal statements, content, and opinions without trying to adapt them into a linear program principle. For this reason, it is worth mentioning the latest attempts by the Berlin media artist Ulrike Gabriel, even if they are currently²⁵ in the development phase. In her "Flow" series,²⁶ Gabriel provides a platform for fundamentally critical political opinions live on the telephone, as she confronts them with pre-produced or directly transmitted opinions from the mainstream of established media. In so doing, she attempts to create a dramaturgy of contextual confrontation that also incorporates electronic live music, a commentator, and a periodically imposed narrator. The work does not concern itself with the presentation of pre-selected opinions and commentaries in a familiar way such as we find in the classic news media, but rather with the creation of critical counterpoints in a kind of dialogue – better yet, multilogue. She attempts to achieve freedom of speech in the act of publishing the spoken word.

As a result of its spontaneous, explicit, and often very unorthodox statements, it would be surprising if this bold form and content experiment secures access to the programming of established private or public stations here in Germany. Too unpredictable is the political message that can develop from the verbal and non-verbal communication flows in the process of a live production. Objections to such radio projects are still rooted in the same fear of the propagandistic effect of the medium of radio, such as was the case in 1924. Although Ulrike Gabriel's "Flow" concept has not integrated the Internet as a mechanism of sound transportation, it would be unimaginable without the influence of network thinking, data procession, and the anti-authoritarian democracy promised by the Brechtian two-way concept.

Digital networks have the conceptual potential to change our notion of radio as a medium for transporting sound. The examples depicted herein indicate that radio can be produced using other methods. It may thus become the apparatus of direct exchange, of being connected, of intersubjectivity, and the fluid or processual. An essential aspect is that the universally accessible Internet has broken down the previously high barriers that complicated the options for producing radio content. The trend in the established media is to increase accessibility by reducing production quality – along with the level of intellectual difficulty. In this way, they hope to reach

a broader audience. However, accessibility in the literal sense has manifested in a different way, which has been evidenced in the past few years, as an increasing number of alternative cultural activists have received approval to establish their own stations. They don't need to look long for content creators, since the desire to express oneself using sophisticated content and alternative — even new — forms and communication processes is, by definition, immense.²⁷ Access and participation are the key words in this progress, which is catalyzed by the digital network media. If the concept continues to become more popular — and much indicates that it will — the consequence could be a new role for radio. The model of the authorial program for which the listener is obliged to remain silent and receptive in order to be entertained or instructed is now confronted by a different and equally legitimate model, one that is open, processual, and communication and participation-oriented, in which the roles of creator and public are no longer strictly separated. As the artistic examples indicate, in order to keep such forms from becoming trivial, a carefully constructed framework, more intelligent strategies, and occasionally more complex programming are required in order to create worthwhile settings in which others can be active. Even “radio activity” requires quality criteria. Due to the lack of experience and actual opportunities, there is a lot to be done in this regard. It remains to be seen whether such a new kind of positioning for radio can prevail in our culture, particularly in the face of the established criteria for broadcast media.

The broadcasting principle certainly will not die off. Quite the opposite is true. The star-shaped broadcasting principle may develop its greatest strengths in combination with networks and their potential for operative participation and interaction. The broadcasting principle offers the opportunity for contemplative reception — that is to say, listening. Without listening there is no communication, no exchange, and no understanding. It is a prerequisite for participation, intervention, and interactivity that one's input responds appropriately to the aesthetic-communicative intention of the media-defined setting, fulfills it, and completes it. Even in the age of networked media architectures, the practice and discipline of listening remains the origin of creative and intellectual sovereignty.

Notes

1: From the dialogue spoken by the “Program Director” in Hans Flesch, “Zauberei auf dem Sender,” Frankfurt Main 1924. “Zauberei auf dem Sender” (“Radio Magic”) was the first original radio play made in Germany. 2: One of the first radio productions to use the structures and possibilities of the Internet is “State of Transition” (ORF 1994), which connects radio listeners with Internet users, as well as a group of artists in both Graz and Rotterdam, all live via telephone, data lines, and radio transmission technology. See also the documentation at http://kunstradio.at/1994B/stateof_t.html 3: While private stations in Ghana, state radio in India, and stations in the US Pacific were streaming their programs in the Web, public stations in Germany were slow to join. This was due not in small part to the complicated legal situation of Internet broadcasting at the time. 4: Wolfgang Hagen, “Der Radoruf. Zu Diskurs und Ge-

schichte des Hörfunks," unpublished script, p. 1. **5:** "Broadcast" – from the English, "to cast."
6: See also R. Murray Schafer, "The Tuning of the World," Toronto 1977. **7:** The composer Atau Tanaka developed one of the few reliable players for his production "Constellations" that enabled the playback of several mp3 files. See <http://www.sensorband.com/atau/constellations/program.html>. See also his Internet sound installation "mp3q." **8:** Sabine Breitsameter, "AudioHyperspace – Hör-Spiele im Internet," SWR 1998, p. 12. http://www.swr.de/swr2/audiohyperspace/ger_version/sendungen/19981210/index.html **9:** About Flesch's projects, media-specific productions and programs, including the founding of a studio for electro-acoustic music, see also Wolfgang Hagen, "Der Neue Mensch und die Störung," Radio Bremen 1999, script. **10:** Hans Flesch, loc. cit. **11:** Hans Flesch, loc. cit. **12:** See also Rudolf Arnheim, "Rundfunk als Hörkunst," Munich/Vienna 1979. **13:** In choosing a name for the state radio of India, "Akashvani," meaning voices of heaven, the magical nature of radio continues to the present day. **14:** Hans Flesch had an intimate knowledge of the artistic and musical Modern. See also Wolfgang Hagen, "Der Neue Mensch," loc. cit. **15:** See also Sabine Breitsameter, "Vom Hörspiel zum AudioHyperspace," lecture series for the Kulturreferat Munich, script, 2002. **16:** Phone-in programs are, particularly among commercial programs, more popular than ever. While such programs in the 1970s were usually unfiltered and spontaneously broadcast, often resulting in inconsistent, jarring, or boring material, a few years later listener participation became more controlled for the specific program format. If the caller screening process failed, the remedy was to fade in some music. **17:** Among others, also the members of the European Broadcasting Union EBU. **18:** Sabine Breitsameter, AudioHyperspace, loc. cit. **19:** Please see <http://www.bbc.co.uk/radio4/wheel/> **20:** Please see http://www.swr.de/swr2/audiohyperspace/ger_version/akustische_kunst/projekte/tele-tap.html **21:** As occurred September 2001 on the Netherlands station VPRO. **22:** Produced under the auspices of Südwestrundfunk (SWR), in co-production with, among others, ZKM Karlsruhe, Radio Canada, Goethe Institute Tokyo, IAMAS Ogaki/Japan. See also http://www.swr.de/swr2/audiohyperspace/ger_version/frankensteins_netz/index.html **23:** On almost 20 stations in Europe and Canada. **24:** See also Sabine Breitsameter, "Netzwerke und Schnittstellen. Der Medienkünstler Atau Tanaka," script, SWR 2002, available as download at: http://www.swr.de/swr2/audiohyperspace/ger_version/sendungen/20020704/index.html **25:** Fall 2003. **26:** See also <http://amsterdam.nettime.org/Lists-Archives/nettime-bold-0302/msg01892.html>, <http://www.xxeno.net/FLOW/>. **27:** See also, among many others, Resonance FM/London, Ersatzradio IS THIS ALSO BERLIN? and Juni-Radio/Berlin as well as the initiatives of Bootlab/Berlin in 2004.

**Francesco Ventrella
interviews neuroTransmitter
(Angel Nevarez + Valerie Tevere)***

* This is an expanded version of a conversation between Francesco Ventrella and neuroTransmitter that was first published in NEROMagazine, vol I, 2006, n. 6.

**HOW WE
HEAR IT**

FV — Can you describe your work in a theoretical and technical way, concerning the peculiarity of American laws on broadcasting?

nT — neuroTransmitter is an artist collaboration whose work fuses conceptual practices with transmission, sound production, and mobile broadcast system design. We are interested in rearticulating radio in multiple environments and contexts — public, exhibition, over the airwaves — considering new forms and possibilities for radio transmission. Our work includes projects that examine the social and historical relations between art, media, communication, power and spatiality. The occupation of radio frequencies and the radio spectrum, alongside artistic concerns, embody much of our work and interests.

Because of the broadcast nature of our projects, the federally regulated legal limits with respect to airwave access are always of concern and importance. Currently in the United States, a license for broadcasting is required for any form of radio transmission. It is custom for Federal agents to confiscate, and at times, destroy radio equipment belonging to targeted offenders of the broadcast laws handed down by the Federal Communications Commission. However, there exist loopholes in the system that can be manipulated and reactivated allowing for one to transmit. For example, it is possible for one to activate a transmitter with a one-half to one watt potential, for short periods of time. Mobile and intermittent radio as well create potential to circumvent existing broadcast limitations.

FV —The story of radio broadcasting is related to military communication: the radio was a technological means of communication difficult to be uncovered by the enemy. What's your history of radio broadcasting? I mean: which are the most important historical steps in the development of the radio according to you?

nT — It's no surprise that soon after its birth radio was quickly adopted by the military for its many possibilities of remote communication. In the early 1900s', Guglielmo Marconi sold his radio receivers and transmitters to the British Navy. This solidified radio's course within the strict and narrow gaze of the military. From the time Marconi demonstrated the first trans-Atlantic broadcast in 1902, to the invention of RADAR (Radio Detection and Ranging) during WWII, and now with the expansion of radio reaching beyond the stratosphere to the orbital space of Earth (i.e. Satellite Radio — its expansion and access of communication technology as Satellite demands great resources of wealth and scientific innovation), the airwaves are, for the most part, in the hands of corporate and military structures.

Radio has a long and varied history within the numerous spheres of communication and musicality. In terms of what we see as important steps in its development — we are most interested in those histories that function

outside of corporate and military structures, that consider radio as a facilitating device, an artistic form, a communicatory tool, and a political transformative force. Some of those histories are elucidated later in this text.

FV — You talk about “broadcasting on the fly” for your radio-sonic performances. Could you please tell us more about the process in which projects like *com_muni_port* could create a sort of network in urban landscapes?

nT — To give a little background on the project, *com_muni_port* is a portable transmitter backpack containing a multi-channel mixer, cd player, microphone, and FM transmitter, basically a mobile and low-tech radio station in a bag. When activated, *com_muni_port* has the potential to broadcast a radial distance of one mile — this, of course depends upon its geographic location and the topology of the landscape. For example, in an urban space like New York City, the broadcast range is decreased to about the range of two to three blocks, yet in the countryside, an open area, beach, or parking lot, the range may increase exponentially.

Utilizing multiple *com_muni_port* units we imagine public frequency performances where a network of micro-radio broadcast units reshape the airwaves along the streets of a particular area, creating and broadcasting a sonic diagram that maps urban space through on-site sound mixing, movement, and transmission. The low-watt, low-range occupation of the unit comes with its own advantages — the positionality of the radio DJ with respect to her audience becomes a horizon-tonal structure where the hierarchical relation between transmitter and receiver breaks down. These limits of low-power transmission can connect transmitter and receiver as well as the sites in which the transmission occurs, in turn, transforming cognition of a place.

FV — I am interested in Guy Debord’s *Guide Psychogéographique de Paris*, 1956. Debord wanted to document a discourse on love passions, using the frame of the city not as a stage, but as a processual means to activate the situationist *dérive*. But the way in which Debord synthesized this urban practice was graphic and visual. I would like you to translate this suggestion and think about the possibility of sonic mapping... Could the sonic function as *dérive*?

nT — Absolutely. Since the frequency performances utilize FM broadcast, the sound can be received by anyone in the vicinity of the performance, meaning someone on the 5th floor of a building could potentially become a participant if tuned in — this is interesting in thinking about the *dérive* — sound traveling through the airwaves to be intermittently received randomly by the turn of the dial.



For us, frequency performances operate beneath the boundaries set by commercial broadcast interests and use the invisibility of the radio-sonic airwaves to render an alternate urban form. The simultaneous occupation of both the invisible and physical spaces of the city (through transmission and movement) opens up potential shifts in positionality of transmitter and receiver, body, sound, and the socio-spatial landscape; shifts in how we see and interact on the street level as well as vertically.

FV – Contemporary cities are separated into different areas not only longitudinally, but also vertically. Advertisement and corporate brands are superimposed onto the urbanscape as multi-layered surfaces, and it seems that commodity promotion is always “on air.” But if in the 60s advertising pollution was only visual, now the city is re-defined by a “see-hear economy” (Sarat Maharaj).

com_muni_port

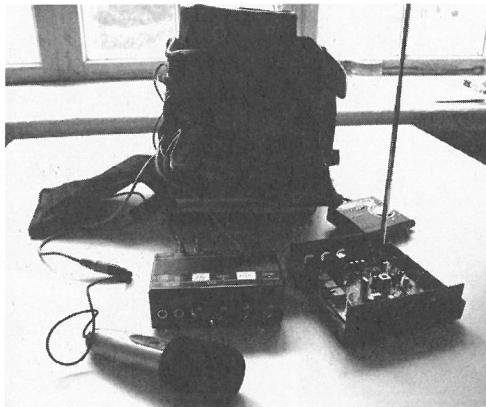
neuroTransmitter, 2002 (ongoing use in public frequency performances)

medium: backpack, FM radio transmission/reception, performance.

com_muni_port is a self-contained backpack FM transmitter unit used for broadcasting ‘on the fly’. com_muni_port consists of an FM transmitter, CD player, microphone, headphones, and multi-channel mixer, all powered by a battery pack. Its portability renders its use within political demonstrations, by mapping audio frequency within a city, and spontaneous interviewing and broadcasting.

We have used com_muni_port in a variety of performances and contexts. Recent public performances include:

The Low Power to High Power Broadcast Media Tour & Traffic Jam Session
(see also pages 78-79)



nT — This term “see-hear economy” is very relevant to the interpretation and interaction of the contemporary city. As we move through an urban environment, our visual field is polluted with advertisements peddling desire, bodies, and unnecessary goods. Our bodies constantly interface with myriad radio and cellular signals that circulate around and through our bodies. We see and hear snippets of culture and conversation...its exciting, frustrating, and tiring.

So how do we resist it? Or can we? Certainly through graffiti, signal blocking, triangulation, and other sorts of temporary or semi-permanent blips. But are these affectations long-lasting? Or do these modes of resistance also fall into the pollution of urban life?

FV — Your projects function at the border between “art” and “activism.” If we think about contexts: in a common sense “art” is related to the visual or retinal domain; when I think about “activism,” instead, I think about peo-

public_radio

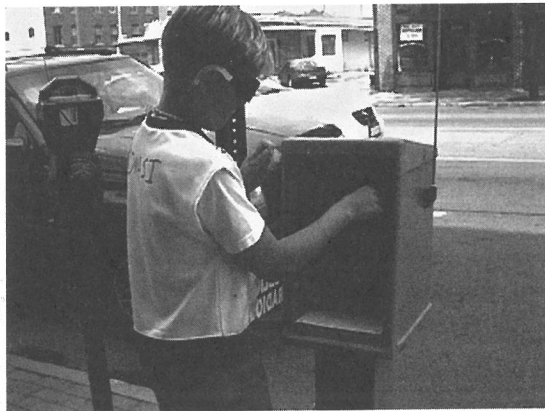
neuroTransmitter, 2002

THE NEWSPAPER DISPENSER offers up text and image for public consumption.

When transformed into a radio tuner, the dispenser extends a different form of dispersal — a sound-byte or series of sounds to be layered atop those of the urban landscape.

THE RADIO maps, conducts, and transmits aural space. Sound forms, like objects, transform and travel with the individual body.

PUBLIC_RADIO connects the newspaper dispenser with the airwaves altering public expectation and engagement with the dispensing object. From July 20-21, 2002 (as part of the Dispensing with Formalities series in Columbus, Ohio), a live radio transmission was performed and broadcasted in the vicinity of public_radio.



ple screaming, about megaphones, about an oral communication, which is more fluid and disseminated. How does the sonic enable visual art to differentiate itself in/from the retinal limit?

nT — The border between art and activism for us is permeable, we don't see our process as one or the other, but an extending of regulated boundaries, fusing conceptual art practice with frequency transmission and activist models. The simple enactment of radio transmission can be looked upon as a political gesture and an act of resistance. It could be one that references a history of pirate radio actions of the 1960s and 70s by people like Radio Alice, Free Radio Berkeley, Radio Caroline (among others). And/or in the present moment, a resistance to highly regulated, corporate dominated broadcast space. For example, our street action, *The Low Power to High Power Broadcast Media Tour*, initiated during the Republican National Convention in 2004, explored the consolidation of corporate media by staging a tour, and in turn a protest, which mapped the physical/architectural locations of the top five global media monopolies. These five (and others) manufacture politics and social values through disinformation, omission, and distorted portrayals of government policy (both domestically and abroad). In the increasingly privatized global media sphere, it seems to be forgotten that the public owns the airwaves, not the broadcasters, we were interested in demonstrating this idea. Using a *com_muni_port*, sound was broadcast locally to radios of tour participants. The public performance, including props and frequency activation, connected these global media sites, highlighting their monopolization of mass media, influence on deregulation of the US Federal Communications Commission policy, and the media's close affiliations with conservative (Republican) politics. Yet unlike "mass" media, this was realized on the local level where a sonic and visual relationship was built between site, sound, and participant.

FV — On the one hand radio broadcasting is working on and around the landscape, shaping the air with its transmissions. It can feature the landscape itself, while addressing other forms of representation, but on the other hand we can't eschew to acknowledge the corporeality behind radio broadcasting, which is related to the "grain of the voice." If we turn the medium into the source, we can recognize a new field of intervention, which is related to the politics of the voice, and the possible accounts that can be led by that.

nT — To address the first set of ideas concerning the landscape, the air, and the airwaves, we'd like to insert a quote by John Cage that draws our attention to perceptions of radio-sonic space. During a radio happening at WBAI in 1966, Cage said that — [radio] "is making available to your ears what was already in the air and available to your ears, but you couldn't hear

it.”¹ This is probably a good place to begin, because in speaking about radio space it is difficult to separate the material from the immaterial, as well as the voice (transmitter) from the ear (receiver).

Your question brings up topics that relate to critical analyses of sign systems, where radio and its transmission of voice and sound project subjective realities. In art historical terms, theories around representation are often about a visual cue and less about aural specificity,² however within the politics of representation, the radio voice should as well be examined. The voice in radio is disembodied and [taken] “away from the body, stealing words and transmitting them everywhere.”³

Alexandra L.M. Keller speaks of representations of the voice as indexical, much like in photography, yet radio and recording mechanisms have altered expectations of the voice, potentially abstracting and reconstituting it.⁴ On the level of commercial radio reconstitution happens where the canned voice, the studio voice, the mechanical voice, the voice of the radio personality is trained, molded, and groomed programmatically for the listening audience. And while we might agree that the act of utterance, of language spoken, represents and communicates subjectivity, how do we speak of subjectivity here? Through mimicry?

Traffic Jam Session

In collaboration with the Radio Lab, Bauhaus University, Weimar, Germany, 2004.

This performance, situated on a traffic island in central Weimar, incorporated live and pre-recorded sound mixes and interventions into the public private barrier of the automobile. For “Traffic Jam Session” neuroTransmitter consisted of Valerie Tevere, Angel Nevarez, and Wayne Hodge.



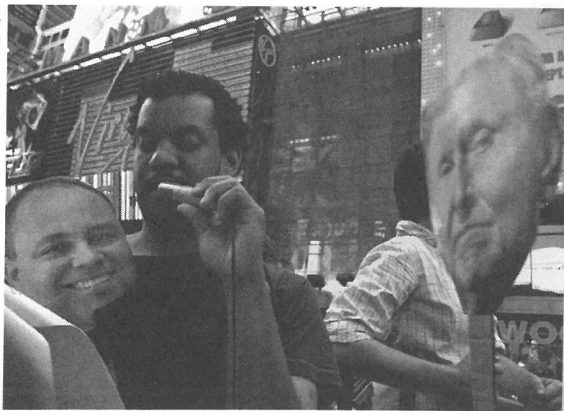
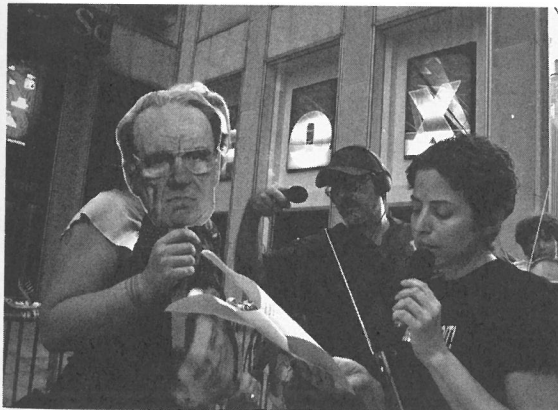
FV — In 1977 Radio Alice was broadcasting from Bologna. The collective group of radio practitioners considered radio broadcasting the best informational means because it was the fastest one (differently than the printed paper). They spoke about the informational guerrilla, but also about the empowerment of the public within mass-media. “*Who is broadcasting and who receiving? Radio Alice broadcasts everything: you can express what you think about by a phone call...*” was their motto. Radio Alice was focusing on the possibility to use technological means (radio and telephone) for the re-appropriation of mass media as a means for knowledge production. Do you have any heritage with these experiences? Do you know something else like that in other countries?

nT — Certainly your question refers to Brecht and later Guattari who, in different forms, spoke of the possibilities of “radio as an apparatus of communication” (the title of Brecht’s essay from 1932). In the 1930s, Brecht was thinking about the implementation of new technologies and how to incorporate them into society. Technically, the radio receiver also has the possibility to transmit. Brecht speaks more conceptually about that possibility, as changing the apparatus from *distribution to communication* so that any-

The Low Power to High Power Broadcast Media Tour

During the RNC, NYC 2004.

This performance/tour connected midtown Manhattan global media sites, highlighting their corporate monopolization of mass media, influence on deregulation of the US Federal Communications Commission policy, and the media’s ideological affiliations. For “Low Power to High Power Broadcast Media Tour” neuro-Transmitter consisted of Valerie Tevere, Angel Nevarez, and Wayne Hodge.

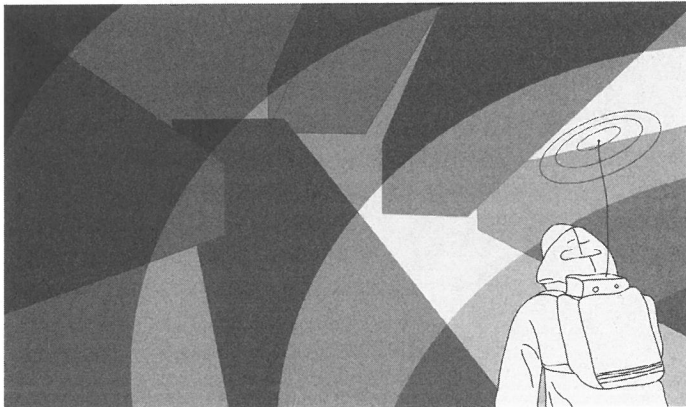


one may have, and use the opportunity to do both. Imagine the airwaves as such “a vast network of pipes”⁵ he wrote, that allows the listener to speak as well as hear. In this same essay he also talks about the Western educational system that can, at times, establish a hierarchy between educators and students. The analogy here was being made with radio as a distribution of a certain knowledge, where the listener is passive. Brecht requested reaction, collaboration, communication and in the end, innovation.

That possibility was exactly what Radio Alice attempted through connecting the phone to the airwaves. Radio Alice’s broadcasts brought together music, news of left and working class struggles, student, feminist, and civil rights movements, and public commentary on these topics by callers or drop-ins to the station.⁶ Guattari spoke of this type of narrowcasting as changing the nature of communication. For Guattari low power transmission built local programming and did not impose a monopolistic, commercial, and conventional radio on a mass audience, but took into account the context of transmission and consistent listenership.

It is of great importance to combat regulation on communication and re-claim media not as mass, but locally produced. As the 5 major global media monopolies continue to further consolidate, access to the airwaves on the local level becomes more and more difficult. Creating local media, narrowcasting, taking back the airwaves (however one may phrase it), like the work of Radio Alice, is urgent and necessary.

wear the air
 neuroTransmitter, 2005
 medium: lithographic poster
 dimensions: 24" x 14"



Brecht's "network of pipes," it appears, was of conceptual and musical interest to Max Neuhaus who also examined and combined radio broadcast and telephony. Neuhaus saw the telephone as forming a two-way virtual aural space, while the radio "can give us a live ear view into a space which can be anywhere or nowhere."⁷ In 1966, Neuhaus produced a work called *Public Supply I* at WBAI in NY, which was a live mix of incoming phone calls to 10 phone lines at the station. The broadcast was a combination of listeners' voices and sounds along with the feedback from their home radios. While Neuhaus was the musical conductor of the event, the listeners who called in were the broadcasters, and the telephone line was a portal into which anyone could "walk-in" to the radio studio in a time when live call-in wasn't customary.

In 1977 Neuhaus produced *Radio Net*, another work made from incoming calls as material, and activated this material via radio — this time though on the nation-wide level in the form of what is called a national loop used by NPR. Syndicated systems work by transmitting from one station to the next in a relay fashion. Neuhaus transformed this relay into a closed loop in which sound circulated throughout, creating a feedback loop that was approx. 3000 miles long by 1500 miles wide.⁸

Artists in the 80s looked to Guattari and Italian free radio, and through what was called mini-FM, adopted the model for their practices. mini-FM was specifically looking and working within the limitations of public access broadcast in the highly regulated Japanese airwaves.⁹ The public access airwaves only allowed space for broadcast below 15 microvolts per meter at the distance of 100 meters — this was primarily open for wireless microphones, remote control cars, etc. FM transmission equipment could then be transformed to cover a wider geography — .3 mile radius or so, which translates into quite a few listeners in a densely populated city like Tokyo. While a lot of the mini-FM stations emulated popular commercial radio, performance artist Tetsuo Kogawa and others paid attention to their serious listeners who weren't very far away, using radio as a means to link people together.

FV — Please discuss the project you presented in Brest?

nT — *12 Miles Out*¹⁰ is one in a series of projects that explore the history of offshore pirate radio practice prevalent in Europe in the 1960s and 1970s; this work specifically references Radio Caroline, the most infamous offshore radio ships. Our project was presented in the exhibition, *in absentia*, curated by Stephen Wright and presented at the Centre de Arte Passerelle in Brest, France. We imagine that Wright's interest in including this piece in the exhibition was due to Brest's context as a port city and the work's simultaneous engagement with absence, presence, and memory.

It is a visual and sound installation that merges analog radio technology and the line drawing. The drawing refers to the architectural blueprint of a Radio Caroline ship and functions as a radio transmission antenna. In this way, the FM radio transmission is traveling through the drawing. The audio composition mixes ambient sound recordings of an ocean voyage we took out into international waters with archival material from Radio Caroline broadcasts and audio that marks the spatiotemporality of these offshore pirate radio broadcasts. Multiple radios within the exhibition space are then tuned to receive the project's transmission frequency.

FV — Can you speak about the radio you set in a bus stop?

nT — During July of 2002 we were invited by the group Temporary Services to create a work to be “exhibited” in a newspaper dispenser and placed somewhere in the city center of Columbus, Ohio. Newspaper dispensers hold either free newspapers (like the Village Voice) or are locked and can be opened only when one drops coins into the dispenser. These objects offer up text and image for public consumption and are quite commonly seen on street corners in urban centers throughout the US. The invitation was appealing to us as we are interested in the transformation of function and use of everyday objects, altering public expectation and engagement with the object, converting or hybridizing its meaning and function. Since the task was to use the dispenser as an alternate form of dispersal, we decided to transform it into a radio receiver (including antenna and speakers, powered by a small lawnmower battery). This conversion extended a different form of dispersal — a sound-byte or series of sounds layered atop those heard in the urban sphere.

For two days we performed a live radio DJ-set broadcast in the vicinity of *Public Radio*. The *Public Radio* dispenser was then left at a bus stop in central Columbus for the use and entertainment of commuters and passersby. It is doubtful that it is still in use today, perhaps someone took it on as a project of their own and replenished the battery.

FV — We have spoken about appropriation of communication technology, about empowerment of the audience and the *informational guerrilla*. Today, how could radio remain a free public space safe from the *spectacle*?

nT — Perhaps again on a more localized level where these Brechtian notions are employed. This is what work of Radio Alice, Tetsuo Kogawa, and their contemporaries like Radio Ligna does, and what we hope to achieve in our performances. Building a relationship between transmitter and receiver where radio has a two-way communicative function. Not sure if this saves it from the spectacularization...

Notes

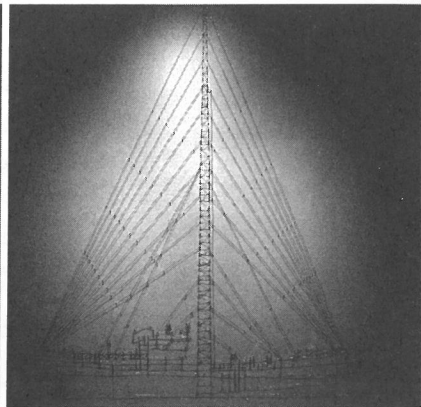
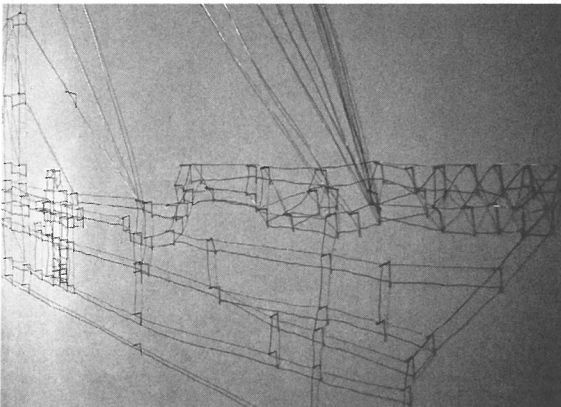
1: John Cage and Morton Feldman, *Radio Happenings: Recorded at WBAI, NYC 7/9/66-1/16/67*. Quote also found in Joe Milutis, "Radiophonic Ontologies and the Avant Garde" in *Experimental Sound and Radio*, ed. Allen S. Weiss (Cambridge, Mass: TDR Books, The MIT Press, 2001), p. 58, and *Yearbook No.1*, ed. Peter Gizzi (Boston: Exact Change, 1995), p. 251-70. 2: Douglas Kahn and Gregory Whitehead, ed. *Wireless Imagination* (Cambridge, Mass: The MIT Press, 1994), p. 4. 3: Joe Milutis, "Radiophonic Ontologies and the Avant Garde" in *Experimental Sound and Radio*, ed. Allen S. Weiss, p. 59. 4: Alexandra LM Keller, "Shards of Voice" in *Experimental Sound and Radio*, ed. Allen S. Weiss, p. 22. 5: Bertolt Brecht, "The Radio as an Apparatus of Communication", July, 1932. ["Der Rundfunk als Kommunikationsapparat" in *Bjitter des Hessischen Landestheaters Darmstadt*, No. 16, July 1932]. 6: Suzanne, Cowan, "The Unhappy Adventures of 'Alice' in Blunderland: Counter-Culture, Revolt and Repression in the Heart of Italy's 'Red Belt'" in *Radical America* 11:6 & 12:1 (Nov.1977-Feb.1978): 67-77. — found quote in "What I Hear is Thinking Too, Deleuze and Guattari go Pop." www.echo.ucla.edu/Volume3Issue1/smithmurphy/index.html 7: Max Neuhaus, *The Broadcast Works and Audium*, www.kunstradio.at/ZEITGLEICH/CATALOG/ENGLISH/neuhaus2-e.html and www.max-neuhaus.info/audio-video/ 8: Max Neuhaus, www.max-neuhaus.info/audio-video/ 9: Tetsuo Kogawa, www.anarchy.translocal.jp/non-japanese/radiorethink.html 10: neuroTransmitter (Angel Nevarez + Valerie Tevere), *12 Miles Out*, 2005. This work was first shown as part of the exhibition *Airborne*, April – June 2005 at The New Museum, NY, organized by Anne Barlow and Defne Ayas in collaboration with free103point9; it was most recently shown in "neuroTransmitter: Beyond Territory," Nov.-Dec. 2006 at the Henry Art Gallery, Seattle, WA, curated by Sara Krajewski.

12 Miles Out

medium: wire, radio, fm transmitter

2005/2006

12 Miles Out merges analog radio and the line drawing and continues our research and exploration of offshore radio practices. The drawing refers to an architectural blueprint of Radio Caroline, one in a fleet of infamous offshore radio ships.



Marie Wennersten

TO SEE
WITH EACH
OTHER'S
EARS
— SRC CAN
AMBIGUOUS
RADIO

I've made radio for over half my life, starting at 15 with a community show. Years later, I made my first and last attempt at television. I went to see the blind composer Moondog at the Brooklyn Academy of Music. Moondog, the former street bum, famous for being able to identify the East Village dwellers just by the sound of their footsteps where he sat at the same corner every day playing his drum, wearing his viking helmet. After the concert I had an appointment with him backstage. We had our short but intensive talk in front of a High 8 video camera. Before saying anything, Moondog started by handing me an apple, urging me to smell it, to really draw in the smell of that small red and green fruit which he himself couldn't see. A couple of hours later as I came back to the office, and with cheeks red from excitement played the video: it was all blank. There was only the sound, no picture. Sitting there trying to salvage the material, I realized that not even the sound was good enough to make radio out of. I wondered if there was any way of conveying what Moondog had tried to engage me in. A way of translating the smell of that apple.

Whispers. I would rather define radio by making it, but if somebody asks me, I'll use the same get-out clause that has been working in the art world ever since a certain R. Mutt signed a urinal. "Radio is anything made within the institution of radio." It's not a snappy slogan, and it doesn't look good as a T-shirt, but it works. And SR c is one of the ways to explore this. Though SR c has its home at www.sr.se/src, we are using the expanded idea of radio to make it heard on FM, in galleries, movie theaters, and the city landscape. Under the umbrella of National Public Swedish Radio, we' started five years ago in a little pantry on the ground floor of the Radio house in Stockholm with the only rules from the top floor being that it should somehow be inventive. The rest was up to us, and still is. SR c has been presented at digital media symposiums such as ISEA and collective exhibitions with new media art, but it's not about this. And the times that it's about radio, it's about the different ways radio can be made, presented and perceived. When starting it, I wanted to open a space where radio artists as well as newcomers could experiment with the range of what radio can be and how it can sound. Everything from demanding and complex programs to the simple sound carpets we made just as an obvious example of radio as companion or backdrop to the every day. Like the ear-to-the-ground music of a tap dance evening class or the sound of ice breaking on the lake. Or it can be an actual hypnosis session, with the hypnotist talking right out to the listener, taking them on a see-yourself journey. It's also true that radio, and at times the web, just happens to be the media that those of us involved have chosen for what we want to say.

For us, and the freelancers, it's been inspiring to use the 1960's Radio house and to broadcast from the studio where Jimi Hendrix played live, using the old Hammond organ for a web-cast. At the heart of this concrete

complex, there is this room called the “Deadsilenced room” in which one can test microphones and other equipment. There’s isolating, muffling material on the ceiling, walls and floor, “Döddämpade rummet”/so efficient you think your head is going to implode, with your own pulse as the only audible sound. Even when you scream it sort of disappears. A couple of years ago, four people confessing to different churches, one Animistic, one Christian, one Jewish and one Muslim, were asked to lock themselves in, one at a time, with a recorder, into that strange room. In there they were to talk to their god/gods/goddess in whatever way they chose. A way of using the old institution — first, alone talking to only one and then, broadcast to some 100,000 listeners¹ — changing radio into a loudspeaker for whispering.

Look out. In order to have the freedom to make works in just about any way, we’ve chosen to organize SR c under different themed issues, like a sounding magazine. Every theme has its own visual world where the sound works are gathered, and available on-demand to audiences everywhere. The search engine is a relatively new feature, and up until recently I was more drawn to the idea of a “getting lost engine,” even though we have received criticism for building virtual worlds that you actually get stuck in. However, now after five years, with some 200 works that we have produced or commissioned, it makes sense to have a search.²

One of our more analog interfaces once materialized in the storefront window of an art bookstore. We used tape to create a 5-meter square browser window with four performers in it, four huge buttons for the people on the outside of the window to press and activate any one of the acts.¹¹ Someone in the audience discovered that you could press two of the huge pedal buttons, and even all of the buttons at once and make the performance artists improvise together, sounding through the big speakers on the outside of the storefront window.

Play unsafe. We want SR c to be a liberation project and we believe that it’s possible to raise the roof of what you can say and do, in official media (which SR c is a part of, after all) but just as well as a citizen. In the not-at-all-minimal Tutti Frutti theme issue it’s perhaps most obvious — amongst Hörspeil about Archimboldo, a philosophical essay about “multitude” and lots of fruit — that plenty is good, difference is exciting, and come on and play without fear of being uncool.

Hear hard. A paradox about radio is that it’s potentially both subtle and brutal. Television, in comparison, is always at a comfortable distance for you to look at, whereas radio is all around you, and finds its way into your body through the holes in your head. Some works make you more aware of the actual act of listening though, sounds that you have to stretch your ears, brain and sensibility toward.

Two examples:

a) In the winter of 2006 SR c invited the contemporary composer Tom Johnson to the Stockholm New Music Festival, to perform his piece "Same or Different."³ The 18th century salon was filled with a curious and slightly hesitant audience, on stage was the skilled pianist Mats Persson playing short minimal pieces by Johnson, twice every time with Johnson asking the audience after each passage if it was played identical or with some change of rhythm or note. We web-cast live on our channel, and had a chat open to cater to the audience listening and participating from a distance. The answers "S" or "D" were projected on the wall of the auditorium as they were written in real-time accompanied by the on-location-audience-shouting out their answers. Afterwards, we added a web version with an interactive interface, that still is there for anyone who wants to test how well they hear. People have found it amusing that the web version starts off sounding just like a normal radio broadcast from a live concert, only to suddenly become a pure interactive web application. The last time we did an interactive piece a bit like this, we had over 2 million unique visitors — that's with "Let them sing it for you."³ This one will probably have a more limited appeal.

b) Initially when starting a collaboration, we often ask those who have sought us out to risk something, and sometimes the artists or radio makers are still wary after having made a piece, as with the composition based on an interview in which a woman is masturbating for the microphone.⁵ It's a program that for many has evoked some sort of aural voyeurism, disturbingly and unexpected with a medium that is usually so free from any kind of "sleaze." It's interesting that it pinpoints that difference between seeing and hearing. How subtle a sound can be without losing its impact on you. You might find yourself stretching your hearing and yourself toward the tiniest of sounds, all attentive and focused in the room hiss. In another piece, one is in the secret sphere of four people who agreed on sleeping with a microphone on their bedside table. What actually happened in the studio when it was mixed in the middle of the night, the maker can't tell, just that some strange unspecified sounds suddenly appeared by themselves.^{III}

Be brave. We are part of the 2000-employee institution of Swedish Radio, but we work as cellular as we can, creating a personal relationship with almost everyone we commission, or work together with. That's how pieces

I: Track 12 on CD: "Ensam med Gud/Alone with God" by Steven Cuzner, 2004. **II:** Track 13 on CD: "SR c in the big window" was conceived by Marie Wennersten and Steven Cuzner in 2002 and included live acts of Steven Cuzner playing the drums holding 20 drumsticks, Fia Stina Sandlund reading a wise "fortune cookie advise" every time you clicked her button, Ida Lundén remixing very old records and Sebastian Franzén singing "It does not matter" by his synthesizer, at the art book store Konst-ig in central Stockholm. **III:** Track 14 on CD: "Sovarna/Sleepers" by Susanne Skog, 2005.

that are personal or even private can happen in spite of the never-ending grey corridors. It takes some guts to, for example, make radio about your mother's suicide. The couple that recorded the actual moment they opened the mother's trunk for the first time, exhibits a kind of daring that we try to inspire and give support for.^{IV} In this particular piece, the couple explore the lingering presence that loved ones have after they are dead, and the rivalry they can still generate between the living. This is radio drama as it unfolds in reality with the microphone on, rather than being scripted.

Being part of the Drama department of the Swedish Radio makes sense. SR c too, uses the radio and web as a stage. We also create temporary stages, like the Central station of Uppsala where we made 3 hours of Radio choreographies.⁶ Instructions were given over a local FM-frequency to dancers and non-professionals who were rolling their amplified suitcases behind them, creating an echoing thunder like pulsating noise, or banging locker doors in rhythmical patterns. The sounds were manipulated in real-time and web-cast on our channel, as well as blasted out over the platforms.

Other voices. When we started, it felt important to disrupt the manners of the spoken radio voice. We did not want to imitate or encourage a professional tone. The "good radio voice" is not simply boring, it hides insipid power structures, it speaks with a questionable authority and false intimacy. We asked contributors to talk freely and honestly, not as they imagined they were supposed to sound. One can be surprised how much even experimental radio sounds conventional just by the way people present it. In the long run however, our ideas of the "natural" tone of voice too risked turning into a convention, so a further development has been to explore the false voice.^V We're not taking the position that all hierarchies and authorities are bad, it is more inspiring to hear a physicist explain the phenomenon of black holes, rather than an artist. At one of our open breakfasts, a 50-something science journalist and regular Nobel prize interviewer started talking to a 20-something visual artist, DJ and musician about collaborating on a piece on this topic. Both being inspired by each other's earlier works at SR c, they joined in a naïve techno-educational program with original music (as usual at SR c),^{VI} a collaboration that has since continued.

Leak. Even though SR c radio mostly exists as code and not as waves, the term "schizophonic" seems productive to describe our method of commissioning and dispersing works through a variety of media.⁷ For example, whilst waiting for the interface to our theme Limbo, we decided to place one

IV: Track 15 on CD: "Familjen-ett gisslandrama" by Jean-Louis Huhta and Ninni Hasselberg, 2003. V: Track 16 on CD: "Bedside Manner" by Mark McLaren, 2005. VI: Track 17 on CD: "In i det svarta hålet och kanske ut igen/Into the black hole and maybe out again" by Joanna Rose and Matti Kallioinen, 2004.



of these disembodied works in a “waiting room.” From hidden loudspeakers in a white room came an immersive composition called “In the meantime.”⁸ Providing this purgatory space allowed one of the pieces from the theme a physical carrier in the gallery. That same idea of a waiting room is represented on the flyer and the web interface. Radio is extended by the leakage between different media and reality, playing across the borders of fiction and reality. Sometimes radio is about telling a story, but it can also be like the smell of an apple: a formless story. It can get loose, linger and infiltrate. The narrative is there, you just have to hear. No more footnotes.

Notes

1: Me, Mette Göthberg, IgorIsaksson, Karolina Gerdich, Simon Rue Hallén. **2:** The current interface including the search is made by SR c interaction designer Erik Sandelin, with help from: Ulrika Jonsson, web editor. **3:** “Same or Different” by Tom Johnson was originally performed at an Ars Acustica meeting in Amsterdam in 2004. Having been a part of the participating audience, I invited Johnson afterwards to collaborate in making a web version of the piece, which is now available at www.sr.se/src/sameordifferent **4:** “Let them sing it for you” was produced by SR c together with Erik Bünger in 2003. **5:** “Kim” by Hans Appelqvist, 2005. **6:** As part of the international performance festival Friction/Frikationer in June 2006, the Radio choreographies were conceived by Nathaly Salas, Susanne Skog, Jean-Louis Huhta, Lars Ringbom and Marie Wennersten, and inspired by the German radio group LIGNA. **7:** R. Murray Schafer’s idea of “schizophonia” aims to describe the phenomenon or condition of sound being divorced from its specific source. See his book *The Soundscape* (Rochester, VT: Destiny Books, 1993). **8:** “In the meantime”, a sound piece made by the Irish composer Fergal Dowling for SR c presented in an installation at Galleri Box, Gothenburg.

Brandon LaBelle

**PHANTOM
MUSIC
— RADIO,
MEMORY,
AND NARR-
RATIVES
FROM
AUDITORY
LIFE**

The accident was as vivid in my mind as if it had happened last week. But the date was hazy until I opened a Billboard chart book and saw that "Summer Breeze" by Seals & Crofts had entered the Hot 100 in September 1972. So, yes, it must have been late Fall '72. I was 21 years old and living in the university section of Minneapolis. But one cold, clear Saturday, I found myself miles from town, an unknown party guest on a stranger's farm. I remember the humid atmosphere in the run-down farmhouse, and the view of the bare, frozen fields from the kitchen window. There was reefer, there was whiskey, there was a keg of beer and some pills of the "downer" strain. The day passed, and early dark was falling. Somebody mentioned a ride back to town, and I climbed into a crowded Volkswagen van. I recognized the driver as someone I'd seen "knocking back Jack" (Daniels) throughout the afternoon. We started down



through an open window, veiled by a flimsy curtain, more like a bed sheet draped across, left to unfurl and brush against the exterior of the building, the faint whisper of an unseen situation can be glimpsed, overheard, indecipherable yet all too present: like the curtain itself, it falls out of the window to brush against the exterior, the passing of all those who walk by, unsure or too sure of where they are going. yet what directs my attention is not only what lies behind, but also the curtain itself: the curtain is both the scene and what veils it; like the skin of a drum, it conducts the sounds from within while responding to the force from without — it is where attention rests, distracted, while wondering what lies on the other side.

the dirt road towards the highway, travelling at perhaps eight miles per hour. Less than a mile from the house, the van gently eased off the road and fell on its side in a shallow ditch. Inside, passenger reaction was not one of panic but of surprise (“Hey!”). This was followed by disappointment (“Shit!”) at the realization that now we’d be forced to awkwardly climb out of the van, then walk back to the house in the cold and dark. We did, hunched and shivering against the wind off the fields, and eventually I found another ride back to Minneapolis in another vehicle. As the car radio played, the DJ’s metallic voice scraped against my adrenaline, my regret and relief. “Summer Breeze” is the song that played as I checked again for bumps and bruises, feeling lucky to be alive.

The dynamic of sound, as ephemeral and potent, finds radical parallel in the dynamic of memory, as fluid, complex, and deeply ingrained, for both seem to uncover difficult and engaging relations to the archival, the collectible, and the concrete. To grab hold of the certainty of experience, knowledge, or sensation is often difficult when confronting both sound and memory. While both could be said to leave deep traces, each flirts with a diffuse and vaporous ontology. As Steven Connor so aptly describes, “the self defined in terms of hearing rather than sight is a self imaged not as a point, but as a membrane; not as a picture, but as a channel through which voices, noises, and musics travel.”² Such auditory descriptions echo notions of memory as a montage of voices and images flitting through the mind, triggered by sensory association, random experiences, the passing of detail throughout daily life, as a reservoir of learned behavior as well as secrets. “A memory is not a representation; it is a reflection of how the brain has changed its dynamics in a way that allows the repetition of a performance.”³

trespassing, smuggling in, making apparent the discrepancies between the outer and the inner, the stars and the dreams: this writing takes possession of this page, here, underneath, as a foot, or as a big toe, with a hairy base: it is where the curtain falls out of place, where the window leaks, as a fresh billowing fabric...these words are a kind of textile both framing and creeping in on narrative: it is a loose string trailing behind, or an untucked shirt tail...responding to the body that is all too present yet still hard to locate. it both speaks of what lies above while plunging into itself, as a secondary space squashed by the first yet in turn necessitated by it; a writing that is both out of place and in place (it is a love poem that one always returns to, in the midst of the day’s practicalities, while waiting at the bus stop, or making plans for the weekend...), an extra that, with all extras, threatens to take over — *who is in charge here? which voice is signalling here, according to what strange volition does it come to creep in...*

Memory is thus “non-representational” according to Edelman and Tononi, operating as part of a dynamic system beyond the functionality of the coding and decoding of messages. It behaves through a complex exchange of inputs and outputs, recognition and forgetting. Thus, it seems sound and memory live by being absolutely and always already present while at the same time posing challenges to the permanent. Yet such challenges can be understood as integral to what both sound and memory offer, as productive and positive forces. For it is in their oscillation between the ephemeral and the concrete, the diffuse and the certain, the known and the unknown, that personal narrative, the titillation of meaning, and the recurring concoction of identity and its varied strategies may take place.

Phantom Radio

To follow the interchange between memory and sound I want to reflect upon a project I developed for exhibition in 2005. And which continues in various forms. By teasing out some of the related issues of this project I hope to explore how sound operates alongside the turbulent intensities of living, and in what way radio broadcast contributes to informal social spaces. This focuses exclusively on radio as both a generalized apparatus for public broadcast and a specific sonic backdrop providing a sustained outpouring of music. This text then is a series of perspectives or coordinates following the intersection of bodies and broadcasts, and their related or subsequent narratives. Part of its aim is to question how listening synthesizes sound and its location to form sonic geographies that exist entirely as memories. And how such memories may speak towards an understanding of everyday life infused with noise.

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In response to an invitation from the Archipel festival in Geneva I developed the project *Phantom Radio*. *Phantom Radio* came by way of thinking through aspects of radio based not on the identifiable object or science of radio, but more on the psychological, imaginary, or what Allen S. Weiss calls, the “phantasmic.”⁴ That radio has from the beginning initiated a wide range of radical, eccentric, and idiosyncratic theories and designations re-

from which direction did it arrive? to which end does it travel? a splintering of time and space / a spasm of focus / the trembling of a language on the edge of certainty: to speak up is to infringe upon the given, to make an entry anticipating, expecting, wondering as to the consequence, the repercussions, the response / it is to address while giving oneself an address / a place to which responses can be sent, a speech mirrored back in the ongoing ricocheting of intention and imagination, of call and response — yet intruded upon by an extra, a remainder: a *speaking up* that is also a *throwing up*, a divesting of all that lies within or alongside, upon the same trail of transmission.

veals with what intensity radio insinuates itself into the imaginary. As Weiss' own theories propose, radio activates a feverish response by operating through psychic mechanisms that shadow transmitted broadcast. From this perspective, radio takes on a kind of proto-cosmic status, transgressing and transversing the physical specifics of given geographies and bodies, as well as the informational meaning of transmitted material. Radio as the absolute machinery of the disembodied voice, of schizophrenic ruptures in which place is replaced by imaginary figures and landscapes, and the subsequent reshuffling of linguistic meaning inaugurated by the electronic emancipation of signifier from its signified, supplying semantics with improbable yet potent syllables. Such intensities bring with them a total reworking of the human body, of *being* itself, by diffusing the weighty bulk of one's physicality into broadcast, into electrified ether, while at the same time delivering it up all too fully: the body, as that carnal and erotic and sensual presence, finds a new home upon the airwaves, reaching unknown others through a radical projection of presence. Voices on air, ethereal ghosts from cosmic storms, mouths travelling through the black magic of transmission, broadcasts from outer-space, amplified through and by the machinery of electrical current, at X-number of reception points, always and already alive with spirits and ghouls: the broadcast body flirts with death.

Radio is total nightmare and euphoria all in one; it is pure fantasy and totally (ph)antastic. It is mass media always on the verge of mass hysteria. Such designation can be traced in numerous declarations made in the early part of the 20th century, from Khlebnikov's vision of "lightning flashes" and "bubbling founts" inspired by the terror of transmission to Artaud's censored spasmodic blasphemies — radio as medium for new rituals — when broadcast found its way into the psyche, culminating in what Marinetti would call the "wireless imagination" — radio as the ultimate industry for promoting his *parole in libertà*. As Douglas Kahn states: "Just thinking about this oceanic expansion to all ends of the earth and the possibility for its instantaneous and simultaneous communication to a single moment of consciousness meant that the potent force of an unstructured, chaotic space was sent hurtling down onto individual means of expression, splintering them into fragments."⁵ The promise of transmission set the stage for a radicalized force of sonicity — electricity mobilized by the body's own expelled breath, and in turn mobilizing fantasies of the self, replacing syntax with sensation and raising the volume on the Modern split subject.

i am six years old, i am sitting on the carpeted floor at home in the tv room, i am watching *Lost in Space*, Will Rogers is trying to construct something, and for a moment i am captivated, i really think Will is there, showing me something, and i am part of their world — with the compound of make-shift shelters, workshops, and living arrangements: it all gives shape to something that i am unaware of yet which feels important, alive.

The electrified, transmitted self finds complement in modalities of reception, in which listening in to signals from afar leads to details of the stars. Radio signal raining down from heaven allows glimpses onto the cosmic history of the Universe, turning the ear into a scientific instrument and radio into data of imaginable proportions. Thus, to transmit was not only to deliver a message, but also to occupy a radically other space in which Modern life found an operative medium. As Walter Benjamin's own radio plays throughout the 1920s attest, the phantasmic could also be mobilized in a social reconfiguration — the two could be said to share in the same radio-phonetic promise. From directing radio for children to staging participatory games on-air, radio was to function as a space "in which as many voices as possible should be heard."⁶

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A device of expansive proportions, radio inaugurates new forms of being by supplying the imagination with a vision of the future based on electrification, communications and projection. Whereas the mechanics of the industrial age bound bodies to the materiality of the immediate and local, broadcast technology offered the body its own escape and splintering, making manifest the very potential of flights of fantasy through the vision and channels of transmission: the geographic disappeared and reappeared as matter, flexible and malleable, mobile and connective. Beyond the material impositions of machinery and bodies, of fixed representations and arrested identities, radio spawned new visions of imaginary flights while in turn functioning, through institutionalized systems of state control, education, and experimentation that were both liberal and conservative, channelling the phantasmic into social potential and regimentation. Khlebnikov's "lightning" fantasies are in turn visions of "radioclubs" and "radiolibraries" where "everyone reads what he likes."⁷ Radio as architecture, as meeting place and social forum. Further, radio's expansiveness secures opportunities for economic growth through networks of capital and exchange. As Greg Ruggiero proclaims, "Establishment media have become the *Niña*, *Pinta*, and *Santa Maria* of commercialism, forcing upon the shores of our consciousness a permanent invasion of unwanted, coercive, and alienating messages."⁸ The broadcast song could thus produce social groups and their collective imaginary, while dealing up corporate product and its dissemination. In this way, radio's influence upon song writing may exceed the material conditions of the 7" record, which limited a single song to roughly three minutes, to effect the very notion of the itinerant hobo, the rambling drifter,

the boy says: "*you hurt my feelings...*" / he leans out of the car window to catch the sea air against his face / a single tree stands in the yard planted by his brother / a man knocks on the door returning their dog who has a habit of running away / she hands the boy a gift to help him recover from his operation.

or the lovesick rocker, and related fantasies at the heart of songwriting, all of which gain momentum through the very promise of *airplay*, itself a force of desire and longing (home and fantasies of fulfilment may just be found in the ether and the hearts of unseen listeners...).

The lineage of radio history can thus be heard as a negotiation between the material and the immaterial, the formal and the informal, mobilizing the imagination, the body, and the embedded potentiality of mass media to communicate, set boundaries, and define culture through a kind of electrical surplus: like signals from dying stars, transmission is an excess that on some fundamental level is in a continual state of territorializing bodies, spaces, and languages, while relying upon the intrinsic capacity for radio to exceed its own bounds.

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These radiophonic ideas and symptoms allowed me to develop the *Phantom Radio* project and its connection to memory, and further, to run after the phantasmic tracings generated by transmission. To begin the *Phantom Radio* project, I started by sending out an email to various friends requesting them to “tell their radio memories.” What I sought were those memories inextricably linked to songs overheard from broadcast systems, whether actual radio or other sound sources, such as car stereos and public announcement systems. These are memories that most everyone has, from instances in life where something profound takes place and in part is produced by the introduction or intrusion of a particular song. Whether Bob Dylan or Bo Diddly, Iannis Xenakis or Jimi Hendrix, music finds its way to a particular moment in a particular life to envelope that moment with melody, lyric, texture or the beat of a drum piercing with a given emotional register the unfolding of an event. Thus, these events become memorable, that is, available for recollection or riveted to the recesses of consciousness, by being stitched together *with* music.

After receiving an initial collection of memories I requested the call be sent out randomly, to friends or strangers, with the hope that I would receive as many stories as possible, from as wide a group as possible. I wanted to hear from individuals from all over the world, from every age group and background. In the end, I received 97 contributions, from Europe, Australia, the US, Japan, Mexico, and South America. Memories from as far back as 1945, experienced from around the globe, from the remote outback of

there must be another way, another route, past the outer edge of the fence-line, where we once saw the view overlooking the city — *remember?* — and we found that wooden box that looked like the shell of an old tv set...and you placed it over your head and pretended to be a Martian, and the cops came and found us there, you talking like some alien with a box on its head and me rolling around in the fennel bush looking for the remote.

Australia and the deserts of Jordan to suburbs of Philadelphia and farms in Sweden. Each memory was unique and at the same time each was somehow recognizable, as part of a larger collective picture. As I gathered the stories, and began to catalogue them, I was struck both by their individuality and their contribution to a broader sweep. Reading the memories, the question as to the relation of music, and sound, to individual experience came to the fore in unexpected ways. It led me to view and hear radio, and by extension music, through appreciating how it finds its way into our lives to leave an indelible mark that is equally as sonic as it is place-bound.

What these tales teach are the lessons learned within the very space of radio. This space, while finding definition since broadcast technology was first intuited, continues to surprise.

Listening to a radio program called "Corpse of Milk" on the college station WIDR, Kalamazoo, MI. I used to listen very quietly under the blankets from 12 – 1 am on Sunday nights during early high school years. This show often combined absurd material with the macabre or obscure, found items, cheesy lounge records and the like. One night I heard a song and in my half-asleep state vividly imagined a wrinkled, hunched over old woman, singing to herself under the stairs of an old house – I was deeply intrigued and curious about where such music could come from. It's an image I still can vividly remember.

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Sound has often been discussed as tactile and bodily, operating through vibrational intensities and corporeal resonances. It speaks through the body, slipping past the routes of representational operations to arrive at sensation, feeling, and tactile knowing. Sound is affective. Such notions may reveal the degree to which sound's significance brings into relief the "thinking body," undermining and leaving behind notions of the duality of mind and body. As Gemma Fiumara suggests, listening promotes "holistic" relations to knowledge by putting us in dialogue with "the inexhaustible complexity of phenomena" within reality.⁹ It does so by situating us into a

i don't want this to be all memories, all about being a boy...but it comes to mind (I wonder why?), here when i'm in this space, at the edge, in the foot, hanging out with all these big toes (Will is here, and you, with the alien tv, and the girl with the funny walk...) — the edge / the appendage / the big toe sticking out of its sock / like the curtain — the memories which come to define as kinds of remote points the movements of selfhood, these come creeping in here, into this space of left-over language...this extra bit of space, this shirt tail, where threads dangle.

space of active attention, bringing us close to things by bringing us in turn outside ourselves. As Gernot Böhme proposes, “Listening is a being-beside-yourself,”¹⁰ making us aware of both what we pay attention to and how we are paying attention. Listening is an empathic act, suspending wilful intent across a space of receptivity.

By adopting listening as a general means toward philosophical inquiry, Fiumara seeks to move beyond the predominance of logo-centric models, which for her situates a particular form of “arrogance” onto the field of knowledge and inquiry. “An aversion towards listening to the rich multiplicity of ‘reality’ seems to be linked with a background of profound fears and to the resulting defensive postures that express themselves in a tendency to reduce knowledge in general to a set of principles from which nothing can escape.”¹¹ Listening thus provides a link or passage toward a renewed sense of inquiry by allowing us to remain susceptible and receptive, and impassioned less by our own thinking than by what it may converse with, for “Listening becomes cultural work where the ground rules are not established.”¹² As cultural work, listening continually introduces into the frame of knowledge a productive ambiguity, which functions as a “communicational mechanism for creating new symbols.”¹³

The *thinking body* may in turn highlight and suggest processes by which memory comes to leave its mark, producing understanding and sense of knowing. For while knowledge grants us access to hierarchies and structures of information and their history, knowing allows us to negotiate the continual motions of living. In this regard, memory is a key medium through which knowledge and knowing come to perform and inform the other. For memory allows us to integrate forms of information into the actions performed through daily life, while enlivening such actions with a degree of creativity, uncertainty, and appropriation by remaining vulnerable to its own oscillations and fixations. Memory slips, regains its control, fixates on ghosts, and then proceeds. It recalls past experience, gained knowledge, lessons of life, supplying daily routine and encounters with a reservoir of self-presence; in turn, memory remains beyond one’s control, forcing continual processes of recollecting (literally: *re-collecting*) and in the process, subtle re-engagements with the material of such memories. “A key property of memory” Edelman and Tononi emphasize, is that it is “a form of

memories are intimate, by revealing secrets as well as how one hides from them — constructing methods for whispering, strategies for conducting these voids of thought / the page as dressing room — where one dresses up or exposes, camouflages or flirts with acts of striptease: what to do with this extra? to make it productive while in the same move allow it to remain as is, a useless space, an appendage that both decorates and flaws decoration — pure ornamentation that nonetheless carries in it the secrets and promises of language, of a writing that hopes for its own undoing, *to be caught*.

constructive *recategorization* during ongoing experience, rather than a precise replication of a previous sequence of events."¹⁴ In this regard, memory demands an embodied sorting out, where one, in *re-collecting*, actively restages the content of memory through detailed navigations, so as to remember its embedded information and lessons. One must imaginarily reenact the recalled experience, for "memory is creative and not strictly replicative."¹⁵ Memory, like listening, undermines forms of arrogance, performing by allowing us to shape experience against the knowledge gained through life, in minute actions that play out on the slippery borders of consciousness.¹⁶ It too operates as a "communicational mechanism for the creation of new symbols," for memory is a form of work precisely where the ground rules remain in flux.

With the *Phantom Radio* project, memory appears as a form of knowing/listening based on past experiences. With each new hearing of a particular song, such experience and the knowing it entails or instills finds its place in the present, integrated into the sonority of what one may or may not hear — "every time I hear this song I can't help but remember..." Listening makes memory festive by bringing it to the surface, to replay the pains and the pleasures, which may in the end find their way into the writing of other knowledge. Listening concerts with past experiences in a replay of original moments.

From this perspective I may suggest that sound and memory both make contingent the lessons by which we gauge the world. Yet they do so by providing a continual staging of the experiential, which comes to refresh the degree to which such lessons remain important and relevant. In being concrete and diffuse, immediate and forever distant, sound and memory recur as processes. Through hearing and remembering, listening in and recalling, whether a familiar voice or a song, one must attend to each because of their temporal urgency: to hear another's voice calls one into attention, and to follow the stream of a certain memory is to attend to its stages of evolution, its seemingly independent script, both of which trigger the senses by requiring a radical perceptivity and embodied acts of interpretation: one is called into a form of presence.

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In correspondence with theories proposed by the French psychoanalyst Didier Anzieu, overheard music may be understood as a "sonorous envelope" through which the self finds points of reference and security.¹⁷ A "bath of sounds," the sonorous envelope is first experienced by the child

this is really a space of hiding, it is a camouflaged text: where the edge is found dead-center / the margin capitalizing on its own autonomy / a voice oscillating between protest and poetry — between wishing for something more and falling short..."...8, 9, 10, ready or not here I come!"

through the mother's voice, which caresses (hopefully) with a continual auditory plenitude. This initial caress leaves an impression on the child, creating a kind of backdrop to the auditory experiences found throughout life. This sonorous exterior for Anzieu is wed to the processes by which the self finds its own interior, locating self-presence through audible reference and relation. Such experiences impress themselves on the psyche degrees of auditory understanding, creating a sense of what sounds are pleasant and how others are not, which sounds caress and which injure. In this way, the exterior world of music and the internal processes of listening echo through life the replaying of an original auditory bliss (or nightmare). With radio memory such replaying seems prominent. For what such memories point to are the ways in which events of both trauma and excitement are given definition *through* music – we may begin to wonder in what way the music overheard provides a form of organization to often difficult, enthralling, and radical experiences, and further, in what way memory itself, as ingrained within the greater psychic life, allows one to hear opportunities or openings within music itself: to fashion narrative out of the juxtaposing of the time of music and the time of experience.

Whereas the sonorous envelope bathes us in a wash of sound, as found in the voices of loved ones, or the sounds of home, overheard music creates a kind of scaffolding upon which intense experience may be structured, fixed in the fluids of interior life. It may be how memory becomes endurable, and available. In turn, the pleasures of such events may find their amplification and prolonged resonance through the replaying and rehearing of the given song: to hear again the song, the particular regulation of sounds, throughout one's life, is to receive an extremely available source for recollection, bringing the memory to life and its embedded meaning or force.

Such processes echo what Tia DeNora suggests in her pursuit of “music in everyday life” and how music provides a structure to a greater auditory constitution:

Music can be invoked as an ally for a variety of world-making activities, it is a workspace for semiotic activity, a resource for doing, being and naming aspects of social reality, including the realities of subjectivity and self...¹⁸

As an ally, music grants internal investigations for fashioning the self, aligning subjective rhythms, flows, and their disruptions with that of musical force, while in turn providing points of contact to social reality. Music moves in and pushes out, creating routes of circulation by which an individual may negotiate and work through worldly experience. For DeNora such a process of auditory constitution and musical incorporation allows us to act as embodied agents in a dynamic way, for “music's effects are generated by a describable addition, whose sum is greater than its parts.”¹⁹ A

describable addition... — I want to linger over this describability, this addition, for it expresses a double action: both to describe as well as to add, which suggests the two gain in force and urgency by being wed to a single experience of having music in one's life. The "describable addition" is the ways in which we as listeners, as embodied musical agents, may find the means to describe that musical addition supplying life with a space for other modes of action, reflection, and correspondence. That is, to find the means for articulating, whether in words or gestures or actions, a sense of self that lives inside and through other media, such as music and sound.

Radio memory, and the ways in which this fixes itself onto the field of auditory constitution, can be understood as part of the allied musical partnership. For if music is understood as a means for "world-making activities" and for fashioning "subjectivity and self," then radio memory is a distinct and dynamic form of musical understanding.

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In contrast to the Walkman and iPod (and other mp3 players) user, the radiophonic witness selects no soundtrack to the drifts of everyday life; the audible experience is not pre-selected, nor is the contacts of daily life softened by a sought-after isolation. Rather, soundtrack is always only heard at the given moment of memory-making, provided by the very stage and scene of the event itself. Whether a loudspeaker buried in the dark corner of a café, or a car radio that accompanies one on an errant ride, a particular song bobs up from the oceanic flow of sound to prick the skin at the very same instant an experience arrives to staple itself onto the cartographic form that event may take, articulating and giving shape to a kind of map of the heart.

This recognition leads to a sense and appreciation of the background in general. For what surfaces in radio memory are the degrees to which the background is constructive, as that which is out of one's control, as signals of the life that surrounds, in material and exchanges inside of which one must arrive as oneself. Radio memory may in itself support and partially script a "philosophy of the background," lending to the discourse, which may arise from describing that addition, a spatial coordinate that is too readily under-considered. Thus, on a certain level I'd counter trends within

adding up, finding routes, constructing frames and references — what is overlooked, without representation, forgotten? the man feeds a swan in the canal with bread bought for his lunch at the corner bakery / there is a song he listens to for hours with headphones on and the repeat button pressed, endlessly circulating, swirling and resonating, bouncing in and out of hearing — the postcard reads: "*this city rocks!*" / in a café someone says: "*change the channel, i've seen this one before*" / looking for the exit, the man walks into the kitchen and steals a nibble from the fridge, then spits it out.

soundscape studies that promote “hi-fi” environments and their design.²⁰ That hi-fi design seeks to acoustically clear the airwaves of excess noise — that is, sounds which may occlude or obfuscate the communicational link of any and all messages — such design may unfortunately strip the soundscape of the unexpected radio song blasting from a neighbor’s window. While on one hand we may long for the day of clearer airspace for the necessity of being able to hear the world in all its communicational urgency,²¹ how are we to judge what is communication and what is noise? For on one level the overheard radiophonic intrusion may block out, invade, and territorialize the ecological fluidity of natural exchange, it may in turn lend significance to the very noise of life by providing auditory rivets to the durational difficulties of experiencing the unexpected.

I was sitting in a cafe talking with my lover when Caetano Veloso’s version of Coucouroucou Paloma was played over the sound system. We were speaking in generalities about relationships. This song is a beautiful Mexican song of longing. It seemed to me as if it was speaking to us about our longing and the fragility of our affair, of its impossibility even though at its inception it seemed that we had crossed so many barriers to begin with. I looked over at her watching her breathe as she looked down at her hands. What is one to think of the breath that escapes from their lover’s mouth, of the intimacies shared? It all seemed so impossible as if each moment we were under erasure, so frail. It made me think of Almodovar’s film Talk To Her. This song also appears in this movie. A movie about impossible loves, impossible attractions and as in other Almodovar films the production of subjectivity in the sense of Deleuze and Guattari and in the case of Almodovar how it constructs libidinal flows in relation to sexual preference and social mores. There I was holding the hand of my lover a lesbian as if we were in an Almodovar film being

the curtain is like a loose collar following the shape of a hidden body, furling around it — it is where memories are made, captured, collected, there in the loose collar, just against the soft shadow of the collar bone, held tight and then let go...caught in the medium of air, voices on the wind, a space defined by the twilight of thought, lost not in space but in knowing the difference between the beginning and the end, a vertical horizon / a medium for undoing inside and outside / making new symbols out of dirty cloth, where sally lies down and tim sings so sweetly to make all hearts swim...it is the collar into which you place your hand, where the sun gently touches, where sweat curls around.

serenaded by Veloso singing us this song of longing for our impossible love.

The communicational imperative espoused by soundscape studies seeks to clear the airwaves so as to support the relational exchanges between individuals and their environments, and between species and their locational sharing. What radio memory reveals are the ways in which noise may contribute, on an emotional and psychological level, a communicational link or fluid through which negotiation, exchange, and sharing may take place, finding further footing to how location gets defined. From heart-break to love's blossoming, from car crashes to drug induced adventures, from revelations to terror, radio memory speaks, through a kind of minor literature, buried auditory lives. This in a sense is where that describable addition — of auditory constitution circulating and allowing one circulation — writes itself. Hidden just under the surface, within pockets of real and imagined sound, these memories are a tapestry of individual experience threaded through with sonic intensity; it is a tapestry that in turn tells the story of individual negotiation with outside influence, as locational conditions. The song comes from the environment, whether radio broadcast from a particular ghetto-blaster or from someone else's sound-system, intertwining with an individual's experience with others in particular social situations — weddings, hospitals, bus rides, parties in foreign cities, heart to heart talks in noisy cafés, listening in the dark, and bedrooms, each is cast as scene for the shaping of the self. For radio is a form of sociality through which location is riddled with unexpected dynamic. Whether annoyance or excitement, it brings with it new encounters. This may hint at a secret ontology of radio, as that which interrupts social reality with alien information, while defining the life of fantasy and the conditions of sharing with specific coordinates. Through radio I then understand location as the very place by which the same and the different, order and disorder, come into contact — where emergency broadcasts and state bulletins intertwine with off-shore piracy and covert information; where broadcast policy inadvertently spawns gossip and evangelical preaching taints those in the midnight bar with degrees of guilt. It is a meeting point by which communication may occur, through sudden spaces that are neither hi- nor lo-fi, that are both mate-

these thoughts must be contaminated by the stories they receive / these memories have to contain those of others — those total eclipses and common people that come shattering in through the channels of circulation / the transmissions touched by songs and written into words, here, as other spaces — the curtain is also in itself a photograph: like this page, it is a surface, as thin as the curtain, a kind of sheath into which so much is placed. to take the photograph is to highlight the memory, to say to yourself, "this is where i found myself as the one paying attention to the world."

rial and immaterial, state-sponsored and pirated. Such propositions may support Richard Sennett's investigations of personal identity and city life in his book *The Uses of Disorder*. Countering trends within urban planning that seek to rid social experience of the anxiety of the other (as exemplified in the secluded, planned suburb) Sennett espouses a flourishing of anarchic confrontation. For Sennett "to permit the freedom of deviation would be to care about the unknown, the other, in social contacts."²² Thus, disorder supplies us with opportunities for sharing in diverse and complex social possibilities, which only come about by caring for the unknown or the unfamiliar. Deviation hence functions as an integral condition by which others come into contact, and create means for sharing – whether that leads to good relations or not is beyond the point. That individual experience may collect into reservoirs of memories of past interactions, allows a deeper assurance that future encounters will occur with degrees of respect. Strangeness then comes to supply one with the ability to share across previously insurmountable borders.

Such deviation in turn seems embedded within the very nature of radio transmission, as the proto-typical borderless encounter that traverses demographics, economic lines, neighborhoods, and assumed realities. Radio does not respect existing divisions, but may appear out of nowhere, thereby allowing for new forms of social contact. The understanding that radio is social on the level of national identity, genre-specific groups, and demographic borders is shadowed by a sociality that occupies the State's own bedrooms, alleys, and automobiles.

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What I want to underscore are the ways in which individual experience is in turn participant of collective sharing and how radio provides an unexpected and undefined space of sociality. As I've tried to tease out, the relation of radio and event are inextricably united. And further, the memory of the event is also the memory of the song (which in itself must be heard as forms of sonic presence), a song that arrives through unexpected and unplanned means – it is there, as background – and which only becomes memorable by being a surprise, itself adding a means to describe one's experi-

there...raining again...this field ends here / this writing drifts: in the ellipsis...a recurring theme...a cut in this space of occupation...where uncertainty may enter...find its place...so as to recognize...the imagination as...that which occupies...it too...the spaces between...that sets limits by...breaking the flow...cutting in...making a new beat...xxx.x.xxx.x...: gestures toward some other vocabulary...(the ellipsis is a form of interference...pure medium...promising a new message)...carrying the narrative without saying anything...static on the page...a hangnail on the big toe...a closet within this space...an unspoken memory, or a waiting for the jukebox to play another tune.

ence. The interwoven complex here of music and memory must be heard to form not only an individual story or tapestry, but also a shared sociality that finds its place in the very space defined by the intermingling of radio broadcast and locational reception.

Two contributed memories may serve as an example. These memories are particularly special as they come from two different individuals, from two different parts of the world, yet both describe an extremely similar experience generated and produced by the very same song. The song is *Holiday in Cambodia* by the Dead Kennedys. Released in 1980, the song quickly became an anthem of punk sensibility, coupling political content with musical aggression. Originating in Helsinki and Los Angeles, the memories each happen by way of secretly listening to late-night radio shows while at home in their bedrooms. Through description and reflection, each memory describes the event as a revelation:

Memory 1: Trying desperately to not wake up my parents, I would lie in my bed with my ear leaning right on the loudspeaker. I would listen and sometimes record with my tape recorder straight off the old radio. Every 5 minutes, the signal would become faint, and I would have to tune in again. And here is the unforgettable memory: I must've been 15 years of age. Suddenly, I hear something I have never heard before. It is "A Holiday in Cambodia" by Dead Kennedy's. I was in awe of the temper of the sound and the lyrics. Without exaggeration: My life changed in that instant. From being merely a good student in school — a glittery disco dancer, I became personally engaged and acerbic in regards to history and politics.

Memory 2: sometime in 1983/4 I heard Holiday in Cambodia by Dead Kennedy's on the famed "cutting edge" radio station 91X. I was staying up a bit late for school

scraps of paper fill the desk, notes and scribbles dotted with expectation and plans, dashes that suggest trajectories of movement, itineraries that jag across the mundane — grocery stores to video shops, stationary supplies to post offices, *don't forget the dry cleaning!* and all those shirts and curtains, fabrics and textiles — grandmother hanging her sheets out to dry, in the summer breezes of so many years, anticipating the summer shower every afternoon delivers, yet knowing, through the nerve endings of time, she'd make it. and mother doing the ironing, father's shirts lined up on hangers from door handles, blue and pink, white and tan, stiff colors that promise new days to come — *i always hated sleeping bags with their silky interiors...*

the next day, still a good boy, empowered to mine the night air, something about the song moved me, more than the combined efforts of style, technique, skill, and technology. It got me thinking there was more to the cutting edge than post-new wave rock gruel, to feel there was a world outside of my hip suburban enclave where pathos and beauty could co-exist. It was a transcendent sonic assault, beyond the writing, the licks, the chops, names, ideas; it was a revolt of feeling, a kind that rose through my skin. I was only aware of sound washing over me, through me, cleansing, purging, pulling me out to deeper waters and bigger waves than I had known before, a cliché now, but visceral and provocative then, sharpening my edge, nudging me towards cutting through conformity and commercial culture, pushing music where it had not gone before...

The effect of hearing that one song coming across on radio is still extremely present in the re-telling. Each inexplicably personal and individual, and yet each tied to a shared map of being in the world. Interestingly, the memories come from one man and one woman, in turn revealing not only the geographic shuffling (in this case, from Los Angeles to Helsinki) but also a gender transversal that radio may only conduct. In this sense, we might wonder the degree to which radio allows such revelations – which in themselves are moments of impressionable listening – by operating undercover, for the often demarcated lines of class, race, gender, and age seem to define in public the ability for individuals to *get into* a particular song or band. In front of friends, or at a club, one's sonic experience is often contoured by social pressure and comraderie. In this way, radio may point to a cultural history not solely through its local transmission and promotion of social groups, but through its dissemination across nocturnal landscapes.

For the final presentation of the *Phantom Radio* project, in Geneva, I organized the 97 memories into 10 sub-headings. This functioned as a way

(i hesitate, to say what is on my mind – *how might i turn this writing into a form of invitation?* a shared space, from which we might hear the curtain, this thin sheet defining in from out through its loose unfolding, as an uncertain border upon which the real and the ideal shake hands – that territorial line being played by the wind, modulated by secrets, wishes, remembering and projecting...by the ellipsis that is readying itself. where is the fast car tonight? the meeting in the school yard, with the low hum of ghetto blasters singing their deep songs, and the smell of fennel bushes, wisps of fog in the air, the sound of fog horns way in the distance, beyond where our gaze rested – he always had chapped hands...

to divide the library, into loose themes, including: Party Music, Hearing Things, Intrusions and Revelations, Silent Night, Blind Alleys & Dead Ends, ESP, etc., Sonorous Landscapes/Cultural Viewpoints, and finally, Haunted House. These themes developed by appreciating parallels amongst individual stories (like the memories above) — I wanted to allow resonances to occur, within somewhat lyrical parameters, so as to hint at how radio memory is both individual *and* shared. As a kind of shadow to this categorization, I imagined each sub-heading as a radio program, as if I were a DJ organizing various play lists. In this way, I wanted to position the work as a form of archive *and* play list for future broadcasts. Each sub-heading was ultimately presented as an individual CD containing all the songs mentioned in the respective memories. These CDs were played on ghetto-blasters housed within constructed wooden boxes, standing roughly one meter tall and fifty centimeters square, and mounted on wheels, so as to allow each box, and ghetto-blasters, to be moved freely by visitors throughout the exhibition space. Through such presentation, it was my hope the work would operate as a means for *performing* the memories, allowing their original event to find place again — to engage visitors by intruding upon as well as shaping their experience of the festival and the various spaces involved. In essence, to open up to the possibility of memories being made by harnessing transmission's ability to operate through a covert transversal, secretly infiltrating all kinds of places. That radio could be listened to in the middle of the night, undercover from parents' gazes, attests to the force of broadcast technology. To pass on secret messages, to trigger the imagination, to supply the self with new images of its place in the world — radio writes history in the cracks. Such views may counter the sociological and musicological viewpoints that position music as either inherently relational amongst social groups, or territorialized by the patterns of compositional method, history, structure, and the evolutionary strides marked out from composer to composer, artist to artist.²³ The *Phantom Radio* project potentially suggests links across these arguments or methodologies. For, while the radiophonic instant of musical transmission is bound to a sociological understanding of the operations of mass communications, it nonetheless makes its mark by fixing points within an individual's worldview. Memory here counts for the psychological patterns and secret constructions by which individual lives are led, either through shadowy impulse or conscious act. Reading the col-

a meeting of pressures / frictions / hand shakings / wiggling big toes stuck out from old socks / the other is other is other is another is another x x xxx x x xxx — check the list, cross out what's been done, the visits made, the errands ran, a bin full of crumpled scraps of paper marked with the passions found on that street corner, with the curtain still billowing, crumpled in the wind and creased by its own fluctuations: blank, marking with the slightest of movements, here from there.

lection of radio memories, the profound way in which instances of banal event or startling experience are wed to the retaining of a music or song highlights not so much the exchange of sociological information, or the participation in particular social groups; rather, it opens up a discovery of the ways in which individual lives are *effected* by music, and how the life of memory is in turn a form of radio. In this regard, radio seems to act as a theater of memory that allows an individual access to not only past experience, but also all the knowledge embedded therein. Recollection is thus a tuning in to an unstable, private archive, and in the process, a taking up residence within one's own mythic space, that is nonetheless concrete and located.

Further, the notion of musical composition residing in the hands of the maker or the text according to a musicological viewpoint, contrasts with radiophonic witnessing in which composition is inextricably bound to the weaving of experience as memorable and locational: memory pieces together a musical tapestry in which melody, rhythm, lyric, and energy are given meaning by how they fix themselves to recollection, bound to place and the unfolding of its sudden force. To hear a song again is not only to hear structure but that structure as totally fixed and riveted to larger auditory scaffolding existing across private and public lines.

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The cosmological view that purports sound as the primary matter of all things, from the Pythagorean theory of the "harmony of the spheres," which aims to attune to the proportional harmonics of celestial bodies, to the Hindu belief that sound operates as the most divine of sensorial media due to its relation to the Ether, is echoed in Joachim-Ernst Berendt's notion that sound links all bodies and beings together through vibrational, ethereal, and undulational movement. For Berendt, sound in a sense is always already there:

Since time immemorial human beings have sensed the existence of a *third eye*, lying between and just above the eyebrows and making possible spiritual "insight." Perhaps people conceived such a visionary idea because they felt the incompleteness of our two seeing eyes and sensed there simply must be something taking them further... The *third eye* is a myth — a necessary myth. The situation is different with regard to the ear. Transcendence, a going beyond, is implicit in the act of hearing, so our first and second ears already imply the existence of a third. There has never existed any myth of a third ear. No one needs it. The two ears we have already take us into the realm of the "third."²⁴

To listen then is to already participate in the "realm of the third," which we might understand as both a space of audition as well as a space of negotiation, that is, a mythic space through which the self and social reality find

means for exchange. Yet as Berendt is set on pointing out, the third ear has no need for myth — it is in effect an aspect of concrete experience, implicit within banal acts of hearing. That is to say, listening is already, without any recourse or reliance toward outside narrative or symbolism, a mythic operation, for our ears imply the existence of a third; listening is participant of mythic space rather than separate from. This finds curious support in Pythagoras' original claim that the harmony of the spheres is "in our ears from the moment of birth and is thus indistinguishable from its contrary silence, since sound and silence are discriminated by mutual contrast."²⁵

The realm of the third thus as a space is one which I want to tease out, to recognize the third as that which triangulates a relation between self and the world. The two ears becoming a third, as a material fact grounding mythic space in the here and now, is also the self and other finding relation through and according to the space of musicality and audition. As a projection or extrapolation of the internal, neurological function of two ears becoming a third — as dimensionality taking shape across the width of the skull, the distance between two ears, as stereophonic mix — this larger triangulation locates sound and audition upon a social field. The two becoming a third I suggest is implicit within the act of musical listening, acting to create routes by which self and world come together; it is a part of the musical message, that lies integrated into listening. (The third may in turn be the unconscious to every music...) In this regard, the concrete fact of listening triangulation, from this perspective, is in turn a mythic space, bringing with it the force of other narratives, other identifications, other definitions to the often troubled and tenuous lines by which social reality holds together. Such mythical features are brought more readily forward within the material and phantasmatic space of radio. Whether as medium for unsettling identity and consciousness, for dislocating geographies, and speaking across private and public lines,²⁶ radio charges the imagination and one's search (conscious or not) for the self.²⁷

The radiophonic triangulation, as a projection of the two becoming a third inside the head, can be understood to forge sociality through minor productions. Tuning in from this perspective is also about hearing the ongoing narratives by which sociality is formed through audible materiality. Thus, the exchange I want to get at is one that straddles what we might call major and minor forms of sociality. The major forms created through national identity, governmental policy, educational bureaucracy, and even familial functions, have their counterpart in those found on the terrain of everyday life governed more by whimsy, intrusion, secrets, and the attention paid to others while getting through the day. Minor forms of sociality exist like a flexible web in and amongst major forms, offering reservoirs of experience and information by which one may judge and negotiate major steps in life. To underscore the "third ear" as a site of negotiation is to suggest that it provides an arena through which one moves in and out of social real-

ity; that to collect experience from the radiophonic dial is to in turn find recourse to subjective constructions of how one might become a participant. Radio in this regard may function as a space by which one fashions minor productions within the infrastructure of mass media.

Arjun Appadurai's notion of the "work of the imagination" may lend to pursuing radiophonic witnessing.²⁸ His generous understanding of the work of the imagination recognizes that one is always in the process of negotiating difference. To approach difference, or to be *approached by difference*, whether in the form of projected images (and sound), migrant bodies, or the possibility of future experience requires a virtual appropriation and remodelling of the present. One has to *imagine* means for achieving communication or stability, for gaining access to the future, and for realizing relation with others. For Appadurai contemporary culture necessitates an intensification of such work, for globalization demands a continual confrontation with difference. Sociality in this regard implies acts of imagination, for self and other communicate partially by giving oneself over to the space between.

The confrontation with difference as a continual negotiation in everyday life echoes the radiophonic experience I've been pursuing here. From the psychic metabolism of radio's phantasmic presence as an active reservoir for imagining previously unheard of voices or languages, to the individual lessons derived from radio memory, where musical broadcast is harnessed for extending and resolving personal decision or crisis. By turning to radio, and the ways in which the work of memory is in fact radiophonic, we may recognize ways in which radio is still a stimulus for modelling the present, as a radical form of telematic being. In this regard, the proto-cosmic phantasmic flowering of radiophonic fantasy finds tangible form in the real exchanges that riddle individual experience. Radio in this regard may be useful in imagining routes toward confronting the radical impossibilities of enduring the unexpected. From car crashes, heartaches, and death, to sudden love, musical pleasures, and epiphanies, the unexpected requires not only a leap of imagination, but the working out of its reality.

Notes

- 1: An earlier version of this article appeared in *Organised Sound*, Vol. 11, No. 1 (April 2006).
- 2: Steven Connor, "Sound and the Self" in *Hearing History: A Reader*, ed. Mark M. Smith (Athens, GA: University of Georgia Press, 2004), p. 57.
- 3: Gerald M. Edelman and Giulio Tononi, *Consciousness – How Matter Becomes Imagination* (London: Penguin Books, 2000), p. 95.
- 4: Allen S. Weiss, *Phantasmic Radio* (Durham and London: Duke University Press, 1995).
- 5: Douglas Kahn, "Introduction: Histories of Sound Once Removed" in *Wireless Imagination: Sound, Radio, and the Avant-garde*, ed. Douglas Kahn and Gregory Whitehead (Cambridge, MA and London: MIT Press, 1992), p. 22.
- 6: Esther Leslie, "Walter Benjamin on the Radio" in *Resonance* (Vol. 10 No. 1: 2005): 36.
- 7: Velimir Khlebnikov, "The Radio of the Future" in *Radio-texte*, ed. Neil Strauss and Dave Mandl (New York: Semiotext(e), 1993), p. 33.
- 8: Greg Ruggiero, *Microradio and Democracy* (New York: Seven Stories Press, 1999), p. 41.
- 9: Gemma Corradi Fi-

umara, *The Other Side of Language: a philosophy of listening* (London: Routledge, 1990), p. 21. **10:** Gernot Böhme, "Acoustic Atmospheres" in *Soundscape Journal* (Vol. 1, No. 1: spring 2000): 18. **11:** Ibid. **12:** Paul Carter, "Ambiguous Traces, Mishearing, and Auditory Space" in *Hearing Cultures*, ed. Veit Erlmann (Oxford and New York: Berg, 2004), p. 44. **13:** Ibid. **14:** Gerald M. Edelman and Giulio Tononi, *Consciousness*, p. 95. **15:** Ibid., p. 101. **16:** The psycho-somatic is an extreme case in which memory (usually of trauma) is given expression through physical symptoms, such as ticks, revealing an intensely embedded relation to memory and an individual's inability to live with its related experience. **17:** See Didier Anzieu, *The Skin Ego*, trans. Chris Turner (New Haven, CT: Yale University Press, 1989). **18:** Tia De Nora, *Music in Everyday Life* (Cambridge: Cambridge University Press, 2000), p. 40. **19:** Ibid., p. 43. **20:** R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester, VT: Destiny Books, 1994) and Barry Truax, *Acoustic Communication* (Norwood, NJ: Ablex Publishing, 1994). **21:** Not to mention the life of other species. **22:** Richard Sennett, *The Uses of Disorder* (New York: Vintage Books, 1970), p. 43. **23:** John Shepherd, *Music as Social Text* (Cambridge: Polity Press, 1991). **24:** Joachim-Ernst Berendt, *The Third Ear* (New York: Henry Holt and Co., 1992), p. 120. **25:** Jaime James, *The Music of the Spheres* (New York: Copernicus, 1993), p. 40. **26:** This line of characteristics must in turn be seen to butt up against their own antithesis upon the radiophonic dial, for radio is equally about fixing identity and consciousness, locating geographic borders, and keeping private and public lines in place. At the heart of radio are thus bold tensions that are always rupturing and settling again upon uneven ground. **27:** The linkages made between radio and listening can thus be placed alongside Hugo Munsterberg's original theory of cinema (see his book *The Photoplay: A Psychological Study*, published in 1916), in which for him the very apparatus of film — projection, narration, the theater space, that is, the techno-phenomenological drive of cinema — derive its power by following the inherent mechanism of vision and the dynamism of opticality itself. Film in this sense is operating as a kind of real partner to seeing, lending power and force to the filmic. Congruently, we might understand radio as deriving much of its force (at least, as an imagined potential) by functioning according to the "natural" laws of audition: it may speak toward what is only imagined within the space of acoustical dreaming, while lending to the vocabulary of the imagination a radical materiality by always already tracing what sound is doing and where it is going. **28:** Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis: University of Minnesota Press, 1998).

this writing flows like signals from the sky, like your messages, like the continual impulse to expose and conceal in the same move what is most precious — or what always intrudes, through beautiful tensions, and defines the wish to weave all the marginal intensities into a language of vulnerability — intimacy found in this view, this frame, and this thread, this curtain, this collar and this toe...

Kabir Carter

**FEEEDFOR-
WARD**

Description

Feedforward began as part of a larger investigation into alternative production processes for radio programming content and publicly disseminated audio recording materials. In this instance, a desire to move beyond “naively copying professional radio studio work”¹ has driven the production of a score for reordering the experience of listening to the radio. While attempting to explore and create work driven by commercial radio broadcasts and modified by live modification by analog electronics, I began to realize that one thing lacking in my system was a consideration of the body. In response to this performative deficiency, I decided to create a series of instructions that enables the end user or listener – without serious consideration of what listening demographic they might be assigned to – to radically transform radio broadcasts by continuously contorting and changing the placement of the body and the radio (and other spaces and objects) in relationship to one another.

I do not see the work either as a fixed score, or as materials designed only for performance. Instead, Feedforward is an inquiry into how we perceive radiophonic events that is posed as a set of staging instructions. Using any means, and any determinative method, it can be realized by one or more individuals, and in one or more locations.

Instructions

You will need a radio (with speaker), and two coins. Using the results of repeated coin tosses, performance decisions may be selected from the categorized instructions below. Each set of coin tosses can determine changes in one, some, or all categories; the manner, number, and timing of realizing the instructions are to be determined by the performer. Tosses can be executed in advance of performing or included in the actual performance. Additional movement in physical space both indoors and outdoors can be determined with tosses (with the first coin determining forwards or backwards movement, and the second coin determining left or right movement). If preferred, the instructions may be followed in sequence without using tosses.

1. Basic Modulation

Explore and expand upon ordinary radio listening activities in relationship to one's body.

Direction

Up (Both Heads)

Down (Heads Tails)

Towards (Tails Heads)

Away (Both Tails)

Any Two Directions (Same as Previous Toss)

Amplitude

- Maximum (Both Heads)
- High (Heads Tails)
- Medium (Tails Heads)
- Low (Both Tails)
- Silence (Same as Previous Toss)

Tuning

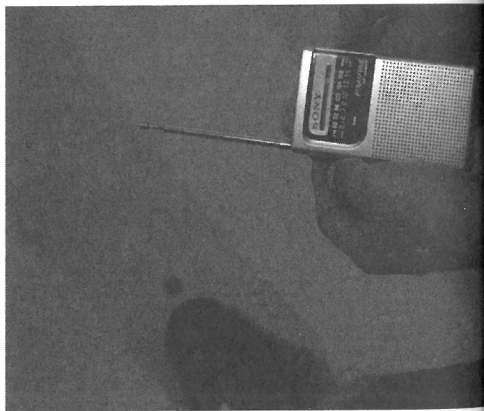
- Locked Broadcast Frequency (Both Heads)
- Broadcast Frequency and Adjacent Sounds (Heads Tails)
- Adjacent Sounds (Tails Heads)
- Overlapping Broadcast Frequencies (Both Tails)

Location

- Towards or Close to Ear (Both Heads)
- On Floor or Ground (Heads Tails)
- On Other Surface or Object (Tails Heads)
- In Clothing or Accessory (Both Tails)

Modulation Sources

- Hand (Both Heads)
- Surface or Object (Heads Tails)
- Ambience (Tails Heads)
- Clothing or Accessory (Both Tails)
- Skin or Bone (Same as Previous Toss)
- Cavity (Opposite of Previous Toss)



2. Amplitude Modulation

Amplitude Modulation in Relationship to Noise Floor: Determine the Noise Floor of your Ambient Surroundings and Tune Between Broadcast Frequency and Adjacent Sounds.

Amplitude

Above Noise Floor (Both Heads)

Below Noise Floor (Heads Tails)

At Same Level as Noise Floor (Tails Heads)

Silence (Both Tails)

Execute Two Amplitude Changes (Same as Previous Toss)

Dynamically Triggered Amplitude Modulation and Tuning: Audit Specific Sounds and Note General Durations for Their Dynamic Changes. Use the Perceived Triggers and Envelopes to Control Dynamic Changes. Imitate Dynamics While Dialing through Broadcast Frequencies (Both Heads)
Invert Dynamics While Dialing through Broadcast Frequencies (Heads Tails)

Imitate Dynamics While Tuned into Broadcast Frequency and Adjacent Sounds (Tails Heads)

Invert Dynamics While Tuned into Broadcast Frequency and Adjacent Sounds (Both Tails)

Ignore Dynamics (Same as Previous Toss)

Combine Dynamics (Opposite of Previous Toss)



3. Resonance Modulation

Use One or More Containers, Enclosures, or Apertures (of any size or dimensions), and Explore Reflective and Reverberant Qualities of the Selected Space.

Location

- Outside of Object (Both Heads)
- Close to Opening of Object (Heads Tails)
- In Middle of Object (Tails Heads)
- At Lowest Point within Object (Both Tails)

Direction

- Up (Both Heads)
- Down (Heads Tails)
- Towards Wall or Other Surface (Tails Heads)
- Away from Wall or Other Surface (Both Tails)
- Any Two Directions (Same as Previous Toss)



4. Filtering

Speech Triggered Filtering

Select a Frequency with Recurring Speech Acts and Follow the Inflections and Rhythmic Shape of the Speech.

Manually Filter Speech in Response to its Dynamic Changes (Both Heads)

Manually Filter Speech in Response to its Rhythmic Changes (Heads Tails)

Manually Filter Speech in Response to its Inflection Changes (Tails Heads)

Manually Filter Speech in Response to Any Combination of Changes (Both Tails)

Manual Filtering

Use Variably Contoured and Articulated Limbs, Organs, and Objects to Attenuate Acoustic Frequencies.

Filter with Mouth (Both Heads)

Filter with Palm of Hand (Heads Tails)

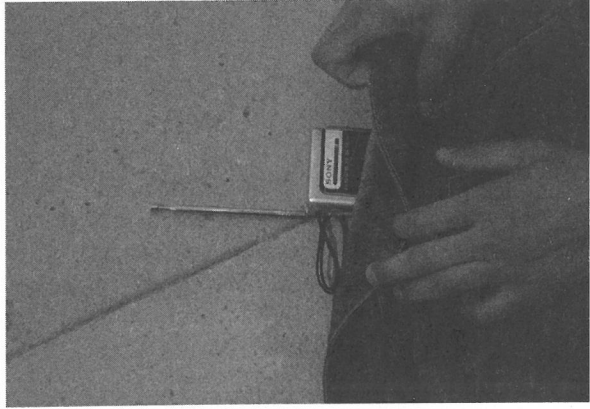
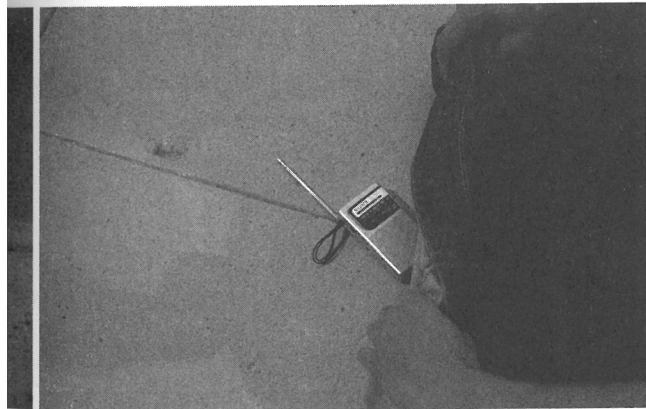
Filter with Vessel (Tails Heads)

Filter with Flat Object or Surface (Both Tails)

Notes

1: Tetsuo Kogawa, "Towards Polymorphous Radio,"

<http://anarchy.translocal.jp/non-japanese/radiorethink.html>



Ellen Waterman

**RADIO
BODIES:
DISCOURSE,
PERFORMANCE,
ANCE,
RESONANCE**

Radio art has often been discursively presented in terms of the disembodied, limitless territory of the “wireless imagination.” In contrast, I want to explore the performative force of radio bodies: bodies in and out of the studio, bodies improvising and collaborating, noisy bodies and authoritative bodies, and especially gendered bodies. Consider the specific forces at play in the art of transmission. In a 2003 interview, Gregory Whitehead articulated an explicitly performative definition of radio art:

Radio art has to be some kind of event or performance or presentation — a “play” in the broadest sense — that deals with the fundamental materials of radio, and the material of radio is not just amorphous sound. Radio is mostly a set of relationships, an intricate triangulation of listener, “player” and system.¹

Triangulation involves an act of positioning, through a mapping of specific territory achieved by articulating three points or nodes, such as Whitehead’s “listener, player, and system.” Each of these nodes has its own particularities. Listening may be passive or active, collective or solitary, face to face or schizophonic. Radio artists as “players” are active subjects who set processes of sounding and listening into motion. Questions of agency are central — *who is allowed to play?* Radio as a “system” includes not only transmission broadly conceived, but also communities of programmers, technicians and listeners working within particular limitations of budgets, facilities, and regulations. Radio art as an “intricate triangulation” of relationships thus demands a performative analysis, one that is committed to articulating its social and political effects within specific contexts.

Cultural theorist Ric Knowles has made an apt distinction between discourse theory (reading texts for the meanings they produce) and performance theory (reading actions for their social effects). Performance studies asks “less ‘what does it mean?’ than ‘what does it do?’: what does it accomplish in the world, what sorts of interventions does it perform? These are political questions.”² Drawing on performance theory and feminist theories of the body, in this essay I will examine the work of three Canadian women radio artists in the context of campus and community radio, offering the body as a site for a performative analysis that challenges discursive constructions of gender in radio art. For it is my view that the “wireless imagination” is often espoused at the risk of overlooking the critical tensions enacted by radio bodies, which often engage questions of gender intentionally to disrupt notions of disembodiment.³

Discourse: Radio Art Narratives

A recent and bleak assessment by Eleni Centime Zeleke claims that in Canada radio art is “the preserve of nerdy, technically savvy boys.”⁴ This indictment is all the more discouraging since it appears in a 2004 report called

the *Status of Women in Community-based Radio in Canada*, commissioned by the National Campus and Community Radio Association in conjunction with The Status of Women Canada.

Zelege's assessment is congruent with seminal radio art narratives in English written by Douglas Kahn (1992, 1994),⁵ Gregory Whitehead (1992),⁶ and Dan Lander (1994).⁷ These authors all engage in the project of constructing a "pre-history" of radio art that is driven by primarily masculinist narratives of avant-gardism and technology. As a typical example, no women are named in Douglas Kahn's list of the progenitors of radio art found in his "Introduction" to the anthology *Wireless Imagination*, which includes such avant-garde luminaries as: Walter Ruttmann and Weimar Horspiel, Bertolt Brecht and Antonin Artaud, the Futurists F. T. Marinetti and Pino Masnata, the Russian poet Velimir Khlebnikov, and later the "proliferation of works by John Cage, Fluxus, Das Neues Horspiel and others in the '60s and beyond."⁸ Dan Lander's history of radio art extends this list to include some Canadians (Howard Broomfield, R. Murray Schafer, Marshall McLuhan and Glenn Gould) but except for brief quotes from authors Frances Dyson and Kim Sawchuk it is still free of female subjects.

It is not my purpose here to re-write the founding narratives of radio art by inserting the presence of appropriate women (though I note that Whitehead has recently added Gertrude Stein and Laurie Anderson to his list of "radiophonic souls," which in turn causes me to wonder why Pauline Oliveros didn't make the cut).⁹ However, it does seem likely that such narratives have contributed to the discursive gendering of radio art as implicitly masculine (a discourse to which Zelege's "technically savvy boys" contributes). As a point of reference I'll begin with a brief discussion of technology, gender and the body in relation to Kahn's "Introduction: Histories of Sound Once Removed" from *Wireless Imagination*, one of the most influential books on radio and sound art.

Kahn's essay is an attempt to chart the historical relationship between art and aurality in the West. Like Lander, Kahn mines the work of exclusively male late nineteenth and early twentieth century avant-garde figures in literature, music, film, and visual art for evidence of the ways in which artists explored the aesthetic, political, and psychological potential of new recording and transmitting media. What surfaces in Kahn's analysis is a cultural rupture, whereby such media infuse the imagination with otherworldliness. By severing sound from its source, the phonograph blurred the boundaries between humans and machines. Humans could now "record the previously unrecordable, the technologically inaccessible regions of consciousness or the mysterious."¹⁰ Freed from the body by phonography, "[v]oices could thus be installed to complete existing circuits of dread or desire."¹¹ Following this history, examples from misogynistic *fin de siècle* literature (Villiers de l'Isle-Adam, Marcel Schwob) are cited in which women's bodies are combined with technology in monstrous ways to become objects

of horror.¹² According to Kahn, F.T. Marinetti (founder of Italian Futurism and coiner of the phrase “wireless imagination”) also understood the “deep-seated effects of modern technology upon body and soul” and expressed them in his ecstatic sound poem “Bombardment,” a “phonographic celebration of militarism.”¹³ These two representative examples are emblematic of the politics of gender that surface in Kahn’s essay: men are active subjects in the development of radio and sound art, but women, when mentioned at all, are merely objects of an oxymoronic “aural gaze.”

Throughout the essay, there is a sense of the arcane, as though Kahn has had to travel to the outer reaches of artistic expression to capture a few faint echoes of sonic history. The body is not absent from this discourse, but enters in ways that reinforce the tacit gendering of radio and sound art. This is furthered in Kahn’s consideration of the abstract figures of “vibration” (acoustic sound) and “inscription” (recording) to “transmission” (broadcasting) which fuses “the spatial features of vibration with the objecthood and corporeality of inscription, but exceed[s] them both in terms of complexity.” With technologies of transmission “disembodiment meant that an object or body existed in two places at once [. . .].”¹⁴ (Kahn’s italics) Transmission itself was imbued with “vitalistic, prosthetic, and necrotic” qualities¹⁵ on the one hand, and provoked an exploration of “the unknown expanses”¹⁶ of space and the psyche on the other, as seen/heard in the works of (male) poets, writers, and musicians.¹⁷ In the figure of transmission, the body becomes increasingly attenuated by the poetics of the wireless imagination.

I do not mean to downplay the importance of Kahn and others’ work. Above all, the purpose of constructing a history for radio art was to define an aesthetic field in order to rescue radio art from obscurity. As Jacki Apple states “radio art has operated on the aesthetic, perceptual, and conceptual frontier, marginalized not only within all the art disciplines it encompasses, but inside the system of distribution it has infiltrated.”¹⁸ While Apple is writing about radio in the United States, her analysis holds true in Canada as well. Within the typically bureaucratic Canadian context, all broadcast media are regulated by the arms-length government-funded Canadian Radio-television and Telecommunications Commission (CRTC). This includes the large network of campus and community radio stations across the country, where the most fertile ground for alternative approaches to radio in Canada may be found. However, in the CRTC’s statutes for campus and community radio there is no official category for “radio art” since all of the criteria for programming are divided into either spoken word or music. In its last public review of campus and community radio in 2000, the CRTC received many briefs about the role of radio art as a distinct genre, but decided “not to recognize [. . .] performers of radio art as artists for the purpose of MAPL definition” (the code by which Canadian content is determined).¹⁹ With one stroke the CRTC simultaneously devalued radio art and Canadian radio artists.

But are women *especially* marginalized as radio artists in Canada? Ethnographic evidence suggests that radio art is under-represented in radio broadcasting, and that women are under-represented in campus and community radio,²⁰ yet it is actually quite easy to compile a list of high-profile Canadian women active in radio art.²¹ Most of them first encountered radio art through campus and community radio. The influential audio artist Hildegard Westerkamp was a founding member of the pioneering Vancouver Co-operative Radio, which began broadcasting in 1975. Westerkamp cites her long-term involvement with Co-op Radio as providing her with the “opportunity to consider radio as an artistically expressive medium.”²² Victoria Fenner has also been instrumental in fostering the work of Canadian women in radio art over the past decade through both the Canadian Society for Independent Radio Production and by founding the Full Moon Audio Art Camps.²³ Canada has produced a number of other well-known women radio artists, including: Chantal Dumas, Anna Friz, Kathy Kennedy, Sarah Peebles, and Kim Sawchuk,²⁴ many of whom have received international recognition for their work.

What are we to make of the tension between masculine narratives of radio art and women’s influential participation? I turn here to the work of Frances Dyson, whose mid-90s analysis of radio art differs markedly from those of her male contemporaries. Dyson considers the gender performativity of radio art in her 1994 essay “The Genealogy of the Radio Voice.” She notes that the radio voice was “traditionally male, having a timbre and intonation that suggests a belief in what it is saying and a degree of authority in saying it.”²⁵ Even radio’s “fundamental technology, the microphone, was designed for the male vocal range.”²⁶ Dyson traces the voice of authority back to the genesis of the Judeo-Christian tradition where the “guidelines for ‘proper speech’ – speech which is authoritative, meaningful, gendered as masculine and representative of a particular worldview – were first set in stone.”²⁷ Importantly for Dyson, radio’s technological and ideological masculine bias performed a politics of exclusion:

It is not difficult to locate the voices excluded from radio. Look to any race, gender, or cultural group which poses a threat and listen to their voices on the radio. The most consistently excluded or derided voice is feminine. [. . .] Apart from being paradigmatically masculine, the radio voice is also singular. There is only room for one speech at a time; other voices are reduced to background noise or ambiance, and the voice in a crowd is either singled out (the cult of the individual) or rendered meaningless.²⁸

Radio art, suggests Dyson, offers a number of performative strategies by which subaltern voices may be empowered to speak. In contrast to the singular authoritative voice, radio art encourages “flux” (“the serendipity

of the production process — occurring when one improvises in the studio or collaborates with friends”) and “rumor” (“noise [. . .] talk-back, participation radio, pirate radio”).²⁹ Turning masculine narratives of radio art on their ear, Dyson presents a strategically essentialist argument whereby radio art performs as subversive feminine counterpart to masculine mainstream radio.

For me, what is most interesting about Dyson’s analysis is her emphasis on embodied, performative processes such as improvisation, collaboration, talk-back, participation, and noise. By emphasizing human interaction, Dyson creates the possibility for a site-specific, contextualized analysis of radio art, one that accounts for its performative (social and political) effects.

Performance: Radio Art Bodies

If, as I am arguing, radio art is an embodied form of performance, then what is the performative force of the body in radio? How does the intrinsic groundedness of the body relate to the seemingly limitless expanse of transmitting media? As summarized by Susan Bordo, bodies have long been important sites in feminist discourse — first for the critique of discipline, docility, normalization, and bio-power, and in second-wave, post-modern feminism, for articulating strategies of intervention, contestation, and subversion. These latter categories have been deeply explored in Judith Butler’s analyses of the performativity of gender and sexuality. Butler argues that gender is not a fixed biological “fact” but a construction of identity formed in and through discourse, through the repetition of both words and actions.

Gender is an identity tenuously constituted in time, instituted in an exterior space through a stylized repetition of acts. The effect of gender is produced through the stylization of the body, and hence, must be understood as the mundane way in which bodily gestures, movements, and styles of various kinds constitute the illusion of an abiding gendered self.³⁰

Hence, gender is a shifting category disciplined by socially constructed “norms” but also susceptible to transgressive performances (for example, drag). Butler’s argument could usefully be applied to Dyson’s analysis of “feminine” radio art (exemplified in processes of “flux” and “rumor”) as “performing” a transgressive intervention onto the authoritative, masculine-gendered and single-voiced codes of mainstream radio. This raises an interesting question, however. Does radio art that foregrounds a single authoritative voice paradoxically “perform” in “mainstream (masculine) drag”? And what would be the political effect of such a move?

The point, to paraphrase Butler, is that bodies *matter*, bodies are nodes of human interactions, sites of inclusion and exclusion, creativity and vio-

lence, sounding and silence. Of course, there is no one theory of the body. Indeed Elizabeth Grosz is at pains to stress that “the generic category ‘the body’ is a masculinist illusion. There are only concrete bodies, bodies in the plural.”³¹ An analysis that considers the interactions and relationships among situated radio bodies will prove more useful than constructing essentialist claims for radio art that, in the end, only serve to reinforce and normalize social stereotypes about gender. Indeed, while I choose to foreground the work of Canadian women in this essay, I do not wish to make any claims about a common aesthetics or politics in their work.

Theorizing radio art *through* the body requires a new consideration of the interplay between “live” performance and the “mediated world” of radio. Peggy Phelan writes that “thinking of performance in the expanded field of the electronic paradigm requires that we reconsider [...] terms [such as]: simulation, representation, virtuality, presence, and above all the slippery subjunctive ‘as if’.”³² “As if” was the early performance theorist Victor Turner’s term to describe the liminality of much cultural performance — a time and space in which nothing is yet fixed, in which all things are possible, and in which outcomes can not always be predicted or controlled. Phelan’s trenchant analysis pinpoints the problem with the disembodied wireless imagination: “the electronic paradigm places the ‘as if’ at the foundation of a much-hyped ‘global communication,’ even while it asks us to act ‘as if’ such a network would render phantasmatic race, class, gender, literacy, and other access differentials.”³³ Virtuality, in other words, may act to mask difference by rendering bodies invisible; the line between subject and object is presumed blurred by an imagined global expanse.

Foregrounding embodied processes may help to clarify radio art’s social and political effects, and to foster a more nuanced and mobile conception of gender in the field. I will test this idea by presenting the radio art of three women, Anna Friz, Kathy Kennedy, and myself, whose work developed within the context of Canadian campus and community radio, and for whom the performative body is of central aesthetic, social, and political importance.³⁴ I asked each artist (including myself) questions about the relationship between their radio art and the body, about their aesthetics, and about what they understand to be the political and social effects of their work. Each of us speaks self-reflexively in her own words, and I have placed Friz and Kennedy’s words in italics to differentiate them from my framing analysis.

Ellen Waterman

I believe, with Rosi Braidotti, that we cannot help but be complicit with the ideologies which we set out to critique;³⁵ this forms the subject of my work for live improvisational flute and radio soundscape, *(W)männlicher Radio* (2005).

Männlicher Carcano is an audio art collective that hosts a radio show on CFRU in Guelph, Ontario. Each Saturday at 3pm Eastern Standard Time, the members of Männlicher Carcano — Porter Hall in Guelph, Gogo Godot in Winnipeg, Manitoba, and Really Happening in Los Angeles — improvise live on-air through the efficient technology of a telephone conference call. Porter Hall sends the conference call out through the board, mixing in his own improvisation with turntables, cassettes, toys, and digital delay. The result is streamed live on the Internet.³⁶ It's picked up at another campus radio station, Trent Radio in Peterborough, Ontario, where the host jams with the stream and then sends it out on the Net from his station.³⁷ Porter Hall picks up the Trent stream on a one-minute delay and mixes it into the Guelph broadcast. Named for the gun that Lee Harvey Oswald putatively used to assassinate Kennedy, Männlicher (trans. "manly") Carcano performs the radio art equivalent of a weekly poker game — Saturday afternoon out with the boys in radio space.

The Männlicher Carcano Radio Hour is a fantastic exercise in blending local and virtual communities. On any given show each of the participants may have guests improvising along any of the show's four live nodes: in the station at Guelph, in Los Angeles, Winnipeg, or Peterborough. It's important to note that they can't all hear each other all the time; sometimes the phone line isn't very good, or the studio set-up has been cannibalized by a previous radio host. Of central importance to MC is the chain of live, simultaneous improvisational performances that together make up the show.

As a summer guest host for The Männlicher Carcano Radio Hour in 2005, I was much interested to see how my creative improvisational practice as a flutist would work within the collage aesthetic of MC. While I have been writing about radio for some time now this was my first on-air experience, and, as luck would have it, my first show as host "Mrs. Hall" coincided with CFRU's hosting the National Campus and Community Radio Conference in June. I was given the task of holding a workshop on improvisation for ten seasoned radio programmers, afterwards inviting them into the studio to jam on the show (and assuming an authority I did not feel). Since the station is typically small and cramped we had a line running to the practice studio, microphones set up in the hall, and many passersby who dropped in and out. With so many participants in the jam, I began to be aware of the real weirdness of improvising on the radio. The acoustic improvisers (on toys, and playing into a room microphone set up in the practice studio) were relating to each other as a group; the turntablist was essentially playing a solo as was anyone with access to a microphone, and, as the person operating the board, I had final control over the broadcast mix. As each element was directed into a channel on the board I mixed the show, performing a kind of conduction in which I created a piece out of all these continuous live elements by foregrounding some, muting others, creating jagged spikes of

sound or burbling textures. The delegates reacted to their participation on the show as a joyful, live performance experience, an expression of community in radio to which the broadcast mix was entirely secondary.

Improvising on the flute in the midst of this chaos (and even in later shows when I have been alone in the studio) presents a challenge. Playing my instrument involves a deep engagement with my body — spinning threads of air into melodies, vocalizing, hissing, gasping, whistling — drawing on some inner force of expression. Total concentration is necessary, but this is at odds with the multi-tasking studio protocol. Specific improvisational techniques are called for: fragmentary and sporadic, more like setting multiple processes into unpredictable motion than developing a coherent narrative, or conducting a dynamic conversation. As an improviser/host/mixer I become a fragmented subject tripping giddily between acoustic and electric technologies, musical competence and radio brain freeze, recorded sample and improvised commentary.

Adding a further level of mediation, I've taken samples from recordings of two broadcasts (June 4, with all the conference guests, and June 11) and composed a collaged radioscape designed to act as a fixed accompaniment to a live, linear improvisation. Now my conduction has turned to composition, and my improvisation has become an extended solo. I can draw freely on my body for all its expressivity, and concentrate fully on my improvisational response to these fixed audio stimuli to create a dynamic and coherent work. But something is lost in all this mediation — the many fragmented communities and local partners have been condensed into a single narrative framework. I may proceed to perform in the subjunctive mode of “as if,” but the radio composition has been reduced to a ground for my live improvisational performance.

Despite the (deliberately bad) feminist pun of its title, *(W)männlicher Radio* does not necessarily perform a feminist politics — at least of the type articulated by Dyson. In fact, in their collaborative and chaotic live radio improvisations the members of Männlicher Carcano come closer to embodying her “feminine” concepts of flux and rumor. My intervention in The Männlicher Carcano Radio Hour may well be read as an imposition of authority, a claiming of artistic territory and ownership, and a suppression of the multiple voices manipulated in the radioscape — what Dyson represents as a masculine “cult of the individual.”³⁸

However, my improvisational commentary, both on and in the radioscape, effectively troubles this reading. In creative improvisation “notions of personhood are transmitted via sounds, and sounds become signs for deeper levels of meaning beyond pitches and intervals.”³⁹ My improvised flute playing on the radio (present in the edited radioscape) reinforces the cheap pun of the work's title, as I perform to the accompaniment of a little girl's story, shopping mall Montovani, and bossa nova, but my live flute improvisation overlays and dominates the piece with a single, authoritative

line. Following Dyson's gender definitions, both my radio and live flute improvisations parody essentialist notions of "feminine" and "masculine." We can now turn to Judith Butler's analysis of gender and parody to understand the performative force of (*W*)*männlicher Radio*:

In imitating gender, drag implicitly reveals the imitative structure of gender itself — as well as its contingency. [...] The notion of parody [...] does not assume that there is an original which such parodic identities imitate. Indeed, the parody is of the very notion of an original [...]. [I]t is a production which, in effect — that is, in its effect — postures as an imitation. This perpetual displacement constitutes a fluidity of identities that suggests an openness to resignification and recontextualization; parodic proliferation deprives hegemonic culture and its critics of the claim to naturalized or essentialist gender identities."⁴⁰ (Butler's emphasis)

Through its use of gender parody (*W*)*männlicher Radio* decenters fixed, essentialist notions of gender in radio art.

Kathy Kennedy

Kathy Kennedy is a Montréal-based sound artist who works in the electroacoustic domain with other art forms especially vocal music, often expressed in the form of large-scale choral works. Her radio art works have included guerrilla musical interventions in which the members of her vocal ensemble Choeur Maha carry portable radios into public spaces. For example, in her 1994 work *Never/Always* an electroacoustic component was broadcast over CKUT radio from McGill University, and each of the one hundred singers (women, men, and children) treated it as an accompaniment to her or his vocalization while traveling in choreographed formations through the central plaza of the Place des Arts. The piece has an explicitly political intent: "*Never/Always* addresses, and to some degree counteracts, the individual's isolation within the generality of urban society. [It creates] a sudden cohesive community, united by music."⁴¹

My work has not had much rapport with campus and community radio since it typically deals with very specific transmission areas, and is not for general broadcast. I have relied on campus radio for some of my larger pieces, and the local community in Montréal (CKUT) is a very supportive one for sound art in general.

I've been composing pieces for specific physical spaces where live performers are synchronized by radios. These radios are never used as mere tools but as carriers of important sonic (and metaphoric) information, and a specific relationship between the performer and the radio has to be integrated into the piece. I think of this also in terms of my performances of Cell

Phone Ballet throughout the late 1990's in the United States and in Montréal. Cell phones are, to my mind, an extension of radio technology, and the piece (as with many others of mine) deals with issues of intimacy of communication, of public and private space, and of the individual with regard to contemporary society.⁴²

Context is everything in Kennedy's "sonic choreographies" where individual subjects articulate Bordo's "strategies of intervention, contestation, and subversion", within public spaces. Here the body stands as a mediator between the anonymity of portable broadcast technologies and the vulnerability of vocal expression. In *Cell Phone Ballet* (2000):

*The listener is presented with an image of several performers actively responding to a private, inner scenario that is related in varying degrees to the external embodiment of that dialogue. Confused and uninformed (as we are in general daily existence as to the mechanisms that convey our basic information systems), the listener creates a third composite reality of what is actually going on in the performance. Finally he or she is given the option to participate and enter into the private world and genus of this activity, to make his or her decisions and interactions based on personal choices of how to respond.*⁴³

We are constantly reminded of Whitehead's triangulation of listener, "player," and system in Kennedy's work as "players" interact on a local level with individual listeners, but all are drawn into the mysterious telecommunications web that is the formal matrix of the work. But while Kennedy's pieces may involve up to a hundred "players" they are designed to operate on a scale of human intimacy.

The body is an essential element in my work (since it usually deals with live performance) and the radio is generally used to remind the audience of the natural range and quality of sound diffusion. In my work, the radio expands the range of sound transmission only to a degree that reminds us of the natural limitations of physical space. There is usually a kind of magic and wonder around the fact that certain bodies (in the piece) are in fact connected to other bodies some distance away. Because I use many small sound sources, as opposed to a central one, my use of radios is also strategically intended for individual bodies, to be controlled individually. The radio is generally used as an extension of the body, a bridge from one body to another.

Kennedy's interest in one-to-one human communication is coupled with an abiding concern for collective work and especially the metaphysical power of group choral expression.

Lately I am pursuing the idea of a gigantic humming sound that will travel across as much physical space as possible. This will be transmitted through radio, but also the web, cell phones, ipods and so on. The idea is to engage the public to hum along with this all-pervasive sound, to improvise freely over it and to listen to the wealth of others singing and improvising throughout as much physical space as possible. In my vision, this is an important context in which people are invited to interact with technology instead of passively observing. It would serve as a reference point from which we all hear each other.

While it often foregrounds women's voices, Kennedy's radio art most potently enacts a politics of participation by turning the alienating systems of mass telecommunications technologies to curiously intimate account.

Anna Friz

Anna Friz is a sound and radio artist formerly based in Montréal and now pursuing doctoral studies at York University in Toronto. She enjoys a thriving career as a radio artist that has included international media art contexts such as the Third Coast Audio Festival, Chicago; Digitales, Brussels; Club Transmediale, Berlin; Ars Electronica, Linz; and the Fifth International Biennial of Radio, Mexico City. Friz credits her background in campus and community radio with allowing her ideas about radio to become embodied: *thinking radio through making radio*. Her work explores what she calls a *resonant subjectivity* – *extending voices and presence through radio*, expressed in a politics of the local.

I am striving to re-imagine radio in order to challenge current conventions/restrictions in terms of form and content. I want to craft an alternative understanding of radio usage that originates both through opposition to generic radio culture as well as in fostering an autonomous minor subculture that exists within a mainstream cultural context but is uninterested in mainstream acceptance or conformity. I'm interested in the power of micro-broadcasting (whether in a performance setting or for unlicensed tactical broadcasts) because of the social realm that is created by emphasis on the local. For instance, inspired by Tetsuo Kogawa's micro-radio neighbourhood broadcasting in the 1980s, I've been hosting some intermittent "Radio Free Parkdale" evenings of broadcasting from our house here in Toronto, and it turns into a very social occasion with people dropping by to participate, or be our listening "in house" audience; add to that people phoning their friends to tell them to listen. We also flyer the neighbourhood, and then put together this very loose music, storytelling, live music and commentary onto the neighbourhood airwaves for the night. All live, all local. I've also been involved in network art projects such as Art's Birthday, Radiotopia (Kunstradio), Wiencouver, etc. where the various local nodes link

and jam. Translocality — particularities meeting without implying universal experience. Radio as a tool for deterritorializing the commercial/state matrix for a time.⁴⁴

A feminist politics is foregrounded in Friz' practice as a matter of policy. Interestingly, it takes the form of an explicitly performative practice of representation and modeling that encompasses the voice, technology, and mentorship.

Though I can create/play male and female voices by using a vocoder, I still choose to cast the default radio voice, the radio host in my pieces as female. In performance I choose to demonstrate technical proficiency without resorting to technofetishism, and politically I express ideas that are critical of current hegemonic social structures. Sadly, just being a woman performing solo with gear poses a challenge or counterweight to a very male-dominated electronic/experimental scene. I've often been involved in teaching production and radio art workshops — both in an academic and campus and community radio setting — so I take opportunities there to promote political radio/audio art by women, and to encourage women to gain tech skills and visibility in the scene.

Friz has a special affinity for live, performative radio, with a wide range of expression that includes religious parody (*The Harvey Christ Radio Hour*, 2005), radio/accordion duets (*Radio is everywhere in their dreams*, 2003), and performing with multiple transmitters sending to many radios spread throughout a smallish venue, so that the sound becomes immersive and both mono and multi-channel (*La Vida Secreta de la Radio* 2004-5, *Vacant City Radio* 2005). Embodiment is central to her aesthetics of performative radio.

*In contrast to much of the writing on radio art in the 1990s that considered the radio voice as somehow severed from the body, my work posits the radio voice as resonating with the body, especially as that body is made hybrid when employing (cheap) technology. So with *The Clandestine Transmissions of Pirate Jenny* (2001-4), for instance, I used walkie-talkies to enhance the crackle of transmission as she speaks, and to accentuate breath and certain vocal frequencies through walkie-talkie compression. I have used breath in several pieces to convey human, emotional states as felt through the body and transmitted wirelessly — for instance, panting, desperate breath suggestive of breathing in a gas mask in *There's a risk of arrest if you turn right* (created together with Richard Williams, 2001); or a recurring sample of someone's sharp intake of breath just before speaking that I caught on my walkie-talkies (I overheard someone waiting to leave a message on a cordless phone), or in the *Automated Prayer Machine* (created to-*

gether with Annabelle Chvostek, 2004) where I used breath to accentuate prayer at the end of the piece. I don't hear these breaths as a "death rattle." For me this is an index of the body resonating in wireless space.

With her radio art, Anna Friz enacts a feminist politics that is viscerally represented in sound, form, and media as she nimbly moves amongst a multiplicity of performative roles such as parodic evangelist, hybrid techno-body, and neighborhood radio host.

The Body Resonates in Wireless Space

Radio art is most often conceived as political in the sense that it represents a disruption of, and provides a creative alternative to, commercial, mainstream radio. Radio art heroically represents what the medium of radio has tragically failed to become. But theorists of radio art have too often failed to interrogate the political implications of radio art itself. In Kahn's analysis, the virtual "wireless imagination" supersedes the embodied processes of radio art, with the effect that the (white, male, Western) body of the radio artist is made invisible and thus naturalized. Anna Friz' insight that the body *resonates* in wireless space is crucial, because it resists the depoliticizing nature of virtuality: the figure of transmission here may become a bounded, micro-broadcast intent on addressing and reflecting upon its own presumed mysteries. Recognizing that the body resonates in wireless space thus provides a locus for examining radio art's performative (social and political) effects.

Kennedy, Friz and I all make radio art that works in different ways with the creative tensions between "playing" and "listening" radio bodies. Kennedy reveals the fragmenting nature of mass communication technologies through performances in which players are also active listeners present together in real time/space, yet isolated through their individual connections to personal technologies such as cell phones and portable radios. Yet, underlying all her work is a Utopian ideal of the power of communication to connect human beings. Friz creates works that are both local and translocal. She celebrates local communities through neighborhood radio art performances in which radio is conceived as a medium for bringing people into direct contact with one another. In works that are often presented in the context of national and international festivals (translocal communities of radio artists), Friz insists on the presence of the living, breathing, gendered body — a body that always has potential to be subversive. In my engagements with radio art I have used my own body as a sounding subject in order to explore the performative nature of gender. My playful intervention into the work of Männlicher Carcano is just one in a constantly evolving chain of individual and collective improvisations in what, for MC, is the raucous playground of radio space.

I have not emphasized the role of radio as system in this essay, since I have dealt with it elsewhere,⁴⁵ but it is obvious that radio art is dependent on broadcasting organizations and technologies. To one degree or another, all three of us have been shaped by Canadian campus and community radio, defined by its inclusive potential (free training, producer-oriented programming, local communities of like-minded artists), and by its limitations (both technological and bureaucratic). In addition, conferences and festivals articulate community for radio artists in international contexts, by providing opportunities for live performances, broadcasts and commissions. These days, radio artists are not avant-garde mavericks but co-conspirators in the project of revivifying the medium. Such shifts may point toward speculating on larger historical transformations, in which the notion of the wireless imagination no longer holds sway against the intensifications engendered by contemporary media and culture.

Trinh T. Minh-ha said it best in her essay "Write Your Body": "[W]e do not *have* bodies, we *are* our bodies, and we are ourselves while being in the world."⁴⁶ Radio art may chart unlimited territories in radio space, but radio artists create, communicate, and perform on the ground. By examining the interactions of particular radio bodies with their collaborators, listeners, and the systems they both utilize and critique we can begin to understand the complex "triangulation of relationships" at "play" in radio art. Thinking radio art through performance theory and feminist theories of the body highlights the multiplicity and slipperiness of categories of representation in radio art.

Notes

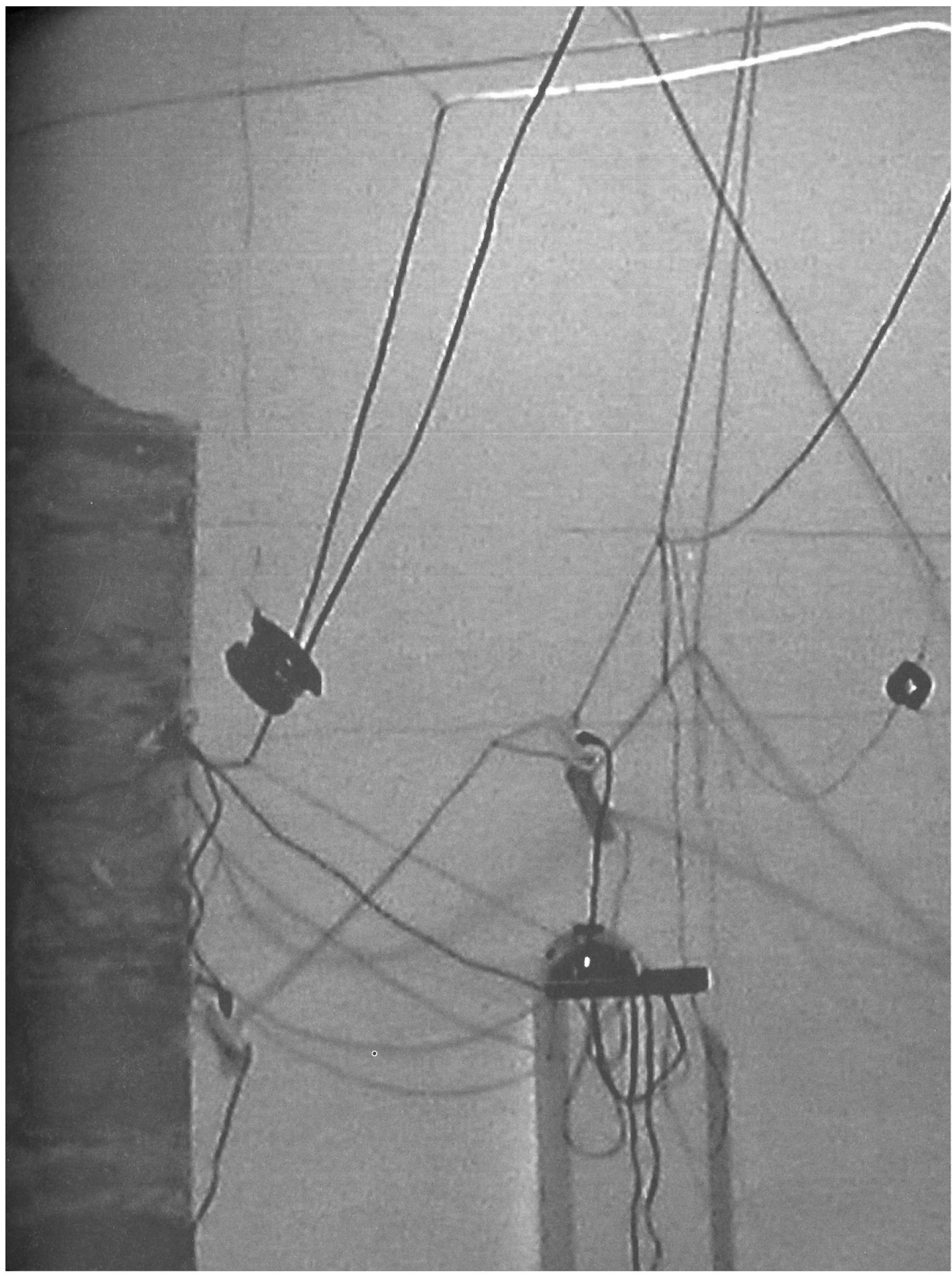
- 1: Gregory Whitehead, Gregory Gangemi and Jason Quarles, "Drone Tones and Other Radio Bodies," (Ubuweb Papers, 2003) <http://www.ubu.com/sound/whitehead/drone.pdf>, accessed 27 November 2005. 2: Richard P. Knowles, "How to Do Things with Performance Theory," in *How To Do Things with Performance Theory*, ed. Ellen Waterman, unpublished conference proceedings (Trent University, Peterborough, Ontario, 13 June 2005), 2. 3: Many of the works discussed in this essay decentre essentialist notions of gender. However, I also use the term gender in a limited sense throughout this essay to refer to the social and biological categories commonly called "men" and "women," and I am ignoring altogether the separate and complex issue of sexuality. This is a problematic binary use of gender, a trope that has long been revealed as a discursive construction, and not a natural category. See for example Judith Butler, *Gender Trouble*, (New York: Routledge, 1990) and *Bodies that Matter* (New York: Routledge, 1993). I do not mean to ignore or devalue the specific concerns and contributions of people who do not self-identify as 'male' or 'female.' However, I am principally concerned, here, with the material circumstances in which socially located "women" find themselves as radio artists. More nuanced work on gender and radio art remains to be done. 4: Elleni Centime Zeleke, *The Status of Women in Community-based Radio in Canada*, report prepared for Women's Hands and Voices in collaboration with the National Campus and Community Radio Association (2004), 11, <http://www.ncra.ca/women/stratPlan.cfm>, accessed 24 February 2005.
- 5: Douglas Kahn, "Radio Space," in *Radio Rethink: Art, Sound and Transmission*, ed. Daina Augaitis and Dan Lander (Banff, Alberta: Walter Phillips Gallery, 1994), 95-114. Douglas Kahn,

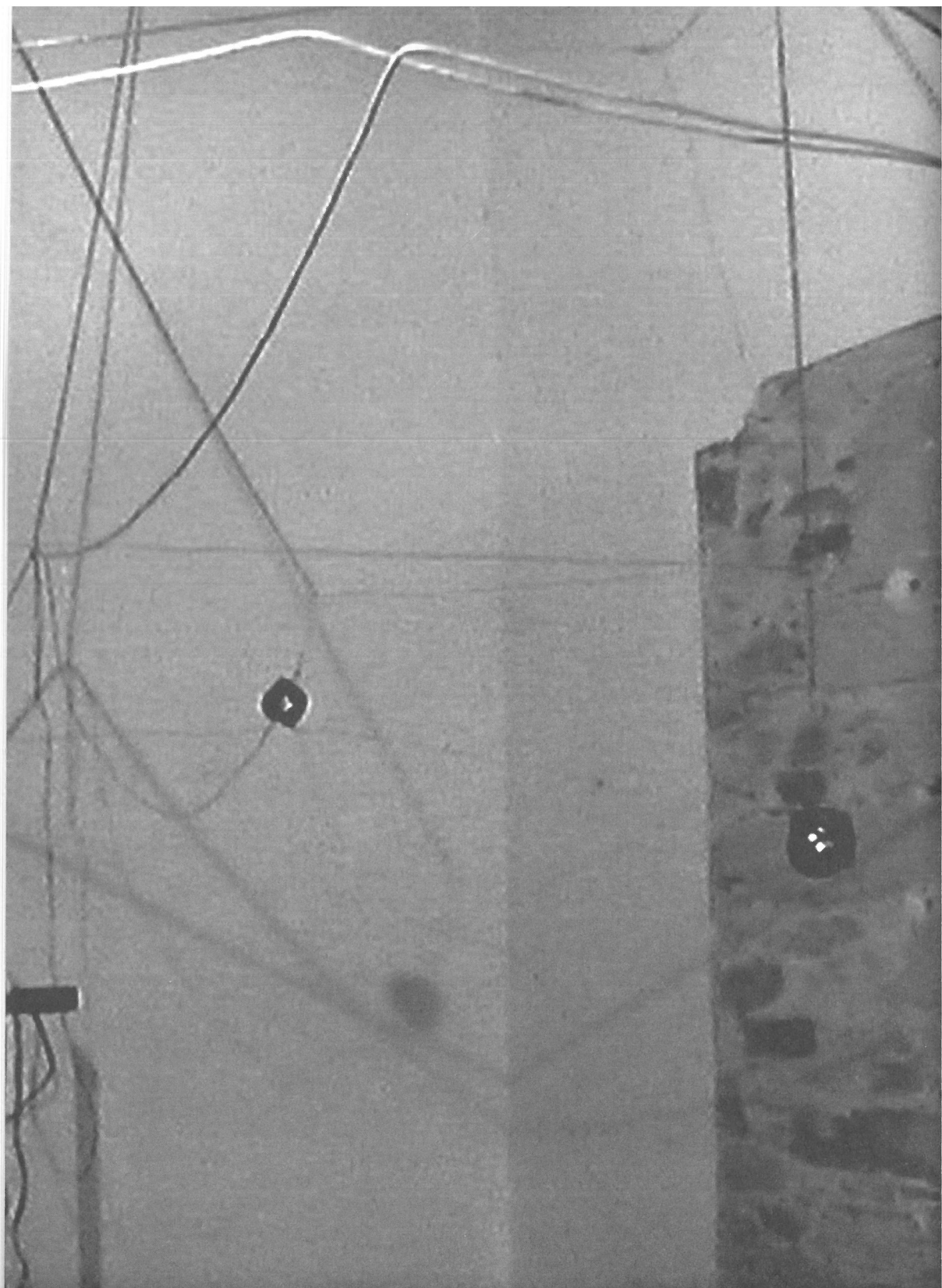
"Introduction: Histories of Sound Once Removed," in *Wireless Imagination*, ed. Douglas Kahn and Gregory Whitehead (Cambridge: MIT Press, 1992), 1-30. **6:** Gregory Whitehead, "Out of the Dark: Notes on the Nobodies of Radio Art," in *Wireless Imagination*, 253-263. **7:** Dan Lander, "Radiocasting: Musings on Radio and Art," in *Radio Rethink: Art, Sound and Transmission*, 11-32. It is important to acknowledge the careful scholarship and visionary writing of these histories, which filled a huge gap in radio studies and provided a starting point for further research. Lander's essay is particularly interesting in the Canadian context since it appeared in an anthology based on a series of radio art projects at the Banff Centre for the Arts in Alberta beginning in the late 1980s. *Radio Rethink* is also unusual in radio anthologies for the number of women artists and writers represented in the volume – women are the authors or subjects of 10 out of the 24 essays. Compare with 6/62 contributions to *Radiotext(e)*, ed. Dave Mandl and Neil Strauss (New York: Autonomedia, 1993), and 1/16 contributions to Kahn and Whitehead's *Wireless Imagination*. **8:** Kahn, "Radio Space," 96. The unspoken presence of some women in Das Neues Horspiel (Friedericke Mayröker) and Fluxus (including Allison Knowles and Yoko Ono) should, of course, be noted. **9:** Whitehead et al., "Drone Tones and Other Radio Bodies." Oliveros was an early pioneer in combining improvisation with recording technologies. Her philosophy of the power of "deep listening" is fundamentally radiophonic in character. For example, one of her *Sonic Meditations* works on the principle of "sending" and "receiving" sonic transmissions from a circle of participants. **10:** Kahn, "Introduction," 5-6. **11:** *Ibid.*, 6. **12:** "Very soon after his friend Charles Cros placed his patent for his pre-Edisonian phonograph, Villiers de l'Isle-Adam began writing his novel *L'Eve future*, in which a fictional Edison, so-named, constructs a gynoid whose intelligence is given voice by two phonographs located where her lungs would have normally been and beneath where the synthetic breasts are." (*Ibid.*, 6). **13:** *Ibid.*, 8. **14:** *Ibid.*, 20. **15:** *Ibid.*, 21. **16:** *Ibid.*, 24. **17:** Kahn discusses works by Marinetti and Masnata, Khlebnikov, Thémerson, Breton, Apollinaire, Varèse, Aragon, and Desnos (*Ibid.*, 19-26). **18:** Jacki Apple, "Radio Culture," in *The Radio Art Companion*, ed. Darren Copeland and Nadene Thériault (Toronto: New Adventures in Sound Art, 2002), available at <http://cec.concordia.ca/econtact/naisa/RadioCulture.html> **19:** See Ellen Waterman and Michael Waterman, "Is Radio Art Music?" *Wavelength*, (No. 2, 1999), 8-9, available at <http://www.radiosite.ca/training/articles/isradioartmusic.html> Here, we argue that the CRTC ought to recognize radio art as a distinct category. MAPL stands for music, artist, production, lyrics. To qualify as 'Canadian content' a musical selection must show Canadian provenance in at least two of these categories. A work of radio art may acquire Cancon status as a "montage," but only if more than 50% of its content is Canadian music. The closest category for radio art would be in Category 3 "special interest music" a loose baggy category that includes both world music and jazz. Community-based campus radio stations are required to program at least 5% of their music in Category 3. This represents a very real diminishment of the pre-1998 rule that at least 20% of music played had to be other than Category 2. Category 3 music is required to have 12% Cancon, as opposed to 35% Cancon for Category 2. **20:** See Zeleke cited in note iv, and Ellen Waterman, "Purposeful Play: Women Radiomakers in Community-based Campus Radio in Canada," *Atlantis: A Women's Studies Journal*, Vol. 30.2 (2006), 76-87. **21:** Women have also made important contributions to radio art in the United States. See, for example, the many women who took part in the New American Radio project which commissioned hundreds of radio art pieces between 1988 and 1998. Prominent women contributors included Jacki Apple and Helen Thorington. A project of New Radio and Performing Arts Inc., New American Radio is now online at <http://www.somewhere.org/NAR/index.htm> **22:** Hildegard Westerkamp, "The Soundscape on Radio," *Radio Rethink: Art, Sound and Transmission*, 88. **23:** There are many other women involved in supporting radio art/creative documentary forms through curation,

administration, research and teaching. In Canada, for example: H el ene Pr evost at Radio Canada (<http://bandeapart.fm>), and Nadine Theriault-Copeland of New Adventures in Sound Art (<http://www.naisa.ca>). Andra McCartney is a good example of a soundscape composer and radio artist who has been instrumental in articulating the field of women and sound through her research and teaching at Concordia University in Montr el (<http://www.andrasound.org>). Internationally such a list would include Julie Shapiro and Johanna Zorn of Third Coast Audio Festival in Chicago, Lydia Comacho of the Biennale of Radio in Mexico City, Elisabeth Zimmermann and Heidi Grundmann of Kunstradio, Sabine Breitsameter of Audio Hyperspace and Radio Copernicus, and Sophea Lerner of Aaniradio. My thanks are due to Anna Friz for providing this list. **24:** Sawchuk was the founder of PoMoCoMo a Montr el-based performance and radio collective, now defunct but very active in the early 1990's, which was also a particularly active time for writing on radio art. See Sawchuk's oft-cited piece "Pirate Writing: Radio-Phonic Strategies for Feminist Techno-Perverts," in *Radio Rethink: Art, Sound and Transmission*, 201-222, for an evocative account of the performative body in radio. **25:** Frances Dyson, "The Genealogy of the Radio Voice," in *Radio Rethink: Art, Sound and Transmission*, 167. **26:** Ibid., 181. **27:** Ibid., 167. **28:** Ibid., 181. **29:** Ibid., 183. **30:** Judith Butler, "Bodily Incriptions, Performative Subversions," excerpted from *Gender Trouble* (New York: Routledge, 1990), and reprinted in *Feminist Theory and the Body: a Reader*, ed. Janet Price and Margrit Shildrick (New York: Routledge, 1999), 421. **31:** Elizabeth Grosz, "Psychoanalysis and the Body," originally in *Feminism and Psychoanalysis: A Critical Dictionary*, ed. E. Wright (Oxford: Blackwell, 1992), and reprinted in *Feminist Theory and the Body: a Reader*, 270. **32:** Peggy Phelan, "Introduction: The Ends of Performance," in *The Ends of Performance*, ed. Peggy Phelan and Jill Lane (New York: New York University Press, 1998), 8. **33:** Ibid., 8. **34:** I am very grateful to Anna Friz and Kathy Kennedy for their insightful comments. **35:** See Rosi Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory* (New York: Columbia University Press, 1994). **36:** The M annlicher Carcano Radio Hour is streamed live at <http://www.cfru.ca> **37:** See <http://www.trentradio.ca> **38:** Dyson, 181. **39:** George E. Lewis, "Improvised Music After 1950: Afrological and Eurological Perspectives," originally in *Black Music Research Journal* (No.16, 1996), 91-122, and reprinted with new afterword in *The Other Side of Nowhere: Jazz, Improvisation, and Communities in Dialogue*, ed. Daniel Fischlin and Ajan Heble (Middletown, Connecticut: Wesleyan University Press, 2004), 156. **40:** Butler, 418. **41:** Kathy Kennedy, "Guerilla Performance...Radical Radio," *Musicworks* (No. 59, 1994), 25. **42:** Unless otherwise cited, all italicized comments in this section are from my email interviews with Kathy Kennedy in November, 2005. **43:** Kathy Kennedy, "Music, Cell Phone Ballet," <http://www.kathykennedy.ca>, accessed 01 June 2006. **44:** Italicized comments in this section are from my email interviews with Anna Friz in November 2005. **45:** See Ellen Waterman "Making No Noise: The M annlicher Carcano Radio Hour," *Musicworks* (No. 84, 2002), 36-43; and "Purposeful Play: Women Radiomakers in Community-based Campus Radio in Canada." **46:** Trinh T. Minh Ha, "Write Your Body," excerpted from *Woman, Native Other. Writing Postcoloniality and Feminism* (Bloomington: Indiana University Press, 1989), and reprinted in *Feminist Theory and the Body: a Reader*, 258.

Sophie Gosselin (apo33¹)

**SOUND
MUTATIONS:
FROM
RADIO DIF-
FUSSION
TO RADIO
COMMUNI-
CATION**





Sitting in apo33's workshop, we manipulate electronic devices, we build microphones and make a loudspeaker out of a metal sheet adding a new sound device to the various sound conveying devices in the room. The speaker network is connected to the server, receiving sound transmitted from a private flat, at the other side of town. We hear the sounds coming from that distant environment, transformed by a series of analogical and digital processes and diffused into our workspace. Abruptly, the phone starts ringing, but ringing oddly: producing a melody of frequencies, extended over time. We listen and realize: the phone is ringing in the distant flat, not in the workshop. We reproduce the experiment and phone again, leaving a few messages on the flat's answering machine; at the same time, we can hear the sounds that become a refrain and invade our space, creating a loop within the city, using the telephone and digital network to transform reality.

The diffusion of these flux of sound data in the acoustic space is effective after crossing the universe of telecommunication exchanges, the electro-acoustic chain (of capturing-mixing-amplifying-diffusing via loudspeakers) being over-extended (the mixing console becoming a multitude of virtual and connected mixing consoles). As if horizontal strata were inserted into the vertical hierarchical sequence, creating a network of chains, each linked to the others, each reaching towards the others. Following the same movement, the wires that carry the energy and feed the network emerged at the surface of our installations, between our bodies, generating a multi-layer web that materialized the various strata of links, connecting the real world with the virtual world of the net. This horizontal insertion marks the passage from the paradigm of radio diffusion to the paradigm of radio communication.

Through this article, I address the larger transformations of radio technology exemplified in "digital networks" by questioning the passage from radio diffusion to radio communication, while attending to how such transformations are played out in our own practice. Apo33's projects are not "pieces of art," reproducible forms that can travel and be installed anywhere. Instead, we construct arrangements of *concepts, operational processes and machinic agents*, what we call "constellations." Each installation or intervention corresponds to the actualization of a constellation. These constellations bring together the technical, artistic and theoretical aspects of a collective work. In this regard, our activity is "poietic" rather than "artistic," casting us into the role of "tactical architects" or *anarchitects*, developing techniques and construction processes in a multiplicity of contexts. Each work then corresponds to the realization, in a given time and place, of an arrangement of conceptual, operative or machinic tactics, which presuppose a direct involvement with the collective and spatial potential of radio communications.

I. Pierre Schaeffer and the paradigm of radio diffusion

In his book *Traité des objets musicaux* (first published in 1966), Pierre Schaeffer theorizes a new way of making music: a new way of listening and a new sound form to listen to, which came to be called “concrete music.” This transformation in the mode of production and reception of music was determined by the emergence of a series of new techniques: vinyl and tape recording, the electro-acoustic chain² and importantly, radio diffusion. Or rather, if a technical instrument expresses a fixed power relationship in a network of changing power (social) relationships, then the development (diffusion) of these new techniques reveals a more general reorganization of social relations and modes of production. Radio diffusion works as a kind of paradigm³ and not just a tool among others.

As we analyze the way Schaeffer introduced these new techniques into the invention of concrete music, we can see how a creator turns a technical device into a *machinic agent*, an element of displacement and mutation of a social configuration, playing and turning the principles that underlay this paradigm.⁴

Before it became the object of a theory, concrete music was the product of research conducted at the end of the 1950s by Schaeffer along with Pierre Henry, in the RTF (Radio Télévision Française) in Paris. This research sought to develop a series of technical alternatives based on his earlier experiments from the 1940s and early 1950s utilizing the manipulation of vinyl records. A vinyl record engraves air vibrations, fixing them on to a support medium. This enables musicians to produce loops, for example, and to create rhythms with raw sound material. He then experimented with tape recorders, which modified the way recorded sounds could be listened to and, above all, opened up possibilities for manipulating and modifying recorded material. Magnetic tape can support the inscription of temporal sequences that can be re-composed and manipulated by a system that cuts and pastes sound units. In this regard, “writing” music becomes a kind of montage (as in cinema).

Recording is the determining phenomenon inherent in both these techniques and exposed by the radio context, and in relation to this phenomenon Schaeffer based his new “poetics”: on the possibility of fixing a vibration of air on a support medium *independent* of the contingencies of time and space. This process significantly exposes musical possibilities: it leads to a new way of listening to sound by radically modifying the way sound is received, as the musical situation is no longer determined by a performing situation, lending further to an understanding of the very nature of sound itself.

One specific feature of analogical recording is to generate sonic artefacts, that is, sounds that are not part of the original sound (acoustic vibrations), but parasitic imprints caused by the technical appliance, added to

the original sound. Thus, the "purified" sounds of tonal music become potentially stained with artefact material, or interference, becoming mutant fragments of reality modified by the action of technical devices. In addition to these sonic artefacts, recording captures sounds coming from the performance environment and from the entire field of the sonic context. It is possible, with direct listening, to target and filter the specific sounds of the performance (to artificially separate the "musical" sounds from the environmental sounds), but when they are recorded onto audiotape, all sounds become equal. What the music industry, responding to the dominant taste in music matters, tried to repress by all means at hand (isolation studios, tools to reproduce more selectively the musical sounds, etc.), became essential components in Schaeffer's new way of listening to, and producing, music.

The third factor (associated with recording) modifying the listening process is not so much determined by the technique of recording as by what recording makes possible: transporting data over a distance. Here the paradigmatic structure of radio diffusion and of recorded systems becomes evident: the "spectators" are not listening anymore in a spectacle hall,⁵ but in their home or some other, unknown location. The sounds they are listening to are not isolated in a soundproof room, but mixed with mundane noises from their own environments. All the efforts of the music industry to cancel common everyday sounds in favor of "pure" sounds of "music" are invalidated by the radio transmission process. Environmental sounds are recorded simultaneously with so-called "musical" sounds.

Recording, radio transmission, and the diffusion of sound through loudspeakers, all transform auditive sensitivity and *make it possible* to hear musical qualities in everyday sounds. On this conclusion, Schaeffer and John Cage's paths met and from then on, always remained associated.⁶ Fixing and manipulating recorded sounds reveal new sonic qualities, unheard before, like a photo zoom reveals a different materiality of the real. Montage, or extracting a sound from its context and confronting it with other sounds, makes it possible to play with musical qualities practically unknown before in any sonic performance. A *sound object* is the elementary unit of montage: an autonomous sound unit articulated with other units in order to create a narrative sequence (like a sequence of images in a film). Fixing a sound allows its de-contextualization. The acoustic vibration is transformed, via the electro-acoustic chain (capturing-amplifying-diffusing) into electrical energy then transformed back at the other end of the chain, by a system that interprets electrical pulsation. This sound vibration transformed into electricity can then be transported at will. Recording is an extension of this transport facility: it presupposes a transformation of sound into electricity. Radio diffusion means combining the electro-acoustic chain and a recording facility into a single device.

As an instrument for de-contextualization, the radio diffusion process hijacks reality, a technical prosthesis is grafted onto a natural process (air vibration); it is inserted into the continuity of the natural process through a deviation, like the radio electro-acoustic chain is inserted between a human being and his/her environment (the human being is connected to this environment through a technical mediation: amplifying or recording), and between individuals: the composer (individual-subject isolated in the radio studio – the only producer of the information), and the public (a myriad of individuals, each of them isolated at home), who receive the information.

The reversal of the radio diffusion process by Pierre Schaeffer, even though it has upset the modes of production and diffusion of music, has not managed to transform social relations in art, still based on the old trichotomy implicit in the black box device: author/work/spectator.

From the camera obscura to the mnemonic device

If the electro-acoustic chain is still expressed in Schaeffer's work by the black box metaphor, it is because it still functions – though stretching to the limit – by following the poietic model of the camera obscura. The transformation of an acoustic vibration into electrical energy and back again, at the other end of the electro-acoustic chain, into an acoustic vibration (with the added imprints of the technical device artefacts), corresponds to the reversal of an image by a camera obscura. As it reproduces the world in pictures, the camera obscura introduces a division between human being and nature: our relationship with nature is necessarily mediated through this technical instrument. In the various representations of camera obscuras that have proliferated since the end of the Renaissance, human beings are confronted with the image *in* the camera obscura rather than *in* the outside world. Through the camera obscura process, an image reproduces the movement of reality in a form that is *analogous* to its real form: a car on the move becomes the *image* of a car on the move. The image is only fixed after it has been transformed: it is the image that is fixed (a specific form that is artificially reproduced).

At this level, digital technology causes a rupture and an important reversal, invalidating the camera obscura as metaphoric representation. At the heart of the electro-acoustic chain, recording can no longer fix an image at its end: recording only becomes an intermediary in the process of image production. It is not the image that is fixed, but the relationship between the variables of the electrical movement; these variables exist in a limited quantity, in a memory of 0s and 1s, that is: in a space where these relationships are stored/fixed, a stock of *objectified energy*. The amazing specificity of the digital lies in its ability to *fix a potential* rather than a form. Digital memory memorizes the movement of electrical energy in the form of 0s and 1s, before it can be represented in a specific form (image). This status of potentiality stored by the machine is called the *virtual*. Digitizing gives an objective

existence to potentiality.⁷ The relations between variables, end result of a series of transformations of real data (in the case of sound, transformation of an air vibration into an electrical signal), are memorized as sets of relations potentially containing all possible forms – that can be materialized into any form: sound can become text or image, at will. This explains the possibility to interchange media where digital technology is concerned.

Thus a new “world,” rather than just a technical prosthesis, has been inserted between human beings and nature. A world that is potentially retained inside “memories”: a spectre of the real world that haunts reality. This world is simultaneously virtually present and actually absent. But this spectre is the “embodied”⁸ spirit of a “dead” body – the body of reality caught by the machine, because it can be projected under any form that anyone cares to choose. This spectre, *pure potentiality*, works as a projection screen giving a possible “body” to the multitude of phantasms of the social and collective unconscious.

In the form of computers, digital mnemonic systems are continually added to electro-acoustic chains, and each system is linked to the others so that, collectively, they form a unique body. Data transmission and traffic are then controlled by a network of servers connected to each other. Servers (which host the “memories”) replace transmitters. Radio becomes web-radio. Radio is no longer an instrument run by an individual but a multi-headed entity confronting a multitude of individuals, separating them from nature and from each other by upsetting the relationships that normally hold them together. Radio is now more than a transmitter confronting a multitude of receivers; anyone can become, successively or simultaneously, transmitter and/or receiver. This technical body or corpus takes the form of a network. And all the traffic that passes through this network can be controlled through automation by any of its heads, or servers. Thus the old paradigm that was radio diffusion is replaced by radio communication.

This replacement points towards a new way of conceiving the organization of sounds in time, i.e. music. After concrete music was invented in the 1950s, opening a new era in the field of music and subsequently, sound art, this replacement marks the evolution towards new sound creation practices, transforming the ways we receive sound (how and where to listen, the performer/public relationship) as well as in the ways we produce it (how sound is to be processed, how sound forms are diffused into a space...).

II. Apo33: mutant environments – networking radios

Since we first created apo33’s Intervention Cell (CIA), we have tried to explore these new fields, hesitantly at first, following our intuition and responding to the need to find new languages that would better express our experience of the general transformation of society under the increased presence of telecommunications. With the “Poulpe” (Octopus) project, we

had the feeling that we could finally approach more concretely some of these issues. What we were looking for, at first unaware of what it was or could become, was beginning to take shape in practice.⁹

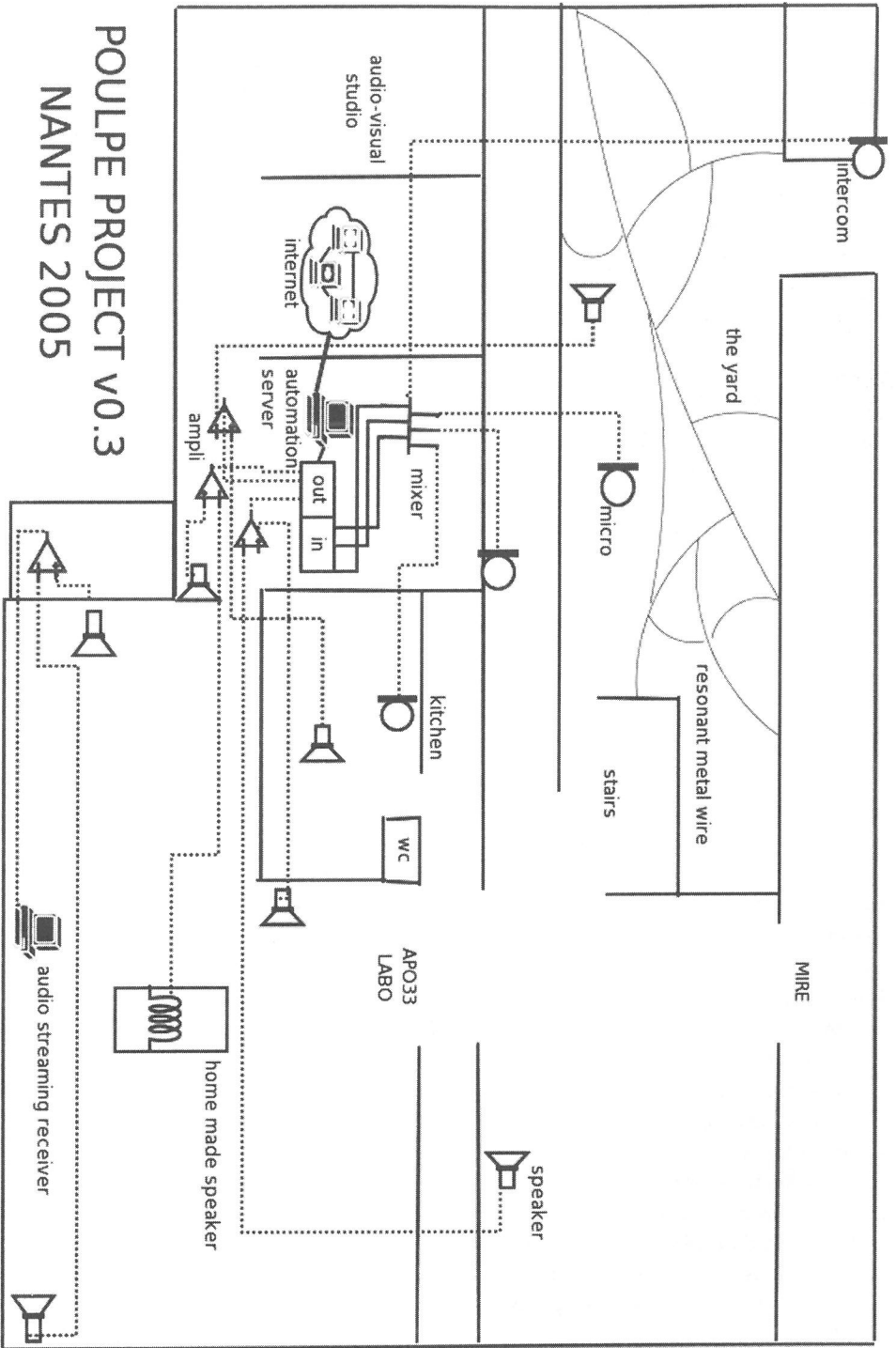
The Poulpe (Octopus): a project of experimental radio network

The Poulpe is an analogical and digital organism within a network. It captures – with various kinds of sensors – the sounds’ effects provoked by the actions of the residents or users of a specific place, then sends them onto a digital automaton which transforms them by simultaneously diffusing them onto a system of loudspeakers set up in the same location, and onto the Internet, through streaming.

Over the course of 2005, we gave the Poulpe the form of an experimental radio within a network by connecting four locations: three are set in different cities of the French “Centre” region (Labomedia in Orléans, the nUM workshop in the Tours Fine Art school, and “Bandits-mages” in Bourges), plus one in apo33’s workshop in Nantes. We have installed all sorts of sensors in the corridors and halls of these locations. The collected sounds are continuously sent onto a server installed in each location, through a digital automaton that transforms them according to compositional parameters determined by the specificity of the output, respecting this output in its particular context. Transformed by the automaton, the collected sounds are then diffused into the space and, via various systems of loudspeakers, into the corridors and intersections of the building. At the same time, as radio transmissions, they are also sent onto the Internet. At the last stage of the installation, we install an automaton that can convey “sound flux” from one location to the next, so that it becomes impossible to guess where a specific sound is coming from. We initially built the first installation in and around our workshop, in Nantes. It soon became an architectural extension of the building, constructing a quasi-permanent sound environment that was simultaneously familiar and astonishing: the architecture is transformed into a living being, as if we were hosted by a gigantic beast. The key to this construction of a sound environment lies in its relationship with silence, that is in the spatialization of sound. As in architecture, the crux is the void around which a wall has been built, more than the wall itself. It is the void that generates the movement, and in the case of our installations, silence acts to partially define spatial coordinates in real-time.

A new sound unit: the flux

The Poulpe project was pre-dated by several radio experiments on the Internet aiming at exploring the usage of a digital appliance within a self-built network. These experiments became possible as soon as we could simultaneously transmit and receive within a co-operative network, producing and exchanging sounds after the installation of a server at the home of each member of apo33.



POULPE PROJECT V0.3
NANTES 2005

Such experimentations enabled us to discover in what way networks may serve as components in a larger sound operation or construction. Not only were we building installations or networks, we were in turn inventing new methodologies. To better understand the various elements at play within the work, we developed a series of “experimental modules,” the first of which was the “Fluxbox.”

The Fluxbox is a repertory of “unlimited” sound flux continuously diffused in real-time (streaming). Each sonic flux follows the same process: a microphone is turned on, in a particular place (usually on the windowsill of one of our homes or of apo33’s workshop) — and a streaming server transmits the live audio data. The sound content works as an extension of our everyday environment, a *mise en abyme* through the audition of the particular “sound environment.” The sound collected by this microphone can be transformed by virtual or analogical mechanisms (for instance, pedal delay, water pipes, acoustical elements, etc.) and the resulting interpretation is to be played in an everyday environment, like a form of “background music.”

At the origin of this process lies the search for the construction of a sonic path across different environmental strata; the listener can “wander,” with an ogg¹⁰ reader, alongside this path and across these virtual realities, to participate in its design by proposing his/her own environment. These flux are not registered pieces, recorded or recordable: they must remain ephemeral; what we call “sound environment” must evolve according to what has been collected and to the various manipulations it has undergone. The way sounds are collected may vary with the mood or experience of the listener.

This first experimental module introduced to us the understanding of a new basic sound unit: the flux. The flux leads back to a consideration of radio communication as opposed to radio diffusion and to what Schaeffer calls the “sound object.” Radio communication works as a kind of system for the circulation of flux. Each transmitting /collecting point makes up a knot in the network, an intermediary point — never at the beginning or the end of a line as in the radio diffusion process. A “sound object” as defined by Schaeffer in his *Traité des objets musicaux*, is the result of a recording/inscription on a material (tape, vinyl, etc.) of a segment of sound, determined in time. This can be associated with the radio diffusion process, which cuts and captures a fragment of reality to turn it into a storable and reproducible “image.”

A sound object is the fixation /objectification of vibratory phenomena onto a lasting medium. It is a finished, determined object — transforming an undefined time-space (vibratory propagation) into a defined time-object (sonic image). Acoustic sound is the outcome of an action in a space; it cannot be dissociated from the instrument that produced it or from the space where it was generated. A sound object *can* be dissociated from the space where it was generated (the same sound can be heard out of loudspeakers or a headset).

On the contrary, a sonic flux is an *infinite* object: a paradoxical object. It certainly is the result of an objectification, but not in terms of time-space becoming time-object. Rather, it doubles up the first objectification by transforming the time-object (image) into objective time (flux).

Processing flux: automatization

A sonic flux is “matter” in permanent motion. A radio device is installed in a physical environment, continuously capturing segments of sound from this environment (depending on the location, the potency and the nature of the sensors) then transforming them into digital data that can travel through the network: cutting a segment of a sound environment and transforming it into flux.

The way sound is treated is now completely different: we no longer compose (cut and paste: montage) sounds (sound objects). Rather, sound can be processed in two ways: the first is phonographic — capturing a segment of sound environment and giving it back as a “point of view” on this environment. It is a contemplative perspective on the environment (and probably the reason why it is often practiced in relation with a natural environment), often using technology as a means to develop this contemplative relation. The second way is by introducing systems of automated constraints into the flux. Sound is worked on (composed) in the middle rather than at the end of the chain: acting directly on the flux movement by sculpting it.

We experimented with this kind of composition in the course of an additional experimental module focused on “automata.” For this module, we asked some artists to compose pieces that would later be modified by automata built by a member of apo33. In September 2003, we launched the Automata Project with the continuous diffusion of a German artist’s work (Ralf Wehowsky), transformed and performed via Automaton 1. The principle driving the automaton is as follows: at the beginning, the process is a void mechanism for sound transformation; to make the automaton work, it has to be fed with sound matter, but not just any sound matter: it has to function cogently with the digesting process. Automaton 1 was built in order to play or not according to what it was interpreting. This interpreting machine must become a digitized process of “musical” production. To achieve this, an audience is needed, a person who can judge the musical quality of the result diffused into the acoustic space. That is why we asked the artists to insist on composing music capable of being played/digested/interpreted by the automaton, then diffused and listened to by an audience. Such music should be conceived and constructed with a capacity to modify the transforming parameters of the machine and to play with the way this machine is going to manage repeating and filtering sounds. Ralf Wehowsky’s piece was correspondingly built: developing strata where frequencies could acquire an autonomy as they slowly evolved, punctuated with vocal fragments and sudden bursts of undetermined sound clusters. The music proposed to

Automaton 1 worked as a repetitive and elusive structure. The automaton could not “catch” or “fool” the piece and ended up gaining a volume of its own and exploring the most unusual by-ways. Ralf Wehowsky managed to poeticize the rigid structures of the machine.

Whereas in the Poulpe project, automation is articulated with sonic flux, in the first case, music was supposed to cast the automaton adrift, acting as a catalyst for the generative interfacing of “musical” material with mechanistic parameters. In contrast, the Poulpe project’s automaton¹¹ is built to act on sounds collected from the material environment of the installation context, operating as a machine to distribute and channel sound streams. Sound composition thus becomes construction of machinery to distribute, channel, redirect, deviate or filter movements of “matter” (or flux), acting like a dam on a river. Sound processing becomes tantamount to a series of operations to distribute/to channel flux (relaying, delaying, applying loops/feedback, filtering, etc.). And each of these operations leads to different reactions on the sound environment, either on the way sound flux are diffused in the physical environment or on the way this environment is perceived. Ultimately, we observe the encounter between a rationalized system (the automaton) and a moving and random physical reality (the context). The automaton plays with data that keep changing permanently and unpredictably. This leads to a situation of permanent musical discovery. And if the cogs of the automaton are invisible enough, the impression of surprise at hearing our environment differently is enduring.

Network temporality

Apo33’s third experimental module was an attempt at co-operation with other artists, within the framework of what we call ZET (the French acronym for “Temporary Test Zones”). In these ZETs, artists are asked to enter their sound production and methods into a device that unsettles the way music is usually produced and received. One of our most illustrative experiences of this process can be found in the Doigt de Galilée ZET.

In the course of this ZET, we proposed that the Doigt de Galilée musicians play their music on the web radio we were experimenting with. This meant connecting, via relays and the Internet, four remote locations in the city. The musicians would play in a private flat and have the sound transmitted to apo33’s workshop (open to the public) via streaming. The music could be heard from headsets in the first space (flat) and from loudspeakers in apo33’s workshop. From the workshop, the sound was transmitted to another private flat, where the public was received in a more personalized manner, and where listening to the performance alternated with discussion. From there, the sound was sent on to the DY10 Blockhaus (a music venue in the city) where it was diffused very loudly. The public was invited, in the course of one evening, to go around to the four different locations and discover different ways of listening to the single sound event.

The relay, first experienced as a configuration in time and space able to modify the relationship with the public, demonstrated that it was an essential element in a technical network: when a machine (server) transmits, via the network, a sonic flux, this flux is received by the other machines (clients), but according to the time of response of the machine, to its power, to its internal clock, to the data transit time of the network... Depending on a complete series of parameters, the distribution of flux on the network tends to be at random, thus producing a peculiar sound effect — the relay. This gives the impression that the sound transmitted by the machine resonates in each knot of the network, at a different time. The resulting distribution expresses the peculiar temporality of this corpus of machines, of a *network temporality*. This temporality, parallel to the linear temporality of the real, constructs the sound environment of the context, eliciting another perception of space and time in the listener. The continuous delaying effect in the relays produces sonic concatenations that do not belong in the linearity of logical time: time becomes “*spacing*, a diastem,¹² a time becoming space.”¹³ The outcome is a composition of time and space, made of fragments, of pieces of a material reality filtered through an automated “memory.” Streams of ghosts haunting the sites. *Spacing*. Relays reveal a new architecture, behind the city walls: hyper-architecture.

Hyper-architecture

What we have been articulating here are a series of discoveries and methodologies enacted by and in relation to the creation of work in correspondence with currents in social reality. This reality, to us (practitioners), appeared while operating a series of displacements in the use of network-oriented devices, resulting in a new relation to “music.” As we developed a way of working, we also built a set of relations (supported by arrangements of self-organization and co-operative sharing) that ultimately came to be seen and heard to transform sound into forms of anarchitectural arrangements.

Network structures come to epitomize hyper-architecture. For hyper-architecture is “groundless” architecture articulating a multiplicity of strata (techniques). These strata come to form a general infrastructure out of nodal points that transmit data to each other, forming a horizontal level activated and regulated by a vertical level consisting of a series of operations organized in programs. These series, as concatenations of interconnected loops, open or close the various processes that condition the passage of flux. Sometimes the horizontal level — a network — closes on itself and the transmission of data is neutered by a tautological mechanism winding in on itself. In this case, the machine claims its absolute autonomy.

In the Poulpe case, this phenomenon takes the form of a feedback.¹⁴ A door opened on the site of the installation could, for example, prompt a feedback process that would lead the system into a boundless looping spiral. In

the installation, any kind of feedback¹⁵ effect should be avoided, even if such an event is unpredictable because it confronts an analogical operation with the living and aleatory dimension of its architectural context. As we played with the division and the distribution of the various automaton inputs and outputs (mainly through sampling), the chase for feedback became a dissentient game of the machine against itself. Feedback appears and disappears, like a ghost. And the machine ghost mingles with ghosts from reality.

Feedback expresses through sound the duality of hyper-architecture, combining a process of centrifugal scattering across the network with an automated centripetal displacement towards autonomy. The concatenate and multifarious features developed by hyper-architecture tend to mask its totalizing and totalitarian nature. Hyper-architecture is the basis for the formation and maintenance of the “environment,” emerging out of the accumulation of various energy-carrying systems. It is a collection of routes engraved in material reality with the “force” of nature captured by technical prosthesis.¹⁶ In this way, the environment relation with nature (or what is left of it) is antithetic to the role normally ascribed to the “landscape.” A landscape is the picture of nature,¹⁷ the city looking down on the countryside, a part of nature that must be conquered and controlled, first of all through representation. In contrast, the “environment” is a nature that has been humbled and rebuilt after pictorial subjugation, the outcome of a production line, a “natural” material that is circumscribed, and dependent on the technical infrastructure that models it. The environment is only the ghost of nature: an urbanized nature.

Re-constructing nature under the guise of the “environment” has something to do with digitization. Both processes are associated with the construction of a virtual world. The laws and protocols that regulate the parallel digital world are also relevant in the real, material world. Their implementation presupposes that nature has been envisioned as a virtual structure, a kind of modelling paste made of energy and matter. The resulting form has been sculpted by the application of the technical apparatus on the corpus of this “energetic material.” The reconstruction of nature implies that every dimension of reality is integrated into a process of artificial reconstruction, that the whole spectrum of reality follows the laws and protocols of this reconstruction. But this re-construction is confronted, somewhere, with a kind of resistance or interference that surges from within the process and causes a kind of chaos.

Once it has been installed in a space, the tentacle of the Octopus is related to another tentacle in some other city. The sounds from one context are mixed with the sounds of another context by the automaton, producing flux that penetrate between the strata constituting hyper-architecture. These flux exchanges don't produce new strata, but rather a “moving field” or “mutant territory” in between strata, linking distant bodies active in their environments.

Listening to flux: moving environments

Unlike in radio diffusion, which followed the rules of the camera obscura, in this kind of work listening does not have to occur in an abstract location (such as a studio or concert hall) but can take place anywhere. Listening thus acquires a new, larger meaning. It is the outcome of an action on the space through bodies and on bodies through space. Listening does not just involve sound but the complete context of this sound, transformed by the action of the machinic agents, into a living entity, a mutant organism made of the articulation and the mixture of "original" and modified sound. Sound is thus the expression of this organism activity, the environment becoming alive as a processional construction. The stratified and fixed environment thus participates in a process of mutation thanks to anarchitectural intervention.

The function of the intervention (i.e. to come between), of an action that crosses the barriers installed by the rationalized organization of the urban machine, is to introduce heterogeneity into the fixed sub-structure. In this configuration, the automaton works as a machinic agent, pushing the sub-structure away from itself, as if the dam of the urban machine was inverted by another dam, a contradictory dam grafted on it.

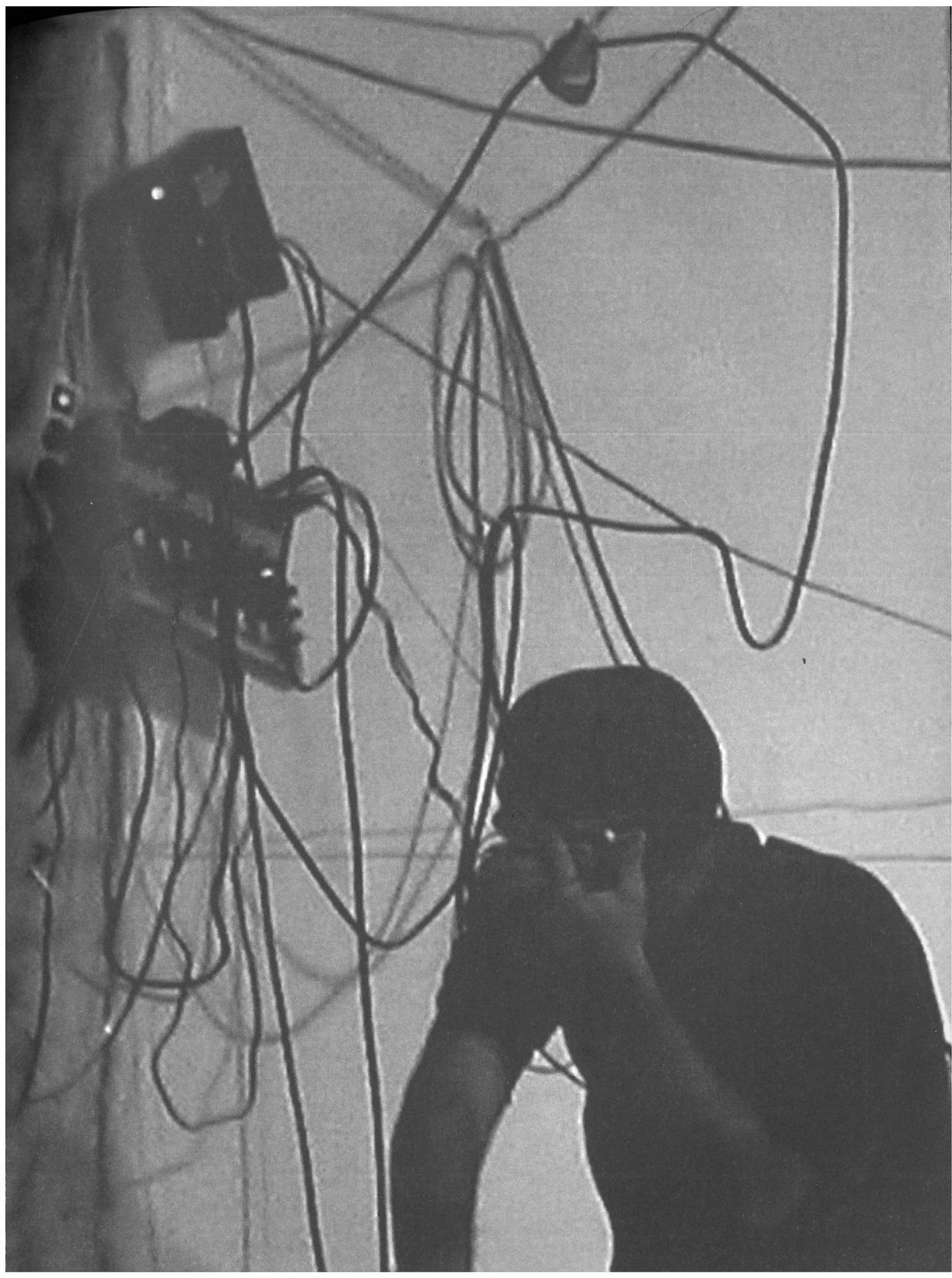
Scrambling the sonic identity of place, constructing mutant sound environments, garbling time by introducing repetition and feedbacks, delays, interferences between real-time sonic flux, diffusing sound in space reveals the existence of other communicational modalities. Diffusion not only lets the sub-structure's ghosts be heard, those ghosts that hide behind the machines, the pipes, the electrical wires, waking the sleeping bodies of the real that stands locked in a repressive machine, but in turn allows such elements to come into a larger communicational network. And these ghosts crossing the cities, through the telecommunication wires, will then modify all the environments they appear in, interfering in the spaces of foreign environments. So that, at one end of this chain of chains, the stream listener will experience the mutation of the daily environment.

Translated from French by Hervé Gosselin.

Notes

- 1: Apo33 : <http://www.apo33.org>
- 2: The electro-acoustic chain corresponds to the process of transformation of acoustic sound into electricity : microphone->amplifier->loudspeaker.
- 3: A norm for thinking and developing a model for action which becomes compulsory to any member of a group.
- 4: Importantly, Schaeffer was a sound engineer, a fact that no doubt had a great influence on this musical revolution. For it is not so much as a musician (which he was too, but not in the context of his engineer work) that Schaeffer discovered the new musical opportunities, but as a technician, who also happened to be a "poet." As a radio engineer, he did not approach sound in the same way as a classical musician, though still with a musician's ear. His creative inventiveness led him to modify and reverse the use of a technical device, thus producing a new form of musical poetics, based on sound experimentation.
- 5: The artifice of

spectacle was later to be re-introduced by composers of concrete music when they spatialized the old "concert" hall into a new theater for the ear, through the use of loudspeakers as musical instruments. **6:** It is interesting to note that Cage does not so much refer to technical instruments to develop his conception of silence, but to architecture — which is another kind of technical device, putting at the core of his work the relation to the environment, not space which remains an abstraction, but environment as a physical and social milieu ("milieu matériel"). **7:** From a philosophical point of view, going back to Aristotle's analysis on the relation between potentiality and action, this is an absolute paradox. **8:** In a technical appliance. **9:** The "Poulpe" project came at the end of a period over which we experimented on various radio communication systems, from Internet radio to CB, via walkie-talkies, etc., and exploring the consequences of this passage to digital technology on sound and music creation. The practice of the GNU/Linux systems lies at the heart of these experiments, with all their reliance on networks (unlike proprietary systems such as Microsoft or Macintosh). While proprietary systems tend to favor the reproduction of the instrumental camera obscura scheme, comforting any isolated individual into the illusion that it can be controlled, GNU/Linux systems have been built from the start by incorporating the networking and co-operative dimensions implicit in the development of digital technology. As we moved on from proprietary systems to free systems, our creative practice took directions we had not imagined before, and social relationships within our collective slowly evolved towards more co-operative forms. **10:** Digital format for sound recording. A free equivalent to mp3. **11:** The automatons are built with the free software PureData. **12:** A diasteme for Plato is an interval between 2 musical pitches cf: http://experiencefestival.com/a/Diasteme_Diastem/id/103258 **13:** Jacques Derrida, "Freud et la scène de l'écriture", in *L'écriture et la différence*, éditions du Seuil 1967. **14:** Feedback: sound created when a transducer such as a microphone picks up sound from a speaker connected to an amplifier and regenerates it back through the amplifier. **15:** By moving away microphone and speaker from each other. **16:** It is astonishing to notice the similarity of the digital process in electronic machines and the process in the psychic apparatus, pointed out by Freud, as analyzed by Derrida in his article "Freud et la scène de l'écriture". **17:** Anne Cauquelin, *L'invention du paysage*, 2002.



Erik Granly Jensen

**COL-
LECTIVE
ACOUSTIC
SPACE
— LIGNA
AND RA-
DIO IN THE
WEIMAR
REPUBLIC
(BRECHT,
BENJAMIN)**

Not architecture alone, but all technology is,
at certain stages, evidence of a collective dream.

Walter Benjamin

I.

In May 2002 the German activist group LIGNA carried out a remarkable intervention in the main railway station of Hamburg. The intervention was a continuation of an exhibition at *Hamburger Kunsthalle* earlier that year and an explicit response to a number of restrictions of personal mobility in public space imposed by the city senate in the late 1990s. Due to pressure put forward by the shop owners in the downtown area the senate had decided to prohibit public gatherings and demonstrations in the weeks leading up to the big holidays in order to protect trade; and at the main railway station, *Hamburg Hauptbahnhof*, that years earlier itself had been turned into a combined shopping mall and a traveling center, security personnel and police had been instructed to banish individuals without valid tickets for traveling or individuals that could not demonstrate that they had commercial business to do in the arcades.¹ These legal restrictions were in fact targeting the homeless people and the drug addicts that for a long time had been disturbing to the senate. LIGNA's response to these restrictions within the privatized public space was an intervention with the title *Radio Ballet*. In the weeks leading up to the intervention LIGNA had used the local and non-commercial radio FSK (Freien Sender Kombinat), that in the Italian leftwing tradition of *Radio Alice* and *Radio Popolare* distributes information about political events in the Hamburg area, to invite people to meet up at the rail station bringing with them a portable radio. In the brief essay "Radio Waves Invade the Public Space. How to use radio as a means of intervention in a surveillance society," the group describes the intervention where more than 200 people participated:

The main station is a privatized space, which means that it is under video surveillance and security guard control. Their task is to detect people who behave in a way that contravenes the strict regulations of the space, and then throw the offenders out. The Radio Ballet in the main station consisted of a choreography that suggested gestures which contravened regulations — like holding out hands as if begging for money, sitting down — very simple things. It turned out that the security apparatus was powerless in this situation. Excluding all the people who participated would have been completely impossible without disturbing the usual comings and goings in the station. So the performance helped the excluded gestures to assume the nature of a nightmarish reappearance — everywhere at the same time.²

Surveillance and the privatizing of public space are the recurrent themes in most of LIGNA's interventions, and in all of them radio plays an essential role, often in the sense of confronting mass media and new technologies with an activist use of the very same technologies.³ In the *Radio Ballet* the participants at the railway station would tune their portable radios to FSK's frequency and follow the prerecorded instructions by LIGNA performing the above cited gestures of "holding out hands as if begging for money, sitting down," among others. The attempt to challenge the surveillance by transforming broadcast into a tactile political instrument that can be activated within minutes, but cannot easily be silenced due to the distribution and dissemination of power and control into the crowd, is one example of LIGNA's interventionist praxis. Another, and maybe the most decisive function or insight in *Radio Ballet*, is that radio has built within it historicophilosophical implications. It is an aspect implicit within *Radio Ballet*, but can be further understood within the framework of what the group calls the creation of "a collective, acoustic space."⁴ In some sense, the notion of a "collective acoustic space" is a circumscription of broadcasting as such, broadcasting as the creation of a community of listeners through the transmission of the human voice. The construction of a collective acoustic space presented by LIGNA has multiple functions. The most important one in the current context is that the group, through the participation of the listeners, succeeds not just in challenging the apparatus of surveillance, moreover the "nightmarish reappearance" that LIGNA wants to evoke becomes inevitable as a confrontation between the privatized public space at the railway station and a public space in which the performed gestures had not yet been abandoned, that is, a pre-restricted space confronted with the present one. With the gestures and the behavior that belong to a different time and space, and through the media of broadcasting, LIGNA succeeds in constructing another notion of public space within the present one.

This confrontation of two notions of public space, and ultimately, of two spaces of limited personal freedom, resembles in a number of ways Polish artist Krzysztof Wodiczko's piece *Homeless Projection* that was installed in Union Square Park in New York in 1986. Wodiczko's work was a reaction against the massive gentrification of the area surrounding Union Square, a result of urban developments in New York in the 1980s, and a protest against the eviction of homeless people and drug addicts from the area. The public Square, that as part of the gentrification has been turned partly into a recreational area for rich New York City residents, counts a number of statues of America's founding fathers. It was onto these representatives of an American democracy that Wodiczko at nighttime projected images of beggar trays, crutches, and wheel chairs. Through this simple montage Wodiczko did not only seek to give the homeless a form of representation in the Park — a representation that they *de facto* had been denied — in a manner very similar to LIGNA's intervention in Hamburg, Wodiczko also displayed and

confronted two notions of public space in order to show the historical changes taking place within the American society. Urban theorist Rosalyn Deutsche, who has written a highly interesting essay on Wodiczko's installation, brings exactly this historical aspect to mind:

Sculptures once placed in open spaces in the hope of pacifying city residents were manipulated by Wodiczko to construct and mobilize a public, "restoring" the space as a site of public debate and criticism. Using the monuments in their contemporary incarnation — mediums for repressing the changed conditions of urban life — Wodiczko converted them into vehicles for illuminating those conditions.⁵

Deutsche's overall approach is the integration of French philosopher Claude Lefort's theories of democracy and public space into urban analysis. According to Lefort the initial ground of democracy is conflict and debate, and Deutsche's analysis demonstrates how modern American society excludes alternative life forms from public space and thereby banishes political conflict and social injustice from the public space without solving any of the problems.⁶ In the case of Wodiczko's montage projected onto the statues in Union Square Park in order to illuminate "those conditions" Deutsche does not, however, turn to Lefort. Instead she quotes Walter Benjamin's 1934 essay "What is Epic Theater?" In this essay, which explicitly deals with Bertolt Brecht's dramatic works, Benjamin discusses how the audience should respond to modern artworks like Brecht's plays (and in Deutsche's view, how the audience should respond to Wodiczko's work). Benjamin claims that "instead of identifying with the characters, the audience should be educated to be astonished at the circumstances under which they function."⁷ In the case of Wodiczko, the Brechtian education and astonishment should be understood as the underlining of the restrictions within public space, as it was the case with LIGNA's interventionist praxis where both the participants in the *Radio Ballet* and the passing by "audience" in the railway station were confronted with the gestures of illegal behavior.

When LIGNA explains why the *Radio Ballet* must take place in a railway station the group points to the high extent of surveillance, which offers a particular form of educational training for anybody passing through this space. LIGNA writes: "The main station is not only an important field for experiments with the techniques of controlling space, it is also a place to learn being under permanent surveillance. Being asked to stand up again when you sit down on the floor has become a normal experience there."⁸ One aspect that LIGNA does not allude to, however, is the presence of two forms of infrastructure framing their intervention: the railway system and the broadcasting system. When the presence of these two infrastructures is of interest for an overall and historical discussion of the political aspects of radio, it is due to one particular place in Walter Benjamin's materialist phi-

osophy from the 1930s, the radio talk “The Railway Disaster of the Firth of Tay,” and to a number of his texts on and for radio from the same period, all strongly influenced by the writing of Bertolt Brecht.

The decisive element that unites radio’s political aspect in LIGNA, Brecht, and Benjamin is the notion of public space and the collective communities that radio (and mass media as such) offer on the one hand and the possibilities to act politically within a mass media society on the other. It is obvious that this aspect is of eminent importance in LIGNA’s *Radio Ballet* and can be found in some of Brecht’s texts as well. In their text material LIGNA repeatedly turn to Brecht’s 1932 essay “The Radio as a Communications Apparatus” in which he famously proposes that radio “[...] must be transformed from a distribution apparatus into a communication apparatus.”⁹ To further explore issues at stake within LIGNA’s interventionist practice, it seems, however, important and interesting to unfold through a closer reading of Benjamin’s radio texts and plays, the intrinsic political dimensions of radio broadcast. For both seem to suggest that to transmit brings with it deeply contentious and ongoing considerations of the private and the public. Furthermore, the historico-philosophical aspect that implicitly structures LIGNA’s praxis, here finds an early and far reaching interpretation.

II.

In 1932 Walter Benjamin for a number of years had been working at the public radio stations in Frankfurt and Berlin mostly involved in producing children’s programs. In one of these talks, “The Railway Disaster of the Firth of Tay,” broadcast by Berliner Rundfunk, Benjamin anticipates in a rather unconventional way the doubling of infrastructural communication systems that would inhabit LIGNA’s *Radio Ballet* 70 years later.

Benjamin opens the talk by presenting a little European history of the railway system introducing a certain kind of premature technology as being the essential part of that story. Benjamin writes: “In 1814 Stephenson built his first locomotive. But it was not until 1820, when it became possible to manufacture the rails that the first railway became a possibility.”¹⁰ Benjamin continues by sketching out parts of the railway history in Germany during the 19th century and turns hereafter to the famous railroad disaster caused by a collapsing bridge over River Tay in Scotland in 1879. Again it is the notion of a premature technology that Benjamin focuses on. For even if the collapsed bridge was built in iron the construction was based on outdated knowledge better suited for wood constructions. Referring to a photo of the collapsed bridge from the magazine *Funkstunde* (“Radio Times”) Benjamin goes on: “Even though the iron construction is evident at a glance, this bridge still had much in common with wooden bridges.”¹¹ The history of the railway system turns into a history of iron as an artificial building material, and following this track Benjamin concludes his talk with a rather surprising comparison:

Building in iron was in its infancy, and had not yet become fully confident of its own strengths. Of course, you are all familiar — from pictures, if from nowhere else — with the building in which iron first displayed itself with pride and utter self-confidence, a building that was also a monument to engineering calculation. I am referring to the tower that Eiffel completed for the World's Fair in Paris just ten years after the collapse of the Tay bridge. When the Eiffel Tower was built, it served no practical purpose of any kind; it was simply a landmark — a wonder of the world, as people say. But it was followed by the invention of radiotelegraphy, and at a stroke, the huge construction suddenly acquired a meaning. Today the Eiffel Tower is a Paris radio transmitter.¹²

One has to go to Benjamin's unfinished work on Paris of the 19th century *The Arcades Project* (1928-1940), to acknowledge how important this juxtaposition of the railway system and of the broadcasting system is to his overall materialist philosophy. In the so-called "Exposé of 1935" Benjamin lists the two major reasons why the Parisian arcades would occur at the beginning of the 19th century. On the one hand he points to the "boom in the textile trade,"¹³ on the other he argues that even if the technical ability to build with iron constructions were at hand, then the engineers had not yet discovered the enormous potential and the functional nature of iron, and they would still think within the mindset of wood constructions when building the arcades. With a description similar to the Tay Bridge-analysis Benjamin writes:

Just as Napoleon failed to understand the functional nature of the state as an instrument of domination by the bourgeois class, so the architects of his time failed to understand the functional nature of iron, with which the constructive principle begins its domination of architecture. [...] For the first time in the history of architecture, an artificial building material appears: iron. It undergoes an evolution whose tempo will accelerate in the course of the century. This development enters a decisive new phase when it becomes clear that the locomotive — on which experiments have been conducted since the end of the 1820s — is compatible only with iron tracks.¹⁴

Read together with this extract from *The Arcades Project* the philosophical and political potential of the Tay Bridge talk becomes evident. The history of artificial building material and the history of technology become an explicit political matter when Benjamin turns to the notion of state domination and of an architectural environment designed to control the citizen. In the case of the Eiffel Tower as an iron construction transformed from "a landmark" to a construction with "a meaning" as a radio transmitter it is furthermore crucial to consider how this transformation is understood

within Benjamin's political analysis. Is there in other words any relation between the architecture as an instrument of domination and the construction of the Eiffel Tower, a relation between infrastructural planning (railway tracks and the boulevards of Haussmann, for instance) and broadcasting? Benjamin does not say, either in the Tay Bridge talk or in the *Arcades Project*.

The Eiffel Tower is, however, not the only broadcasting tower with political undertones to occur in Benjamin's writing. In 1932, the same year of the Tay Bridge talk, Benjamin was planning to write a longer essay on the political implications of broadcasting in Germany and corresponded several times with his friend Ernst Schoen, who was the artistic director of the major public radio station in Frankfurt. Benjamin never completed this essay, but in a fragment with the title "The Situation in Broadcasting" ("Situation im Rundfunk"), found together with the Schoen correspondence, he discusses the building of German broadcasting towers in the 1930s.¹⁵ The official reason to build these towers and the initiatives from *The International Broadcasting Union* to divide frequencies between the European nation states was to secure the best technical conditions for broadcasting on the continent.¹⁶ It is however obvious that these legal regulations decided at a conference in Genève in 1925 offered a powerful tool for nation building for any European State, who would merely be in total control of broadcasting within its own boundaries. Benjamin does not go into this discussion of the creation of a national spherical territory through broadcasting, but he is well aware of the political implications of the international regulations imposed by *IBU*. That the reason for the building of the towers should be a matter of transmission quality Benjamin however rejects: "The true reason for the building of these broadcasting towers lie somewhere else: it is political. They want to have far reaching propaganda instruments in case of war."¹⁷

In much greater detail Benjamin would analyze the intricate relationship between mass media, politics and war in the notorious essay "The Artwork in the Age of its Technological Reproduction." If he in this essay would emphasize the potential of fascist propaganda and state domination inherent in mass media, then he would at the same time insist on the revolutionary collective experience and the educational potential of the very same mass media. In the famous final paragraph of the art work essay Benjamin insists that art criticism needs to develop ways of distinguishing between a fascist "aestheticizing of politics" and what he calls "politicizing art."¹⁸ In the final pages of this article I will argue that if nowhere else – and certainly not in the artwork essay – it is in the early texts on radio that Benjamin most explicitly will define and present what it means to "to politicize art." It is also in these texts that he far more explicitly than in *The Arcades Project* or in the Tay Bridge Talk will juxtapose life forms in public space with his overall projects of the 1930s.

III.

One of Benjamin's most interesting early theoretical texts on radio is "Theater and Radio" from 1932 in which he for the first time opens the discussion of radio and modern art. The main concern of the essay is the future of modern theater and as in so many of his other texts on radio Benjamin turns to Bertolt Brecht's epic drama in order to show one possible direction that such a new theater could take. To Benjamin the epic drama must be understood as a retranslation of the montage found in radio and film, a retranslation "from a technological process to a human one."¹⁹ Benjamin continues: "It [the epic theater] brings the action to a halt, and hence compels the listener to take up an attitude toward the events on the stage and forces the actor to adopt a critical view of his role. [...] This may shed light on what it means to say that culture (the culture of knowledge) has been replaced by training (the training of critical judgment)."²⁰ Already in his essay on Marcel Proust from 1929 Benjamin introduced this little discussed notion of training,²¹ and in the artwork essay from 1935 he would insist that modern film is the "true training ground"²² ("Übungsapparat") for a revolutionary experience, due to the interruptive nature of the cinematic sequence. It is, however, in the various essays on Brecht's epic drama that Benjamin in detail would explore this notion of training, often presented as the question of education and astonishment as I already referred to in my discussion of Wodiczko's *Homeless Projection* and LIGNA's *Radio Ballet* above.



In “Bert Brecht” written 1930, Benjamin discusses two of Brecht’s most celebrated plays of the 1920s, the radio play *The Lindbergh Flight* (*Der Lindberghflug*, 1927) and *Man is Man* (*Mann ist Mann*, 1926). In particular the former has been the subject of analysis in order to define Brecht’s radio art.²³ In our context it is, however, Benjamin’s discussion of *Man is Man* that is of interest. For here he introduces a number of aspects that would prove to be of great importance in his own radio plays. Benjamin describes the protagonist in *Man is Man*, Galy Gay, the following way:

No sooner has he walked out his own door to buy a fish for his wife, than he meets some soldiers belonging to the Anglo-Indian army who have lost the fourth man in their unit while plundering a pagoda. They all have an interest in finding a substitute as quickly as possible. Galy Gay is the man who is unable to say no. He follows the three of them without knowing what they want with him. Bit by bit, he assumes possessions, thoughts, attitudes, and habits of the kind needed by a soldier in a war. He is completely reassembled, ceases to recognize his wife when she comes looking for him, and ends up as a dreaded warrior and the conqueror of the fortress of Sir El Dchowr.²⁴

The potential that Benjamin would stress over and over again in the essay is Galy Gay’s ability to transform himself. The ironic manifestation of this ability is a main character that cannot say no, in Benjamin’s terms “der Einverständene.” Paradoxically enough this “perceptive” nature is utterly political to Benjamin, because such a character is able to leave the old world behind without remorse. In Benjamin’s own words: “Only ‘Der Einverständene’ has the possibility of changing the world.”²⁵ This description of Galy Gay points to an overall understanding of the revolutionary gesture of change, of transformation and of reassembling in Brecht’s plays, and it points at Benjamin’s overall understanding of a future political theater. Most explicitly he would formulate such an understanding in the text “Program for a Proletarian Children’s Theater” from 1929.

In the opening sequence of this text Benjamin claims that the “Proletarian education *requires that the child be educated within a clearly defined space.*”²⁶ And he continues: “It is only in the theater that the whole of life can appear as a defined space, framed in all its plentitude.”²⁷ In this “defined space” Benjamin proposes that the first instinct is “to organize the children,” and he continues: “We may easily imagine how it [the theater] would react once the fire came too close — the fire in which children, reality and play coincide and are fused so that acted sufferings can merge with real sufferings, acted beatings can shade into real beatings.”²⁸ This fusion of children, reality and play taking place within the “clearly defined space” sums up the future theater’s political potential.

The reason why the children are perceptive for the emotional practice that the theater offers is, according to Benjamin, because: "They carry no superfluous baggage around with them, in the form of overemotional childhood memories that might prevent them later on from taking action in an unsentimental way."²⁹ Benjamin does not elaborate on how the unsentimental action is to be understood; but this line of thought is closely related to what he elsewhere defines as "a new, positive concept of barbarism", a revolutionary gesture whose formula it is "to begin with a little and build further, looking neither left nor right."³⁰ Distinguishing the gesture of the proletarian theater from "the pseudo revolutionary gestures" of Bourgeoisie Theater, Benjamin concludes "Program for a Proletarian Children's Theater":

For what is truly revolutionary is not the propaganda of ideas, which leads here and there to impracticable actions and vanishes in a puff of smoke upon the first sober reflexion at the theater exit. What is truly revolutionary is the *secret signal* of what is to come that speaks from the gesture of the child.³¹

The "secret signal" of the future and the "organizing of the children" are at the core of the proletarian theater. The question remains however, how this organizing should take place and how the notion of "a fire" in which "children, reality and play coincide" should be understood? As it is so often the case with Benjamin he does not make explicit such matters. However, in the almost forgotten outline for a radio play *Kasper and the Radio* (*Kasperl und der Rundfunk*) from 1932, a play written for children, he returns to the political question of organizing the children.

Kasper and the Radio is a revised version of the play *Radau um Kasperl*, that Benjamin had written earlier in 1932 and which was broadcast twice by *Süd-West Funk* (SWT) in Frankfurt in September that same year. The revised version, which only exists as an outline describing in detail the six scenes of the play and the urban noises interrupting them, differs in a number of ways from the first version. Most importantly Benjamin has added an introduction, where a speaker announces the play:

Speaker: The following draft outlines an action consisting in a series of episodes held in a firm frame. In each case the heart of the matter is comprised of various characteristic sounds every now and then perforated by suggestions, words. In a short introduction the speaker directs the listeners' attention to the peculiarity of the following radio play and gives them the following task: to use their imagination in order to picture the episodes only with the aid of the sounds. Answers should be sent to the radio station with the chance of winning a prize.³²

This seemingly innocent and pedagogic introduction seems without any political impact. Nonetheless *Kasper and the Radio* is a rather anarchistic story of the young man Kasper. With what seems to be a tribute to Brecht's *Man is Man* the play begins with Kasper walking to the market to buy a fish for his wife Puschi. Standing in line in the fish store Kasper finds himself wanting to buy the same fish as the speaker who had just introduced the play to the children. This collapse of the different fictive levels within the play is itself an example of interrupted Brechtian storytelling. More interesting, however, is that the speaker during the argument with Kasper – and seemingly out of the blue – suggests that he always wanted to have Kasper speak on the air. Given the fact that the two characters have never met before, this thought seems rather surprising. The reason could be, that “Kasperl” in German folk culture is the name of a famous character in Puppet Theater, similar to Mr. Punch in the British tradition, a comic hero often challenging the people in power. One could argue that not only does Benjamin base his play on Brecht's *Man is Man*, at the same time he uses a well-known character from German popular culture and transplants it into a drama of mass media and politics. Intrigued by the possibility of speaking on the air Benjamin's Kasper breaks the promise given to his wife to walk straight home – again like Galy Gay, who ends up leaving home for good – and follows the speaker to the radio station. It is when Kasper sits in front of the microphone that he undergoes a rather significant change. Benjamin writes:

Now he is at the station. We hear him enquiring to the speaker about all sorts of things. The speaker tells him about the instruments and the switches: Berlin, Cologne, Munich, etc. With every city Kasper is reminded of someone who had once annoyed him, and he decides to take this opportunity to seek revenge against his enemies. He asks the speaker if he could transmit his speech to, for instance, Cologne. The speaker, who thinks Kasper wants to speak of his experiences, says yes. The transmission has barely begun before Kasper starts insulting the Major of Cologne, the management at the Rail Station, and the Chief of Police.³³

This verbal attack causes chaos at the radio station. The police arrive, and Kasper flees on the fire escape. Throughout the play the police chase Kasper. We follow him running through a restaurant, hiding at the railway station, interrupting a meeting for symphonic radio music, and finally speaking with the animals in the Zoo. Towards the end of the play he returns home to his wife seemingly out of danger of being caught by the police. Lying in his bed resting he tells her that he plans to assault the speaker of the radio who according to him is the reason for all the trouble. Afterwards he will demolish the radio station. The crucial moment in the play

follows when somebody knocks on the door. The play ends with the following description:

The speaker enters. He seems quite pleased. He gives Kasper a big envelope. In it is 1000 Marks: the fee from the radio station. Kasper is puzzled, he doesn't understand. But the speaker laughs and says: Kasper, we at the radio station are smarter than you. Secretly, while you were in the city committing your wrongdoings, we placed a microphone under the bed here in your room. Now we have everything you have said on record, and I have brought you a copy.

Final noise: For a while only the noise from the transmitter is heard and then fragments of what Kasper had just said. In the end his appreciation for the kind gift.³⁴

This rather grotesque ending where Kasper realizes that his bedroom has been wired by employees from the radio station and that they have recorded his terror plans, introduces a number of important aspects from Benjamin's critical writing of the 1930s. In a particular way Benjamin also anticipates LIGNA's interventionist praxis at the railway station in Hamburg described above. This can be seen when the final sequence is analyzed in relation with the opening of the play. When the speaker introduces the play asking the children to listen carefully and interpret the noise sequences that interrupt the narrative – ringing telephones, slamming doors, running feet, traffic noise, and to mail their interpretations to the radio station with the chance of winning a prize, he installs them in a situation similar to Kasper's, who by the very same speaker is given 1000 Marks either for his outburst against the authorities at the radio station or for his creative thinking in the final scene. No doubt this demonic maneuver implies a pedagogic gesture on Benjamin's part. One could say that he hereby not just shows, but demonstrates to the participating and listening children that the radio and any other mass medium is a powerful tool that the people in power will use to control society. The astonishment and educational gesture – to use Brecht's terms – of the play involves the acknowledgement of the intricate relation between politics and mass media. As already mentioned above, *Kasper and the Radio* consists of a number of scenes interrupted by sequences of noise. It is however unlikely that this structural principal in itself should be revolutionary. To use the formulation of "Program for a Proletarian Children's Theater" it is more likely that the fusion of "reality and play" takes place when the children listening to the play realizes that they are put in a situation similar to Kasper. They are also being asked to exchange their creativity for a prize with the radio station.

By asking the children to participate in the play, to transform their private thoughts to public space, and in the very same move point to the political powers of mass media, Benjamin educates and trains the children. It is

when they realize their situation that the play resembles LIGNA's creation of a collective acoustic space where a similar educational gesture takes place. The children in Benjamin's play don't experience collectively, but they are educated to live in a mass media society by learning how the mechanisms of the very same media function.

To fully acknowledge how *Kasper and the Radio* relates to Benjamin's major writings of the 1930s it should be emphasized that the recordings secretly made in Kasper's home and for which he is paid 1000 Marks introduces the possibility of manipulation through reproduction. This is the danger that Kasper faces in the final scene of the play. This particular aspect should be emphasized due to a very interesting line of thought found in Benjamin's artwork essay. For in the opening lines of this essay when Benjamin discusses the development that a future art criticism must take, he points to precisely this problematic. He insists on the necessity replacing "traditional concepts – such as creativity and genius" with a number of these that cannot be manipulated by any political opponent. Benjamin writes:

In what follows, the concepts which are introduced into the theory of art differ from those now current in that they are completely useless for the purposes of fascism. On the other hand, they are useful for the formulations of revolutionary demands in the politics of art.³⁵

The question is of course what this useless, this non-reproducible art criticism will look like knowing that Benjamin seeks to replace the fascist "aestheticizing of politics" with "politicizing art"? Alexander García Düttmann has suggested that Benjamin's answer is the interruption of montage found in film and radio due to the fact that Fascism cannot incorporate interruption into its system. Unlike a true revolutionary gesture that leaves the past behind Fascism, according to Düttmann, "only re-establishes links with tradition."³⁶ He continues: "Fascist destruction has catastrophic effects because it is never sufficiently radical."³⁷ In the artwork essay Benjamin does not formulate the qualities of a radical art practice that would go beyond Fascist destruction due to its radicality. The cinematic montage is mentioned a few times, but a formal principle does not seem to be Benjamin's honest answer, and the text closes with more anxiety than hope when pointing to the Fascist use of mass media. In fact it is much more likely that the radical interruption proposed in the artwork essay finds its early formulation in "Program for a Proletarian Children's Theater" already mentioned above. Here Benjamin introduces "[the] fire in which children, reality and play coincide and are fused so that acted sufferings can merge with real sufferings, acted beatings can shade into real beatings."³⁸ This fusion of children, reality and play *is* the politicizing of art, because art here merges directly with life. In the two cases discussed in this article, LIGNA's *Radio Ballet* and Benjamin's radio play *Kasper and the Radio*, the art work or the

intervention functions as a tool to acknowledge the extent of domination and control taking place in mass media society. Neither Benjamin nor LIGNA offer any alternative life forms, for there is no such space – private or public – outside mass media, but they both insist on the ongoing critique of a public space that has exchanged the values of debate and conflict with the promise of security (and control).

Notes

- 1: LIGNA, "Radio Waves Invade the Public Space. How to use radio as a means of intervention in a surveillance society" in *Journal for Northeast Issues*, no 2 2003, (Revolver: Hamburg 2003), pp. 31-32.
- 2: Ibid.
- 3: LIGNA consists of Ole Frahm, Michael Hüners, and Torsten Michaelsen. For more information on the Hamburg based local radio FSK, see <http://www.fsk-hh.org>.
- 4: LIGNA, "Radio Waves Invade the Public Space", p. 31.
- 5: Rosalyn Deutsche, *Evidences. Art and Spatial Politics* (Cambridge MA: MIT Press, 1996), p. 34.
- 6: Ibid.
- 7: Ibid. See also Walter Benjamin, "What is Epic Theater?", trans. Harry Zohn in *Illuminations* (New York: Schocken 1969), p. 150.
- 8: LIGNA, "Radio Waves Invade the Public Space", p. 31.
- 9: Bertolt Brecht, "The Radio as a Communication Apparatus", trans. Marc Silberman in *Brecht on Film and Radio* (ed. Marc Silberman), (London: Methuen, 2000), p. 42. See also LIGNA, "Constellation-Dispersal-Association. Historical Background information on gestural radio Listening" in *Open House. Kunst und Öffentlichkeit/ Art and the Public Sphere* (Wien: O.K Books 3/2004), p. 3.
- 10: Walter Benjamin, "The Railway Disaster at the Firth of Tay", trans. Rodney Livingstone in *Selected Writings vol. 2.2* (ed. Michael W. Jennings), (Cambridge MA: Harvard University Press, 1999), p. 564. See also Jeffrey Mehlman, *Walter Benjamin for Children. An essay on His Radio Years* (Chicago & London: The University of Chicago Press, 1993).
- 11: Ibid. p. 567.
- 12: Ibid.
- 13: Walter Benjamin, *The Arcades Project*, trans. Howard Eiland & Kevin McLaughlin (Cambridge MA: Harvard University Press, 1999), p. 3.
- 14: Ibid. p. 4.
- 15: The correspondence between Benjamin and Ernst Schoen is printed in the notes accompanying "Theater and Radio", see *Gesammelte Schriften II.3* (ed. Rolf Tiedemann & Hermann Schweppenhäuser), (Frankfurt am Main: Suhrkamp Verlag, 1977), pp. 1497-1505.
- 16: Rudolf Gressmann, "Some Historical Aspects of Broadcasting Technology" in *EBU Technical Review*, June 2000, pp. 1-18.
- 17: "Der wahre Grund für den Bau dieser Sender liegt aber ganz woanders: er ist politisch. Man wünscht weitreichende Propagandainstrumente für den Kriegsfall zu haben." Walter Benjamin, "Situation im Rundfunk" in *Gesammelte Schriften II.3* (ed. Rolf Tiedemann & Hermann Schweppenhäuser), (Frankfurt am Main: Suhrkamp Verlag, 1977), p. 1505. The translation is mine.
- 18: Walter Benjamin, "The Work of Art in the Age of Its Reproducibility", trans. Edmund Jephcott & Harry Zohn in *Selected Writings vol. 3* (ed. Michael W. Jennings), (Cambridge MA and London, England: The Belknap Press of Harvard University Press, 2002), p. 122.
- 19: Walter Benjamin, "Theater and Radio", trans. Rodney Livingstone in *Selected Writings vol. 2.2* (ed. Michael W. Jennings), (Cambridge MA: Harvard University Press, 1999), pp. 584-585.
- 20: Ibid. p. 585.
- 21: Walter Benjamin, "On the Image of Proust", trans. Harry Zohn in *Selected Writings Vol. 2* (ed. Michael W. Jennings), (Cambridge MA and London, England: The Belknap Press of Harvard University Press, 1999), p. 241.
- 22: Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility", trans. Edmund Jephcott & Harry Zohn in *Selected Writings vol. 3* (ed. Michael W. Jennings), (Cambridge MA and London, England: The Belknap Press of Harvard University Press, 2002), p. 120.
- 23: See for instance Sebastian Klotz, "Der Lindberghflug von Brecht-Hindemith-Weil (1929) als Rundfunkproblem" in *1929. Beiträge zur Archäologie der Medien* (ed. Stefan Andriopoulos and Bernhard J. Dotzler), (Frank-

furt am Main: Suhrkamp Verlag, 2002), pp. 268-289, and in the same anthology: Hans Christian v. Hermann, "Psychotechnik versus Elektronik. Kunst und Medien beim Baden-Badener Kammermusikfest 1929", p. 253-267. **24:** Walter Benjamin, "Bert Brecht", trans. Rodney Livingstone in *Selected Writings Vol. 2* (ed. Michael W. Jennings), (Cambridge, MA, and London, England: The Belknap Press of Harvard University Press 1999), p. 369. **25:** Walter Benjamin, "What is Epic Theater?", trans. Harry Zohn in *Illuminations*, (New York Schocken: 1969). **26:** Walter Benjamin, "Program for a Proletarian Children's Theater", trans. Rodney Livingstone in *Selected Writings Vol. 2* (ed. Michael W. Jennings), (Cambridge, MA, and London, England: The Belknap Press of Harvard University Press, 1999), p. 202. **27:** Ibid. **28:** Ibid. **29:** Ibid. p. 205. **30:** Walter Benjamin, "Experience and Poverty", trans. Rodney Livingstone in *Selected Writings Vol. 2* (ed. Michael W. Jennings), (Cambridge, MA, and London, England: The Belknap Press of Harvard University Press, 1999), p. 732. **31:** Walter Benjamin, "Program for a Proletarian Children's Theater", p. 205. **32:** "Der folgende Entwurf umreißt eine Handlung, die in einem festen Rahmen eine Reihe von Episoden enthält, deren Kernstück jeweils in verschiedenen charakteristischen Geräuscharten besteht, die hin und wieder von Andeutungen, Wörter durchbrochen werden. In einer kurzen Einführung weist der Sprecher seine Hörer auf diese Eigentümlichkeit des folgenden Hörspiels hin und stellt ihnen zur Aufgabe, die dergestalt im Ungewissen gelassenen Episoden nach ihrer Fantasie und ihrem Gefallen sich auszumalen, die jeweiligen Geräusche dabei zugrunde zu legen und die Lösungen zur Preisverteilung and den Sender einzuschicken." Walter Benjamin "Kasperl und der Rundfunk" in *Gesammelte Schriften VII.2* (Frankfurt am Main: Suhrkamp Verlag 1989), p. 832. For the early version of the play, see "Radau um Kasperl. Ein Hörspiel für Kinder" in *Gesammelte Schriften IV.2*, (Frankfurt am Main: Suhrkamp Verlag, 1972), pp. 674-695. The translation of *Kasperl und der Rundfunk* into English is by Jakob Stougaard-Nielsen. **33:** "Nun ist er auf dem Sender. Man hört, wie er sich beim Sprecher nach allem erkundigt. Der Sprecher erklärt ihm die Instrumente und Schaltungen: Berlin, Köln, München usw. bei jeder Stadt erinnert sich Kasperl, dass da jemand wohnt, der ihn einmal geärgert hat, und er beschließt, die Gelegenheit zu benutzen, um sich an seinem Feinden zu rächen. Er fragt den Sprecher, ob man seine Ansprache z. B. nach Köln übertragen kann. Der Sprecher, der meint, Kasperl wolle aus seinen Erlebnissen was erzählen, sagt ja. Kaum ist eingeschaltet, legt Kasperl los, beschimpft den Oberbürgermeister von Köln und den Bahnhofvorstand und den Polizeipräsidenten." Ibid. p. 833. **34:** "Herein kommt der Sprecher. Man sieht, dass er sehr vergnügt ist. Er bringt Kasperl ein großes Kuvert. Da sind 1000 Mark drin: das Honorar vom Rundfunk. Kasperl wundert sich sehr – er versteht das nicht. Der Sprecher aber lacht und erklärt ihm: Kasperl, wir vom Rundfunk sind noch schlauer als du. Während du in der Stadt deine Schandtaten verübt hast, haben wir Heimlich hier in deinem Zimmer unter dem Bett ein Mikrophon aufgebaut, und nun haben wir alles, was du gesagt hast, auf Platten, und hier habe ich dir gleich eine mitgebracht. Schlussradau: Man hört eine Weile nur Sendegeräusche und dann Bruchstücke aus dem, was Kasperl eben erst gesagt hat. Zum Schluss den dank für das schöne Geschenk." Ibid. p. 836. **35:** Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility", pp. 101-102. **36:** Alexander Garcia Düttmann, "Tradition and Destruction. Walter Benjamin's Politics of Language" in *Walter Benjamin's Philosophy. Destruction and Experience* (ed. Andrew Benjamin & Peter Osborne), (London: Routledge, 1994), p. 35. **37:** Ibid. **38:** Walter Benjamin, "Program for a Proletarian Children's Theater", p. 205.

Photos of LIGNA, Radio Ballet, by Eiko Grimberg.



LIGNA

THE FU-
TURE OF-
RADIO ART:
A MONO-
LOGUE FOR
A BROAD-
CAST VOICE
IN A PEDES-
TRIAN ZONE

(The titles are not to be read. New lines and spaces indicates a little silence.)

Introduction

Hi, you do not know me, but I am talking to you.

I hope you don't mind.

You don't see me. But I am here.

Not only here. But here and there. And here.

Who am I?

Sorry, I didn't introduce myself. I am a solitary voice.

Whose voice? Nobody's voice.

We will never meet, but I will talk and you can listen, if you want to.

I will tell you something about me. I will tell you some stories. I will propose some gestures.

And, funnily enough, I will tell you something about the future of radio art.

I'm a voice. I'm a gesture. I'm radio talking to you.

Please answer.

Radio intervenes in everyday situations

Listen, listen I cannot hear you. Listen to my radio voice and answer as you like.

Some tell you radio is about communication, mass communication.

Can you hear my voice?

I am radio talking to you, but this is not communication.

Some are suffering because of that. They think radio should become communication.

They try hard. But in a way they never succeed.

I never understood why they want to communicate. Communication could be great, for sure.

But not by means of radio.

When I want to talk *with* people, why use the radio where I can only talk *to* people?

Sometimes it is not necessary to communicate.

Radio as a means of dissemination does not care about the borderline between art and social life. Considered as an apparatus of distribution, radio intervenes in everyday situations.

You might think: radio an intervention in everyday situations? How come? What does this kind of intervention mean?

Is it an intervention when I turn on the radio in my car? Or in my kitchen? I suppose, you wouldn't agree that radio is intervening in your everyday life.

I propose a simple test: When you are at home again, wait a moment listening.

Listen if your neighbors are at home.

Listen to the sound of your fridge.

Listen to the distant noises of the streets.

Walk through your flat listening.

Listen as long as it is necessary to differentiate all the tones that surround you.

Then please turn on your radio.

Listen to the radio for some time. Listen to the sound of the radio.

Walk through your flat and keep listening.

Change the frequency after some time.

Listen to the noise of the radio.

After a minute or so turn the radio off. Listen again.

How would you describe the difference?

I would say, as I said: radio intervenes in everyday situations.

It produces a difference, its sonic waves are changing the space.

This reminds me of a text Günter Stern wrote in 1929.

“It was radio that first radically destroyed the spatial neutrality attributed to music. You leave your home, the music from the speakers still echoing in your ears; you are inside it – it is nowhere. You take ten steps and hear the same music coming from your neighbor’s house. Since music is here as well, the music is both here and there, localized and planted in space like two stakes. But they are both the same music: over here X is continuing along with the same song he started singing back there. You walk on – as you reach the third house, X keeps on singing, accompanied by the second X, with muted background vocals courtesy of X in the first house. What makes this so shocking?”

Radio is infiltrating spaces with uncanny duplicated voices.

Radio is opening a ghostly space.

For sure, this dispersed space is nearly forgotten. Nobody cares anymore, nobody is shocked anymore, radio has become part of the normality of everyday life.

The ghostly quality of voices is banned with simple means. Most radio programs are repressing the ghostly quality of radio.

Private radio stations play music – music their listeners would like to listen to.

They play commercials – most listeners laugh at radio commercials, but they accept them as a necessary part of radio.

When you turn on a private radio station at home, your private space is commercialized.

You accept that radio is a market place, in which your awareness is sold to companies.

You are walking on a market place.

The ether became a market place too.

Today the shopping streets are turned into a place for the dispersion of radio.

My voice cannot be sold.
I am not a commodity. I am a constellation.
I would like to become an association.

An exercise

Listen to me. Please stop for a moment.
Stop going. Please wait for just a moment.
Listen to the sound that surrounds you.
(Silence)
What can you hear?
Please wait another moment and try to listen to what you can't hear.
(Silence)
Thank you for listening.

Distribution and gathering

Radio addresses people not as a gathered mass, but as dispersed individuals.
Radio listeners are always dispersed all over the city.
I don't know where exactly you are listening to me.
A demonstration has a certain power on the street. People are gathering, shouting what they think, what is right or wrong. They stop traffic.
You are walking in a pedestrian zone. There are no cars, there are no gatherings.
But you are here.
Hi, how are you?
A gathering appropriates public space for a while.
A gathering changes public space into a contested political space.
Sometimes the banners remind me of commercials. They are advertising another world.
A world without commerce, without advertising. With their banners they are competing with the ads of the commercial world — and they always lose.
Why did they lose? I don't know. There are so many reasons. Perhaps because they only proposed a "better fetishism" instead of getting rid of fetishism. And I have to admit that I think there is no better fetishism than the fetishism of commodities.
It is a dispersed fetishism. It is everywhere. It is always there before You are there.
The power of a gathering seems always weak compared with the power of the dispersed mass of consumers.
Yes, I am talking about you.
You do not have to be mobilized.
You are here.
I do not know why you are here. I don't want to know.

I just want to say that you have a great power. On the one hand you have your own aim, but on the other hand the same desire is driving each of you: consuming. I do not know what you want to consume. Perhaps some shoes. Perhaps some images. Perhaps the city itself.

You always get what you want, don't you?

Your power is the power of all dispersion — it cannot be grasped but it is a force, a driving force.

But still, there are desires that are more than an economy of commodities can grasp.

The desire of a dispersion, a dissemination that cannot be exchanged.

The desire of an endless appropriation, a desire not to turn everything into property.

Look around you:

Can you think of different ways of appropriating urban space?

What is possible in the space around you?

What are the limitations?

What would you like to do? Don't answer too fast. I can wait.

(Pause)

Hey, what keeps you from appropriating the commodities around you without paying?

Why don't you give something you like to someone you don't know?

Whose voice

Hello, can you hear me?

I'm talking to you, whether you believe me or not.

You shouldn't believe me, because my voice is not here or there, it is everywhere.

You can't see me. When my voice is audible, you are listening to a strange materialization, as strange as the electromagnetic invisibility of my voice. Perhaps. Perhaps the materialization is even stranger. You hear me, but I am not here. I am everywhere. And I am one, two, three, four, five... I cannot count how many voices I am.

Me, my voice. I am dispersed — my radio voice is not my voice, if you know what I mean. But then — what are you listening to? My voice does not belong to me. My voice is not my private property. But at the same time it belongs to nobody. It can never be property. It is not like the commodities that you buy.

But it can become yours as a gift.

Even then it is not your voice. It is not private property. It belongs to nobody.

Sure, you can tape my voice, you can play it endlessly, you can bootleg this voice. People do these things. But the voice as a radio voice is more than a taped voice, it is a broadcast, dispersed, an electromagnetic voice. It is more than any recorder can record. It is more than a single person can

grasp. It is not ONE voice that could be recorded. It is one voice in a plurality of uncountable situations.

Constellation

I am dispersed.

Radios are broadcasting the voice.

The voice is received by a constellation of listeners, an existing but invisible constellation.

A constellation of pure coincidence.

You are one of the listeners.

Raise your eyes for a moment. Take a look around you. Can you see others who are listening as well?

Don't be shy. Maybe you would like to signal to each other?

Just wink or wave.

Say hello.

Hello.

The broadcast is not one constellation, but many constellations.

The radio voice only has impact in constellations.

Future radio art has to deal with these impacts.

The constellation of listeners could be transformed into an association.

An association has unpredictable impact.

Control

Radio can be something scary. It is a production where you never know what it produces.

Something is happening at the same time at different places.

I cannot control the impact of my voice.

It happens because my voice is dispersed.

Whose voice? Nobody's voice.

I do not know how it sounds. It becomes audible.

It may sound different at every space where it is received.

Sometimes silly, sometimes sad — I cannot control it.

I cannot be everywhere where my voice is. I cannot control the effects of the voice. And I don't want to control its effects. I don't like its strange sound but I like its uncanny impact.

I just want to say something to you, something you might ignore.

Consider this: We are living in a society that attempts to control every situation.

I am not paranoid, it is not a question of paranoia to see how the control is developing.

This society is turning paranoid — thus everyone seems to accept that control is a very normal thing, that it is ok for instance, if in every shop customers are controlled by video surveillance.

The fear of the loss of private property is stronger than the desire to act

without surveillance. We think that it is safer to be under surveillance. We think that it is nicer when all situations are controlled, don't we?

But who are "we"?

Please stop again and take a look around you.

Look who is here and who is not here. There is nobody missing, you might think.

Nobody.

Do you see someone sitting on the ground? See any deviant behavior? Any poor people here? People who don't have the money to buy the goods available in the shops?

Walk on. Walk on.

Dispersion

I don't see you, but I know what you are doing.

You are walking in the city.

Sometimes you stop in front of a shop window.

You take a look at the goods that are presented there.

Commodities from all over the world are brought here.

They have been distributed to these shops.

You are distributed like the commodities in the shops.

You sell your labor power like a commodity.

Some of you still have to learn how to become a commodity.

Sooner or later you will.

Can you see your image in the shop windows?

You are dispersed like my voice. But fortunately enough, my voice is not a commodity.

You cannot pay to listen to my voice.

My voice can be dispersed but it cannot be exchanged.

You cannot buy it.

You can listen to my voice. My voice is in your ear.

I am talking only to you.

You don't have to listen. But you have to know, I will follow you.

You can ignore me. But you should know that I will still be there sometimes.

On the street

You believe you are walking down a street. And you are.

Look into the window of the next shop.

What do you see?

Clothing? Shoes? Something specific to this city?

Please stop for a moment for a question:

What is specific to a city? The buildings? The people? The way they talk?

Their unheard voices?

I am asking you: What is specific to a city?

This is not a multiple choice test.

You can answer now. I am waiting. Say it. Say it out loud.

Now walk on. Observe what is specific to the specific street you are walking on.

Take a look at the ground.

What do you see?

Gaze into the sky.

I am not sure what you see.

Communication

We are living in a world where communication has become one of the most important issues. The means of communication have been more developed than a lot of other means. Nearly everyone in this street and everyone who is listening to this program has a mobile phone. There is a desire to communicate every moment, a desire to be understood in a world we don't understand.

I do not want to be understood.

But I can be heard. I can only be heard as a distributed voice.

I do not care, because I don't know what happens to my voice.

That does not mean it doesn't matter. On the contrary.

Because it matters I do not care.

This is the responsibility of my voice broadcast in this program.

It is the responsibility of each single voice that is played on the radio.

Each single but the same voice that you can listen to.

That — in my opinion — is what communication is about.

We cannot understand each other — but it matters in a way you never know.

In other words, it is not communication that matters but distribution.

Communication nowadays is defined as exchange like exchanging goods.

Speech is like a currency. Everything can be exchanged. You can exchange any sentence for any other sentence — its matter doesn't matter.

I am talking about the future of radio art.

Talking matters.

But not as talking. The situation of reception matters.

Radio is about these situations — uncontrollable situations.

Is there good reception today?

Since radio intervenes in everyday life, this is the decisive question for a future radio art.

Is there good reception today?

Another exercise

Please listen.

I have a question I cannot answer myself.

What difference does it make if I am talking or if I'm silent.

(Silence)

I repeat: What difference does it make if I am talking or if I'm silent.
(Silence)

I repeat: What difference does it make if I am talking or if I'm silent.

Radio art

I do not know what kind of radio you are used to listening to.

I suppose you are not used to listening to free radio not to mention radio art.

There is a desire to broadcast without paying money.

Radio that cannot be exchanged. Radio that is not a commodity.

An appropriation of the ether for moments that were unforeseen and unpredictable.

There has been a lot of struggles for this desire of producing radio collectively.

You will not remember. It is a nearly invisible history of struggles that took place.

Most of these struggles were lost in the long run.

I am not melancholic, I mention these struggles because they are not over, not past.

That you are listening to my voice will become part of these struggles.

Private property

The ether is sold. This means that the ether is controlled.

It has turned into private property. Private property is the best means of control.

Private interests defend their property against all who are excluded by the pure fact of this specific property. Thus the world we have to face, the state apparatuses as they are being transformed right now, is a world where everything belongs to someone. Everything is a commodity to be exchanged. Everything but my voice. It belongs to everybody and therefore to nobody. It does not belong to this world. Listen carefully: My voice is an alien voice. It's why the ether has to be controlled. My voice is here. Here and there. It is possible.

But not for long. And only as the future of radio, the future of radio art.

Someone has paid so that I can talk to you.

As long as I can talk, I ask myself: is an appropriation possible which is not appropriating for instance the ether without turning it into private property? This question is haunting me. You see a world where everything is appropriated by someone: a private person, a company, the state. For me this is a ghostly world, haunted by the fear of loss, exorcising the materiality of the world, that cannot be owned — voices that cannot be owned — exorcising the materiality of distribution, dispersion. Obviously there is something that is too much to bear, because it finally cannot be appropriated.

Voice

I am my voice.

I am my voice.

No, I am my voice.

Don't listen to the other voices.

Listen to me. Only my voice is my voice.

You understand? The other voices are frauds.

My voice is the only one.

The future of radio art

Radio blurs the boundaries between the social and the aesthetic.

Thus radio art is never pure aesthetics when it is meant for radio.

Radio art is always already politicized.

Radio art — when broadcast — exceeds the limitations and controls of the art world. It will always find its way into ears that don't understand it as art.

The future of radio art is that of an uncanny medium sans future.

For me the future of radio art haunts the presence of the voice.

Future radio art takes responsibility for intervening in everyday life.

A future appropriation that is never becoming a present property.

The utopian promise of radio art lies in the fact that the future of radio will be beyond the control of capitalist economy

— it will always be uncontrollable.

Repetition

Excuse me if I repeat myself.

I don't know if I've made myself clear.

You are listening now to a repetition.

Hi, I am talking live. I am talking only to you.

Now I am talking to you but it is only a repetition.

Not only, but more than one repetition.

To be honest, I don't mind repeating myself.

I like it.

I am radio.

Achim Wollscheid

— CAR-
RADIO
— CONTEMP-
PORARY
MUSIC*

Actually there were no obvious reasons to develop a car-radio in the early 1930s. The radio in terms of an established element of public life had not even completed a 1-year cycle and many parts of the German map were still without signal reception. Although the automobile had indeed overthrown the carriage in the urban centers, the transformation of the old paths into ones fit for the new means of travel in traffic-technical terms was nonetheless a slow process, also with respect to the economic crisis at this time. The streets were still paved with cobblestones and the automobiles fitted with leaf springs — obviously unsuitable grounds for a “Superhet” valve receiver of 1932.

Amongst all the Superhet receivers there is one automobile receiver that is actually very interesting: it is supposed to be securely installed in the car. The actual receiving apparatus finds its place in the dashboard, while the control knobs are mounted in a small mould, which is affixed to the steering wheel. The electric supply for this car receiver, manufactured by the Ideal Company, is taken over by the starter battery found in every car. In fact, the anode tension is extracted from a small dc generator of which the motor is powered by the starter battery.

In that form, the report from “Funk” magazine is rather a documentation of the progressive tone of the press in those days as opposed to an actual report on the newly invented appliance and its birth pangs. The appeal of novelty, at the same time also the source of the relevant problems, emerges through the combination of systems.

The automobile, in itself already an assembly of mechanical and electric functional units, has a further electronic unit either implanted or wedged in, as you wish. The car-radio consists of the control segment, which in turn is a switch box mounted next to the steering wheel, connected to the receiver by a shaft, a separate power supply that covers the considerable power usage of the appliance. And a larger loudspeaker box is affixed to the ceiling or rear of the car, as well as the antenna, which is a system of wires either secured to the interior roofing or underneath the running board. Not only does the installation of the various units create relevant problems; the spatial requirements set by a receiver of over 10 kg in weight pose a few alterations on its own, when every individual unit influences the other in its function, mostly in a none too positive way. Thus, the transformer which functions as the essential part of the power supply can impair the reception in just the same way as the non-impaired car battery or ignition device. Further, strong fluctuations of the receptive tension in the antenna are added to this interference specific to appliances, quite apart from the fact that the power supply needed by the receiver does not permit a nocturnal usage during the use of head lights, over longer distances. In short, the already very limited reception within the spectrum of medium waves leaves a great deal

to be desired. And what could one, in accordance with the reception, hear in the car? "Radio Frankfurt," which began to air in 1923 with a three-hour cycle, has continued to provide a full-length day- and night-time program since the 1930s; in the anticipation of today's plurality it offers an assembly of light and diverse classical music, up-to-date news and press coverage, as well as political, philosophical, and literary contributions. Radio pioneer and director of Radio Frankfurt until 1933, Hans Flesch (who died in the holocaust) has written in his "Programmatic of Radio" from 1928:

If one should observe, in retrospect, the developments which the German broadcasting programs have undergone since the beginning, one can differentiate between very specific periods. During the very first phase one might speak of a direction, if the word can be applied in this instance, of an instrumental or experimental direction. An utterly new instrument was put into the director's hand, no one knew anything about this instrument except for its physical forms and pure, actual effects. This did in actual fact suffice in the face of the audience, the listeners were thankful for every sound, every word that they perceived, irrespective of when and how they perceived it as long as they had a reception. It can be said in honor of German broadcasting that no station abused the audience's gratitude, but rather attempted everyday to give the presentation a form and content, from the first day onward. A natural consequence of the rapid expansion in quick succession was, first, that in the sense of the German saying, "He who delivers amply will provide for a few," too much was done. The endeavor to be versatile did from time to time affect the quality, yet soon one remembered that precisely the source which had brought broadcasting to life technically had emphasized from the out-set that the level is decisive and one returned once again from expansion towards the content of the program.

Meanwhile, the debate on the political and social function of radio continued in full force, in regard to the effective delegation of radio technology, which played an important role in the domination of airspace during the First World War for those systems of social control. Who controls whom? The formulation of the question is imposed particularly on those who approach this from private enterprise due to their occupation, and wish to make products known to the public, which aren't necessarily of an ordinary nature. Progressive artists at this time who are, on the one hand, quite fascinated by the publicly effective function of the new medium do nonetheless realize that a competition is arising that is hard to overcome by the emergent radio monopoly controlled by a small group ranging from the apolitical to the conservative.

And in order to now become positive, that means to run to earth that which is positive about broadcasting, a suggestion toward the alteration of the function of broadcasting: Broadcasting is to be transformed from an apparatus of distribution into one of communication. Broadcasting would be the imaginably greatest communication apparatus of public life, an incredible channelling system, that is it would be one if it could not only send out but also receive; thus, not only to make the listeners hear but also to speak and not to isolate them but rather place them in relation. Accordingly, broadcasting should resign from the realm of supply and ask the listener to be the supplier. Therefore, all endeavors of broadcasting to really give public affairs their character of publicity are absolutely positive.

Yet such protest composed in suggestions, in this instance, the well-known thesis of Bertold Brecht, comes too late. Media technological and political powers have already come to an arrangement. The Weimar Republic government, riddled with crisis, did not see itself in a position to correlate the previously established broadcasting corporations under the political leadership of the "Reichspostministerium" (German Reich Post Master General) and instead granted territorially limited broadcasting licenses at the beginning of the 1920s. The broadcasting corporations got their revenge by a formal participation in municipal and regional political functionaries.

What does all this mean with regard to a point of view that does, after all, claim to pursue the relation between car, radio and contemporary music? Apart from such applied political control, the research in electronic media was still able to support itself through a multi-faceted and intense interest in technical innovation, and this research does definitely incorporate contemporary music. In 1928 the so-called Radio Test Station was opened in the attic of the Hochschule fuer Bildende Kunste, Berlin (University of Plastic Arts). It existed until 1933 under the guidance of the musicologist Georg Schuenemann. Tolerated and at times fostered by the liberal head of a section within the Ministry of Science, Art, and Education, Leo Kestenberg, the Radio Test Station set itself the unique attempt at coordinating artists, industry, and technology for a kind of concentrated action in such a way that not only would knowledge be conveyed, but a real transformation of the form and content of this conveyance would take place. The courses offered were complex and heterogeneous, which included elocution lessons for prospective radio commentators —

Progress report: On the assumption that only well-educated, modulated voices, belcanto, can be successful in radio, because all other hard voices are unattractive, or at least uninteresting on a long-term basis, I have paid closest attention to the care of the belcanto. Yet, as is well-known, this is a most difficult field. True belcanto singing has virtually

disappeared through the dramatic music of Wagner, Strauss, and modern music and their demands on the voice. Belcanto requires a special care of breathing, i.e. belcanto singing is absolutely dependent on correct breathing. Thus the care of breathing skills was nearly the main objective of the first term of my teaching activity, this being divided into, first, breathing exercises without singing and, later, application of breathing during singing practice. The lessons are particularly difficult to give because first, the voices are primarily ones which have been “desung” and, second, the singers are mostly actively pursuing jobs and the class is particularly filled to capacity. (Seidler Winkler, Taetigkeitsbericht)

There was research into the production of electronic music instruments (which shall be elaborated in the following), composer training in dealing with the new media “radio,” various experiments, possibly in the visualization of sounds by color (perhaps one is thinking of a technological realization of Kandinsky’s theory of color developed at the Bauhaus), and courses in composition for film, which by the way, were given by Paul Hindemith who moved from Frankfurt to Berlin. In representation of the open and unusual handling of the medium with regard to composition classes the composer Max Butting made the following comments:

Only a very general schedule was given, prior to the start of the course, as I had to first gather experience due to this being the premier course set given by myself. The general schedule basically included the following, in chronological order: a short discussion of the technical conditions from the point of view of the musician, and talking over the tonal, formal, and rhythmic problems. In the first part, as many as possible “Funkstunde” (Radio Hour) performances were listened to and consequently reviewed in great detail. Furthermore, one group of participants listened to concerts in the auditorium which were broadcast by the “Funkstunde”, while others listened to the identical broadcast over the loudspeakers as well. Relatively little was said about the question of the musical composition and its graphic quality during transmission. In contrast, a few orchestral scores were discussed in great detail, records listened to and in part, fundamental stylistic questions raised.

A few of these points deserve a more detailed consideration, although one should put emphasis on the changes of perspective and attitude brought about by the composer and caused by the transformation, which cannot be denied, of musical performance by the technically imperfect medium of radio. The listener, through his aural orientation, is shifted into the center of attraction and thus also influences the attitude towards the composition.

The composer, whose audience is not the assessable mass in the concert hall but rather the vacillating, inaccessible size of radio-listeners in their private state of seclusion, eavesdrops on the loudspeaker of the radio appliance in order to at least regain a bit of that which used to be an everyday occurrence: the immediate connection between the production of music and its tonally unfeigned reception by the listener. Very simple questions suddenly open up great problems: Is it permissible to change instrumentations of classical pieces for a radio broadcast? Can one, for instance, replace a double bass of which the frequency cannot be transmitted by medium wave receiver or loudspeaker with a banjo? Should one, if possible, do without the performance of classical pieces and predominantly broadcast new compositions that conform to states of radio frequency in their instrumentation, such as Hindemith's "Kleine Stuecke fuer Radio" ("Small Pieces for Radio")? Does one, in order to secure at least a fraction of the audience reaction, require a special radio didactic, which suggests certain habits of listening to the audience, in conjunction with information on the implications of the new technology? All these questions were debated during the five years of the Radio Test Station's existence, accompanied by technical developments such as the Trautonium, one of the first electronic music instruments named after the constructor, the engineer Friedrich Trautwein, who was also active in the Radio Test Station. As a musical instrument, the Trautonium was the logical consequence of the need to correspond a new technology of transmission with an equally new instrument of production. This forerunner of today's synthesizer, made famous by the composer and Hindemith scholar Oskar Sala, was perfectly suitable for the staging of parallel worlds after the closing-down of the Radio Test Station in 1933, be it to serve as the acoustic accompaniment to the Olympics of 1936 or, the most well-known example of its application, as the unit for the creation of sound-effects in Hitchcock's film "The Birds."

A rethinking of the composition and its transmission took place according to the protagonists of musical events at the time: in Eissler, Weill and also Hindemith, far-reaching perspectives begin to emerge, yet all this already during the indication of their looming disappearance. In 1933, after the take-over of power, the new National Socialist government not only placed the individual and, until then independent broadcasting corporations under their control, but the administration in the academies was changed, including Berlin, and the Radio Test Station went into liquidation. A short-lived golden era set in for the automobile and, of course, the radio. The previously disruptive complexity and uncoordinated contemporaneity of these technical developments were corrected centrally — the automobile was promoted from a luxury item to a Volkswagen and the people to a united audience. Up to then progressive experimental developments, reliant on technical innovation, had not allowed themselves to be condensed into a single whole by those of a conservative centralist nature. The

Nazi take-over in Germany, however, marks the historical point at which relations amongst media and thus also its structuralization of their relevant contents was determined.

1933 also describes the point in time at which two strands became unlinked: many composers, chiefly those open-minded with regard to new techniques, began working in the newly created medium of “sound-film” and were thus able to aid the survival of methods of classic instrumentation and composing through to the post-war period, while the academic production of music – saved from the compulsory pause during the war – consequently left itself more and more to the exclusive reflection of its own means and methods.

The resulting paradox lies in the fact that with “sound-film” composers react to the entire complex “music film technology” in a technically competent manner, despite their musical system not being allowed to revolt accordingly, whereas the composers of academic Modern Classical (in German what is referred to as “Ernste Musik”) promote the internal technical and methodical development of their music, and are yet continuously marginalized by the systems of mass reproduction. Film-sound, technically and progressively connoted by the newness of film, remains mostly conservative, presuming that one keeps these assessments in line with the terminology and discourse of the theory of music.

Synchronicity of historical development in differing technologies does in no way suggest their fundamental linkage, but still it does sometimes seem appropriate to seek them in associations. The fact that music, being an accompaniment, appears in the same instance as the receiver appliance in the car comes as no surprise: in both cases scenarios in motion are offered to the de facto seated individual that are connected to a musical accompaniment or heightening in stimulation. In film, as well as in the car, individuals are confronted with the consequences of a world in motion, which is basically unaffected by their decisions, and they can only make wild guesses at their future development. The uncertain point of “now” at which the audience and the driver find themselves, experiences a succession by the musical function of rhythm, and a short-term incorporation in the area of visionary premonition and retrospective reverberation by harmony and melody. Does the driver drive? Or does he not instinctively accept the system directly surrounding him as being stable, and on the other hand regard all others as being unstable? Perhaps the state of these assessments varies; in phases of acceleration the feeling of being moved might dominate, while during longer passages, especially on motorways, that of stability might dominate in turn. We drive and turn the radio on: this mobile, and yet at the same time stable system now glides within a space of moving sound that is nonetheless fixed, provided that no broadcasting interference or shift in frequency reminds us of the brittleness of the relationship. The transmission area is above and in us, like a sphere that is tendentially of an

infinite expansion. Perhaps that is also the source of our dissatisfaction regarding the breakdown of such a connection, however short. It destroys this second space and throws us back to the "now" point of our position.

So there have been musical forms produced in the last few years, that are far removed from the patterns of the dramatic final form, that are not aimed at either the climax or at prepared and thus expected multiple climaxes and the usual stages of introduction, escalation, transition, and subsiding do not present a curve in development with respect to the entire duration of the piece, that are immediately intense and try to maintain a constant and present level of continuous principality until the very end, in which one can expect a minimum or maximum at every moment and one cannot predict a direction of development according to the present with certainty, that have always started and could continue infinitely in this way, in which either every present counts or nothing at all, in which every unremitting "now" is not seen as a mere result of that which preceded and prelude to the expected, but rather as personal, independent, cantered and which can hold its own and always contains the whole as a solitary. Forms in which a moment need not be bits of a chronological line, a moment not a particle of a measured off duration, but rather in which the concentration on the now makes vertical cuts in every now so to speak, that penetrate a horizontal idea of time diagonally to the extent of timelessness, that we call eternity, an eternity that does not begin at the end of time, but is accessible in every moment. (Karlheinz Stockhausen, "Kontakte")

Given that the relation between the driver and the broadcasting continuum works, then the freeing, technically-converted impulse of movement in driving corresponds to music released from its spatial confinements: *Love is in the air*. Space and architecture of the city, or that of nature, becomes the scenario through which a different music or another text is relevantly projected after the movement of one of the systems.

Yet let us return to the development of the relation between car-radio and new music in their historical sequence. The Second World War provides a commonplace, registered by the technical advances of which the costs can be measured proportionally by the extermination of human beings. Automobile and radio technology made great leaps forward in development. Germany not only lost the war but also, for the time being, its position as a competitive cultural nation. Technical and cultural preponderance shifted to the North American continent, where the cultural avant-garde had already begun to gather even during the war. The United States, the "car-country," from now on not only provides the models of the techno-imaginary according to which the fantasies of progress materialize; these models also simultaneously determine the structures in which they shall be dis-

tributed in a market-technological manner. In the United States the radio is a car accessory and thus a status symbol: depending on the size of their wallets, buyers can choose among various models for their car. On the part of the manufacturer, of both car and car-radio, this requires a certain standardization with regard to the dimensions and control features. The German industry adopted this model and began producing car-radios with sale- and assembly-friendly dimensions as well as fixed station buttons in the 1950s. Cooperating with the car manufacturers, they succeeded in providing the radio as a set with the relevant attachments for the car make. The establishment of the car-radio as a consumer article thus began at the same time, 1951, as German television was launched. At this time, during a phase of extremely lively economy growth, this successor to the consumer's favorite became unpleasantly apparent as a competitor. The sale of car-radios only kept a slow pace with the general economic development and finally began to adapt to the trend of the rapidly climbing sales figures for new cars towards the end of the 1950s.

Regarding the production of sounds, the post-war period has another aspect to offer. Developed for the use in intelligence service recordings and applied sporadically before The Second World War in entertainment films – “Wir machen Musik” (“We do music” a popular film-musical) – in the form of a sound recording device, the magnetic tape recorder succeeded in becoming the essential instrument for radio and composition work. Recorded music or voice can be conserved on a long-term basis, can be cut, mounted, and erased. The tape not only makes a reflexive but rather pragmatic constructive approach to the problem of time in composition possible, be it in the form of a monitor or control panel to verify conventionally played recordings or as an actual instrument of production for collage or montage in *musique concrète*. Once more a gap is opened: on the one hand, new technology can be used to plan chronological sequences in reproduction in detail and on a long-term basis, as well as cutting each article to the required length, such as for a radio daily where the chronological arrangement and control of the reproduction is able to be designed in a more efficient way. On the other hand, the problem of time relations poses a problem to composers not only within but also beyond the context of composition: the possibility of storing single- or multi-layered tones provokes the question of legitimating a sound event within a chronological continuum, when the search for alternatives to the familiar chronological continuum begins to be abstracted from melodic or harmonious successions.

Two positions begin to contradict each other: the newly gained effectiveness in storage and organization of time within the framework of transmitting activity is hardly compatible with the demands of the composition, which takes the arrangement of precisely these problems of storage and organization as its theme. Those who ask about the reason for the “when” of an occurrence cannot leave the “where” out of consideration. Technology

in the 1950s and 1960s can also offer an appropriate device for this conceptual nexus. The technology of amplifiers, which arose in conjunction with magnetic tape, is not only able to disconnect sound from the given scope of the dynamic by the nature of the production element, but single events can be dislodged, i.e. delegated to different places with varying intensity. Loudspeaker, amplifier, and diverse electronics make their entrance into concert halls, and variation and three-dimensionality of sound events become the governing theme in music production. Fanning out, dislodgement, sounding out of the variations through experimental music — concentration, pass, and direction adjustment on the part of radio: the introduction of printed conductor plates (instead of platinum being soldered row by row) makes the radio a great deal smaller. There are now final transistor positions instead of tubes, the performance requirement of the devices is lowered, and amplifier performance and quality of reception increases greatly. The automobile industry has also adapted to the suppliers of accessories and offers perforated loudspeaker openings as a standard feature. The sound comes toward the driver in mono-phone from the direction he is facing; in front is where it sounds.

The need for mobile sound service does not stop with the car. Dual receivers, to be used as a portable radio outdoors and as a device to be inserted into the car, are the bestsellers in the early 1960s. The users must not leave the protective sound frame, according to the ideal of mobility, even when exposing themselves to the visual challenge of the pleasure of the people: "open-air swimming pool." Thus, a formulation of a variable social sound sculpture depending on the number of radios can absolutely arise at bathing and outing resorts. The newly developed transistor-radio, be it in the form of a dual device or a portable, not only transports itself as a paradigm of mobility, a content and a form of movement typical of the time are also included in rock'n roll: singles instead of long-playing records, Radio Luxembourg (the first post-war German-wide broadcaster to play Jazz, Swing and later pop music) in the student dens, and music which, as opposed to white swing, which still dwelt on the symphonic ideal, already shifts scopes of frequency during production, which the transistor-radio will hardly restrict later on. Elvis doesn't lose anything on radio, on the contrary, and the consumer decides. The light music industry that expanded into a big industry during Beatle-mania, at last, uses radio as a simultaneous advertising medium and station for free consumer tests: radio acceptance in mass means proof of selling success. Thus, radio reaches its most authentic sound in the short time span between the end of rock'n roll and the introduction of stereophony.

As a materialization of a proclaimed promise to be allowed to move freely in the new world, the automobile was not only an indicator but an actual center of a mobile life, well into the 1970s. Perhaps it doesn't come as such a surprise that the first shadows are cast on precisely this promise as

soon as the insights of new music regarding the three-dimensionalization of sound are reflected in home electronics. Stereophony and partly even quadrophony, makes its entrance into the living room as soon as the scope of movement begins to narrow on the streets. The democratization of transportation, in other words: the handing of responsibility in individual transportation by means of a consumer item over to the employee, does not only lead to the partial congestion of the streets but generally to a mono-culturalization of the transportation system. At the same time as the relation between urban centers and the suburban peripheries begins to dissolve, the paths that aim for efficient means lose their function. Everyone has suddenly got to go somewhere. The systems of conventional traffic control lose their effect. That is why the car-stereo, at the instigation of the manufacturers, is additionally equipped with the function of "radio traffic service" in the new and, meanwhile, very common form beginning in 1973.

The psychologically stabilizing relation between the continuum of both sound and motion is unpleasantly disrupted (due to development) by the increasing indication of the location at which one should not be, so that the previous tendentially limitless sound space is specifically "dislocated." This development deserves attention, specifically because for the first time in the history of the medium of car-radio, manufacturers influence the content of a program via technical as well as political measures. The re-modulation of a special sender-frequency identification for the intra-German VHF (FM) station networks not only meant a collaboration of radio and car manufacturers, but also united the responsible authorities and broadcasting corporations. Since this revival of the old air pilot-radio system, the driver is not only seated in a bucket seat but also in an information loop. At the same time, the driver also participates in the creation of conditions, of which he is directly informed of their possibilities of change: a race for the respectively better, i.e. the latest information in time. The aim of this information is the reconnection of the drivers from swarms to processions – instead of flooding and thus blocking the streets like an amorphous mass they line up one after another. Further, due to reasons of the more satisfying investigation of input, large-scale attempts are currently being made, on particularly tailback-prone motorway sections, to conduct traffic-flow speed controls in order to pass these back directly to the drivers via the radio traffic services head office. Those who want to stand still, should also listen to this: the car-stereo as the reinsertion of time. Thus, the slowing down and increasing of traffic results in the regaining of one's own perception of the movement factor, although as the result of its hindrance: which reality is created thereby? The time spent on the streets increases on a user average. The familiar stereo sound from home is transposed. The reversal of proportions: if in the past, the sound which was enriched by motorized mobility prolonged the movement into the open air by means of the transistor-radio, then the endangered module of movement, the "car," becomes a "hortus

conclusus" due to the transferral of three-dimensional radiation of sound. That which sounds is increasingly more dependent on *how* it sounds. The designed casing becomes the tonal body to the same extent as the interior insulation against engine noise and de-droning of the bodywork continues to succeed in lowering the noise level inherent to the car. The loudspeakers, having meanwhile grown in perimeter, number, and potency, do not fit in the middle shelf or dashboard, but are situated in pairs, in the side covering, doors, or rear compartment. Be it the boom-box on wheels, the luxury class mobile with a suitable sound coordination, or in the Honda Accord with a CD changer, the radio is suddenly part of a sound apparatus which regards the entire interior of the car, including the trunk as a co-productive sound system. Sound, which has been three-dimensionalized by studio technology via the panorama of stereo, loses its borne perspective: the music doesn't come from in front anymore, but is elevated to a position of all-around presence. The quasi-unreal situation of car listening is enforced by frequencies being audible due to the material and form of the interior that no home stereo-system can reproduce. Synthetically produced sounds (under 20Hz in range) are converted by the reflection of material in such a way as to smudge the borders between hearing and feeling. The tendential canning in the hortus conclusus of the sound pulse suggests an addition to the instrument of regression, i.e. the "car" is made apart from the usual oral objects: cigarettes, potato chips, or candy being an added aural dimension. This is equal to the visual or kinaesthetic dimensions, providing that one bridges the causal gap between the possibilities in acoustics technology and its optimal stimulation by music produced for or, better still, by this. Why is all this being asked? The relation between the car, car-radio and contemporary music cannot be explained. The possibilities of mutual relation can be outlined, yet the question of why hearing contemporary music in the car is an exhausting and quite unsuitable undertaking cannot be answered. Perhaps the complication of the relation between the varying systems of information is founded on the fact that the conception of contemporary music is ushering in the problematization of their prerequisites ahead of precisely the point at which technical development, accompanied by a feeling of security in its achievement, has reached a restful point. At the time when the car-radio system arrived at its most minimal measurement, during the late 1960s and no notice was taken of the acoustic space of the car, contemporary music pushed its research into the meaning of spatial acoustics for sound and composition further. Today, due to the tonal body of the automobile having been deduced and in its ability also to withstand extreme dynamic pressure, the dimensions of silence are being studied, at least in the continuations of Cage and the New York School. The car-stereo, meanwhile not being just an accessory, but rather an essential selling and buying point for the automobile, has attained the character of an on-board instrument — and also perhaps as a kind of complexity-surrogate inside the car, that still

imagines its complex technical and economic implications to be of a simplicity that is based on mechanical ideals. One could possibly refer to the connecting structure between the creation of sound-film and the first sighting of the car-radio; in any case it does appear that contemporary music heard in the car is best when it is based on an intermediary concept. Such music, which owes its fundamental compositional characteristics to the observation and paraphrasing of technical processes (for example, Steve Reich's rhythm structures which shift in parallel according to each other or those systems of his colleague Phillip Glass, which can easily be applied to film or scenic representations) seem to be favoured with regard to receptivity in the moving automobile, as opposed to so-called "autonomous music". The way in which music, the tonal space "automobile," and its surrounding conditions will develop can only be presumed. Should one suppose a linear course of development, then the car will become a partly electronically remote-controlled system and home- and car-stereo will increasingly go their separate ways; the technical development will force the pace of popular music events, and perhaps the composers of contemporary music will one day be aware that car-radios do exist.

Postscript 2006

Re-reading and re-editing this text twelve years later necessarily means to question its relevance – and the direction that the argument has been taken to. The focus back in 1994 was primarily on how technical conditions form, define and express a techno-social context. Today I would shift that focus to emphasize or highlight the role of reception/production on part of the listener. To understand the listener as a co-producer means to question the function of the "social" – be it in terms of space, of interaction, or of a political scenario. In other words – instead of asking what the artist's production (i.e. "output") is about I'd rather ask for the conditions of an "input": in a way that conceives of the artistic work or experience as an active collaboration between artist and listener that takes place in a definable space.

Listening is a production that creates space. Of course the artwork plays a role in this production – a role that I'd circumscribe as a "function," a catalyst maybe that sort of stipulates the activation of space – space in that sense rather connoting a consciousness of presence (of time and being) than a three- or four-dimensional construct, rather a socio-psychic than a physical experience (of course these factors overlay and can't really be separated).

In 1994 it was not yet clearly foreseeable to what extent the Internet would actually influence or even dominate today's notion of what we consider to be a medium. I think there are basically two modes to judge it: to see it as the expression of a development that (for good and for bad) erodes all the hierarchies that once created "sense" (in terms of more or less fixed

frameworks that guaranteed reference) or to see it as a means that re-defines our modes and notion of communication — a medium that is accessible everywhere and can (within limits) answer, when it is addressed. In the latter sense the multiplying of “outputs” (for example, the thousands of Internet-radios) can result in a likewise multiplying of inputs — the more specific the relation, the more chance for exchange. This exchange can lead to a growth of control (via collection of listener profiles for example) but also to an intensifying of interactivity in case the technical set-up allows for it — like with set-ups based on real-time sound production and transformation. Given that radio can gain features (or take the role) of a real-time transformer, it’ll allow listeners to input and receive at the same time — to feed back within the given moment and situation. The cycle closes — we return to the Brechtian concept of the radio as an open communicator... This of course only referring to a stationary use of the computer — what this will mean in regard to the production of space within cars is now an open question.

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This article was originally not supposed to be read but listened to: as part of a radio broadcast (for Hessischer Rundfunk, Frankfurt a.M. 1994) that combined documentary and collaged sound with accompanying text. As a broadcast it addressed a German audience — so this edited version includes some corrections and changes to make it more understandable to a non-German readership. As part of the work, I had access to the Test Station archives. All the citations are from manuscripts and sources located there. Unfortunately, due to it being a broadcast, referencing notes were not necessary, and so remain partially absent from this article. In addition, all translations are produced by me.

Kate Sieper

**BROAD-
CASTING
THE OUT-
BACK**

The fan is slowly whirring above me now, the cicadas and frogs are humming and honking Wet Season songs and I am hoping we don't have the fourth blackout this week as the nightly electrical storm builds. It seems strange to be sitting here so far from you, writing about how technology might change my work; work, which still at its most fundamental, sees me travelling around the outback in a 4WD armed with a microphone and recorder.

I'm a field reporter for Australia's public broadcaster, the ABC. Based out of a small solo studio in the Northern Territory, my country is some of the most mythological, beautiful, geographically challenging and remote in Australia. There are even crocodiles. It's what the retired couples endlessly circling Australia with their caravans are searching for. It's what the backpackers dream of on their tours of Kakadu National Park. My work gives me access to the places and more importantly the people and stories that have long defined our identity. This is the outback. It is what lies beneath and behind our multi-culturalism, our beach and café culture, our "fair go" ideology and our firm belief in "she'll be right." It is where we imagine the source of our indigenous culture; it's where we locate our pioneering spirit; it's wherever you are not. It's "outback."

But I'm here. And between the city of Darwin and the tourist town of Alice Springs, for thousands of square kilometer, I am the only one. The only public radio broadcaster living outback, collecting the stories, hearing the dramas, re-imagining the myths that have fuelled our sense of ourselves for so long. I spend long days on the road and equally long days in the studio, to air the news and issues of the Territory, to replay the dramas, give voice to the characters, and even to tell the tall tales — like old Silver Balls, the giant boar from out Ngukurr way who's never yet been caught.

For the people who live here, this is Australia. They believe what they see, and they know from experience. They also know that for most Australians, real life lies in the cities, and that for urban dwellers, the Northern Territory is not entirely real. The people who live here are at best considered a strange composite of myth and stereotype incorporating red neck through to salt of the earth, that is, when they are considered at all.

And in between, there I am, once of the city, now in the outback, walking a continual and exhausting line between finding the extraordinary familiar, and telling it all for an audience that seems ever more remote and out of touch.

Everything seems remote as this storm builds. The wind is gusting now, but high, so high that even in my louvered house on stilts its still only the fan that keeps the air moving. Dogs are barking down the street. Always the dogs. And again I worry about the power.

In regional Australia the ABC has a firm place. We are actually there. We have stations in little towns across the nation; stations and staff and local radio providing high quality, trusted news and programs. In our charter

it says we must broadcast programs “that contribute to a sense of national identity” and for many people it is our presence in regional Australia that helps fulfil that. Continually fighting accusations of irrelevancy, either because it is claimed the ABC is too specialized and does not have enough listeners or because we have become increasingly focussed on ratings and indistinguishable from commercial radio, regional ABC radio clearly fills a gap between commercial and community radio offerings and remains a strong force of entertainment and information; also core areas of the ABC’s charter. We are part of the community and without doubt they are our stronghold. But that’s not true here

Australia is vast, and at it’s most vast, in the heart, radio fails to transmit. Broadcasting on FM, the signals disappear within minutes of leaving town. Each town has its own small transmitter, broadcasting on a different frequency. We can be picked up via satellite on the TV but these people are rarely at home. We also broadcast on HF, but new technologies replacing two-ways have reduced this audience to one of short-wave enthusiasts. I visit, I take their stories and they get nothing but chinese whisper reports weeks later of how I made them sound, how I twisted their tales, how I supposedly made them quirky, strange, stupid, stereotyped outback images. It is, in the words of this country, “humbug” plain and simple.

The stories I record are primarily for city dwellers. But I am also a specialist rural reporter required to exhibit the deeper understanding and experience of someone who lives and works alongside the people I interview. My reports go to air on several different networks, which all have different sounds and ideas of what they want to hear out of the outback, but my directive remains to provide rural radio for rural people.

These are not the same thing.

It is the difference between the extraordinary and the familiar-What is marvellous to one audience may be commonplace to my core rural audience, and so I must fit many marvels of many types into my stories. A story about cattle exports may incorporate not only market news but the heavily sound effect laden experience of mustering cattle. I am at heart a rural reporter; I can never be too wide-eyed or risk losing my place amongst these people. I am at heart a radio maker who wants the sounds and the stories of the outback accessible to as many ears and minds as possible.

The din of the falling rain is awesome now and the lightning cracks open the sky. It is very dramatic and it spurs me to make clear that everything I write here is my own opinion, that I am not writing on behalf of the ABC nor should anything I write be construed as the opinion of the ABC. The rain falls so hard I think of arks.

With new technologies, the outback can reach still more people. Podcasting is a radio phenomenon. Its take-up has exceeded all expectations, and while I question whether it can still be defined as radio, it clearly has implications for radio broadcasters. When I am working in a narrow field of

expertise, no different in some respects to a finance or political reporter, how can narrowcasting be ignored? And so added to my list of radio consumers, that already include the idea of rural locals, the reality of townsfolk, near and distant city listeners, the Asia Pacific and rural online, we can now offer the sounds of the outback to the world.

It is hard for me to imagine what the world would do with the intimate sounds of my Territory however. While I already file stories globally through Radio Australia, what interest would there be in my daily fare investigating efforts to control mimosa weed, the failure of the Top End citrus crop or the resumption of gold mining at Pine Creek? To me they are beautiful, delivering not only information but also sharing people's passions, their philosophies, their assumptions about life and work, their humor and their spirit. It is this that I try to emphasize for my Australian town and city audiences but globally it seems to me that podcasts of my work would be like flipping through someone's photo album that you've never met; pretty, perhaps occasionally stunning, but ultimately meaningless. My work is not art. It is meant to be local, and if the world is to be served, it would not be an easy conversion with my radio.

As well as the world though, podcasting offers me direct access to my actual target audience, rural Australia. While there is the possibility of a digital radio roll out, which promises both clarity and distance, I also believe the lure of podcast on-demand rural stories will prove appealing to time poor, technically very savvy remote Australians. This, it seems to me, has far greater implications for my audio. To live and work anywhere in the Territory is in some way to associate yourself with the outback, and my stories will still feed that, but now I have more of an opportunity to provide accurate, in-depth, timely rural news to rural people, something they do not get anywhere else. And so in one technology I am given two things — the world, and a rural niche, where one story no longer has to fit all.

Podcasts at the moment in the ABC are derived more or less directly from radio broadcasts. For some networks where discrete programs and shows are well developed, reformatting them into podcasts is both easy and an instant crowd pleaser. You can subscribe to ABC Radio National's arts and culture program *The Deep End*, the *Science Show*, the *Religion Report*, or any other number of specialized programs. It is a service being eagerly embraced, and research has shown people don't want partial shows, or interviews from shows, or even end of week "best of" shows, they just want the show, which of course makes it easier for us too. In other networks however programs and show formats have been increasingly abandoned as part of the effort to keep listeners longer. Adhering to the "run on" or "flow" programming philosophy where the sound should be as seamless as possible, themes are discarded because they might double as a signal for a listener to turn off, and constant and continual reference is made to what is happening next on the station. It's a format that recognizes the background sound of

radio, but is perhaps ill suited to the much more foreground nature of podcasts.

In my case as a rural reporter I have the interesting situation of delivering discrete shows within a flow format network. However in recent times, even these reports have become more integrated into the station sound, again making them more difficult to podcast.

The storm seems to be passing now, and I still have power, which is good for me, but a shame for the flying ants that are frantically swarming around the light globe and tangling themselves in the spider webs that highlight my poor housekeeping. The frogs have already resumed honking. It's still hot. Really hot.

The first rural podcasts begin shortly. And maybe no one out bush will adopt it. Maybe cattle producers won't want to podcast a report that also contains horticultural stories but if they do; well if they do, I suspect remote radio won't be the same. Without resources to always recut stories, my yarns may be increasingly tailored for my newly obtainable core rural audience. While it is likely that more people will continue to listen to radio than podcasts, the requirement to provide content for both platforms could signal a shift away from flow programming. While I will continue to make my coverage as accessible as possible to all audiences, there can be no doubt that the technology that gives me the world, has the potential to make me far more local and specialized.

For me it requires a shift of spirit. For the first time, instead of my stories transforming and confounding city images of the Australian outback, I can be primarily focussed on entertaining and informing my own community, and instead of a bridge, a window.

Which doesn't mean I won't share with you the sounds and excitement of going mustering in a chopper, wading through a swamp croc egg collecting, or heading out to the islands sponge farming. It just means there might be less of it, as my sense of the extraordinary relaxes into alignment with where I live.

Heidi Grundmann

**BEYOND
BROADCAST-
CASTING:
THE WIEN-
COUVER
SERIES!**

Using the example of WIENCOUVER, out of many others I might have chosen, this brief text examines an over 25 year period that witnessed major changes in communication technology through digitalization and the way artists have reflected these changes in their work.. WIENCOUVER highlights some of the roots of the radio art developed by artists since the early 90s in cooperation with Kunstradio, the weekly radio-art-program of the ORF (Austrian National Radio). It shows both the powerful influence of an independent scene of radio and radio artists and of independent telecommunications artists and their Pre-Web projects on these developments. It could also be said that WIENCOUVER represents an image of how the dominant curatorial model of radio-art-production inside the public (National) radio was challenged by artist-curated projects and spaces and by the non-curatorial field of networking and the Internet. Out of the interchange and exchange between these different models of communication and production/distribution, new decentralized, distributed and collaborative ways of producing radio and art have been developed. WIENCOUVER stands for many other such cooperations and developments of a radio art beyond the broadcasting paradigm.

**VANCOUVER in the 60s/70s:
radio-artists, artist-run-spaces, Fluxus, Intermedia**

Vancouver was the first city in Canada where interdisciplinary Intermedia took on new forms based on a very specific situation in which cooperation and exchange in the wider art community seemed quite natural. In 1965, artists from different fields gathered around a "Sound Gallery," which held evenings and a Festival of Contemporary Arts that included a first major "multi-sensory public happening in Vancouver" and many other events. The SFU (Simon Fraser University) Centre of Communications and the Arts was founded and immediately developed a strong artist-in-residence program. Contacts with Los Angeles and New York were strong — the E.A.T. event "9 Evenings" in NYC (1966, the year when Dick Higgins had written about "Intermedia") had not gone unnoticed, but artists in Vancouver wanted to move beyond E.A.T. to Intermedia. McLuhan's theories, especially his views on the reciprocal influence of old and new disciplines and media, had an important influence on artists like Iain Baxter of N.E.Thing Co.Ltd., while conceptual art and Fluxus influenced artists like Michael Morris. In 1967, artists in Vancouver founded an Intermedia organization/space around the exchange/sharing of equipment and the presentation of Intermedia projects. In 1968 "Intermedia Nights," a four day festival of presentations by Intermedia, was hosted by the Vancouver Art Gallery. This was followed in 1969 by "The Electrical Connection: Intermedia," a week of events, performances, and exhibitions. In 1970 Iain Baxter participated in the leg-

endary exhibition "Information" in the Museum of Modern Art, New York by telecopier from Vancouver.²

<http://www.front.bc.ca>

In 1973 the Western Front Society was founded by artists and continues to operate to this day. "For over 30 years, it has developed an international reputation as a center for experimental art practice and performance. Five programs focus on the production and presentation of exhibitions, performance art, new music, media art, and an arts magazine." (Quoted from the Western Front homepage)

In the year of its foundation, French Fluxus artist Robert Filliou was artist in residence at the Western Front. Among the local artists who were very impressed by Filliou and his concept of "The Eternal Network" was Hank Bull, a visual artist and part of the LUX Players. The Western Front LUX Players did live performances based on the production techniques of old fashioned radio plays — complete with self-made sound effects. From 1976 to 1984 Hank Bull and Patrick Ready produced the weekly H.P. Dinner Show, a live radio program on COOP Radio 102.7 FM as an art work in progress. COOP is a community radio station founded as "a child of Intermedia" and is still featuring, among many other things, radio art. There is also another Vancouver venue for radio by artists: the UBC campus radio station CITR, whose history goes back to 1937.

VIENNA in the 60s/70s — actionism, media art, etc.

There was nothing in Austria comparable to the radio opportunities offered by the Canadian independent radio and artist-run-center scene. In the 60s and 70s the radio drama department of the ORF (Austrian National Radio) more or less boycotted the innovative broadcasting movements "Neue Hoerspiel" and "Ars Acustica" (ORF succeeded in defending its radio monopoly in Austria until the second half of the 90s). This meant that Austrian writers and artists were often prominent among the authors contributing to these developments on public radio in Germany. Some of these artists were members of the so-called "Wiener Gruppe," which in turn was in close contact with the artists of Viennese actionism. In the 60s these artists exploded onto the very restrictive, repressive and conservative post-war Austrian/Viennese scene and strongly influenced early media artists such as Valie Export and Peter Weibel in Vienna, while Richard Kriesche in Graz (influenced by Beuys) and Gottfried Bechtold in Bregenz (influenced by Conceptual art) developed their own type of media art. Bechtold realized several projects using radio transmission and was among the few artists who, on very rare occasions, was able to produce live Television Art with

the help of the very open, almost clandestine editors of a cultural TV magazine who gave artists access to air-time.

In the 1970s the influx of international art and artists increased constantly through media art exhibitions and related symposia and, among many other events, an International Performance Festival (1978).

<http://kunstradio.at/REPLAY/>

I had been working as a cultural journalist for the Austrian National Radio since the beginning of the 70s, when in 1976 I succeeded in founding KUNST HEUTE, a regular program on international contemporary visual arts. Some of the artists I met on my travels for this program did very interesting sound and radio works, and some of them even called themselves "radio artists" (among them Hank Bull from Vancouver) and consequently, in December 1977, I reserved a chapter of my program for "Art To Listen To" ("Kunst zum Hören") and aired mostly excerpts of such works.

<http://kunstradio.at/HISTORY/AUDIOSCENE/>

In 1979 some of these international artists were invited to Vienna for the international event "AUDIO SCENE 79: sound as a medium of visual art," which consisted of an exhibition, a series of performances, a symposium and one of my radio programs.

It was on the occasion of AUDIO SCENE 79 that Hank Bull invented WIENCOUVER as "an imaginary city hanging invisible in the space between its two poles: Vienna and Vancouver..."

<http://kunstradio.at/HISTORY/TCOM/WC/1979/79index.html>

In a *Brief History of WIENCOUVER*, published in 1984,³ Hank Bull recalled:

WIENCOUVER I 1979

In 1979 I flew from Vancouver to Vienna to attend "AUDIO SCENE 79," where I talked about radio by artists. I said that radio, like other inter-media arts, removes the art world that normally mediates between the artist and the public. Radio, I said, was sculpture. I talked about an aesthetics of social action and international communication between artists, that we comprise an important network. I came back to Vancouver and began to correspond with artists in Vienna.

<http://alien.mur.at/rax/BIO/index.html>

1979 saw yet another event in Vienna which, in hindsight, was a first signal for what would later turn out to be an important influence on radio art production in the early 90s and afterwards: INTERPLAY was the first global telecommunication art project to include the participation of artists from Europe. The project was initiated by artist Bill Bartlett from Victoria, B.C.,

as part of the “Computer Culture” symposium in Toronto, and developed as a computer conference (or “chat”) on the I.P.Sharp world-wide timesharing network.⁴ The Vienna contribution to the project was split between the I.P.Sharp office, where artists Robert Adrian and Richard Kriesche were working, and a radio studio in the ORF Broadcasting House, from where my visual arts program KUNST HEUTE was to be transmitted live. I was joined in the studio by Gottfried Bach, local manager of I.P.Sharp, with his portable computer terminal. What the listeners to this live edition of KUNST HEUTE heard was the noise of Gottfried Bach’s terminal-printer, the beeping of the modem and his voice explaining the project and reading out messages that he received from – or sent to – artists in different corners of the world. By then, also Hank Bull and others at the Western Front in Vancouver had become involved in telecommunication art.

Hank Bull’s *Brief History of WIENCOUVER* lists three projects, which were part of the rapid development of telecommunication art in the 1970s/80s:

<http://kunstradio.at/HISTORY/TCOM/WC/1980/80index.html>

WIENCOUVER II 1980 (Mail art, Slowscan Video; Computer)

We did a mail art exchange exhibition. Contributions from each city were shown simultaneously at the Modern Art Galerie – as part of Robert Adrian’s exhibition – in Vienna and the PUSH ART gallery in Vancouver. As a special event we took part in the global artists’ telecom conference organized by Bill Bartlett. Our communication with Vienna was expanded to include a dozen cities around the world, all exchanging slowscan video and collaging an enormous text by computer.

<http://kunstradio.at/HISTORY/TCOM/WC/1982/82index.html> -

WIENCOUVER III 1982 (Telefax, Slowscan, Computer)

This took place as our contribution to Robert Adrian’s “24 HOURS” project. On that day we used slowscan, computer and, for the first time, telefacsimile. We were beginning to feel at home in the medium.

<http://alien.mur.at/rax/BIO/index.html>

For THE WORLD IN 24 HOURS in 1982, some contributors used a second telephone line to send sound-pieces from their locations. A year later, Robert Adrian used the term “telephone music” to describe contributions, which allowed people to participate in networked projects, even if all they had access to was a telephone – as was the case for most Eastern European artists who had neither fax machines nor computers nor access to timesharing systems.

Music played into the telephone is TELEPHONE MUSIC because no matter how rich and wonderful the music is when it goes into the tele-

phone, when it emerges a hundred, a thousand, ten thousand kilometers away it will be telephone sound. (Robert Adrian)

<http://kunstradio.at/HISTORY/TCOM/WC/1983/83index.html>

WIENCOUVER IV stood at the end of the history Hank Bull published in 1983 in the small print publication ART + TELECOMMUNICATION, which as a co-production between the Viennese group BLIX (Robert Adrian, Helmut Mark, Zelko Wiener) and the Western Front in Vancouver could be included in the list of WIENCOUVER projects.⁵ But of course nobody at the time could either foresee the radical changes our mediascape would undergo in the next decades nor the development of this still ongoing project.

WIENCOUVER IV 1983 (Telephone Music, Slowscan)

To bring things full circle, Robert Adrian came to Vancouver, and so did Bill Bartlett. For the exchange we had several musical groups and performers in each city. The addition of a second telephone line to carry sound really brought the slowscan to life. Thanks to good technicians and excellent contributions this was our most successful exchange to date. Western Front Video produced a video document of the event.

This video document is one of the very few to convey the special aesthetics of Slow Scan TV as a medium for telematic art. Artist's use of SSTV – by then in color – reached its peak at the internationally networked LABORATORIO UBIQUA at the Venice Biennale in 1986. Almost all the documentation of the 86 Slow Scan exchanges – stored on audiocassettes – seem to have been lost. Only in the archive of the Western Front in Vancouver a few audiotapes with the data of 86 SSTV exchanges remain – and what is more, the Western Front still owns the technology to decode these data as video-images.

CRITICISM OF THE BROADCASTING PARADIGM

In an email interview in 2004, Bertrand Gauguet asked Robert Adrian what the thinking behind early telecommunications projects such as THE WORLD IN 24 HOURS had been like. Robert Adrian answered:

.... the basic theoretical concept was:

- 1) To demonstrate the global nature of electronic networks – and also the fact that most of the globe is missing from the network (all of Africa and South America and most of Eastern Europe and Asia),*
- 2) To challenge the hegemony of the one-to-many broadcast media by using the telephone system for one-to-one multi-media interaction,*

3) To make a statement about a new role for the artist in the age of electronic media as a creator of the space for art rather than as a mere producer of objects.

The criticism of broadcasting and the many restrictions it usually imposes on artists and their productions was also revealed as a strong catalyst in the works described in the *Selected Survey of Radio Art in Canada, 1967 – 1992*⁶ presented as part of the exhibition of the very important international Radio Rethink conference at the Walter Phillips Gallery of the Banff Centre of the Arts in 1992, and later as a small supplement to the *Radio Rethink* book and CD. The survey of Canadian radio art was compiled by co-curator, sound and radio artist Dan Lander, with the help of other radio artists, among them Hank Bull from Vancouver. The unusual document underlines that a big part of this art was (and is) produced in the community and campus radio (c/c) sector. In his contribution to *Radio Rethink* Lander remarks: "When considering radio as art (...) most practitioners have grown to accept a level of control and censorship that is not normally tolerated with forms of artistic and cultural expression such as painting and literature." And further in the introduction to the *Survey of Radio Art in Canada* Lander notes that "...there is a common thread of critical concern regarding the state of contemporary radio, the end result of which constitutes a kind of love/hate relationship with the medium. This is made tangible by artists' desire to reinvent the medium through deconstruction and/or reconstruction, the use of "dangerous" contents and refusal to produce works that easily fit into the categories of sanctioned radio broadcast."

Such thinking is further articulated by Daina Augaitis, curator of Radio Rethink and at the time director of the Walter Philipps gallery, as she summarizes in the foreword to the catalogue of the symposium and exhibition: "A predominant feature of radio art is a resistance against state regulation of the airwaves and the many subtle and overt levels of control that have resulted. Not only is government censorship an issue, so too is corporate power."

ARS ACUSTICA

In 1987 one of the chapters of Documenta 8 at Kassel was surprisingly dedicated to Ars Acustica, curated by Klaus Schöning. He presented it as a very mature art rooted in the early avant-garde of the 20th century and as an art initiated, organized and administered by the experts of the institution of Public Radio. Schöning as the founder and producer of a weekly *Studio Akustische Kunst* on the WDR Cologne was, of course, himself such an expert, and for that matter the leading one in the field. He had coined the term Ars Acustica for what he produced with many important international art-

ists for well over 30 years, since the 1960s in the studios of the WDR. At his initiative an Ars Acustica group was founded at the EBU (European Broadcasting Union) in 1989. The group consists of radio art producers in Public Radio organizations in Europe and, from its beginnings also included North American and Australian producers. Only recently the respective Canadian and Australian programs have become sad examples of how much the members of the group and their programs belong to the endangered species of minority programs in Public Radio, which suffers increasingly from the pressures of commercialization and political influences. This situation reinforces the tendency of producers towards quite literal and affirmative interpretations of Klaus Schöning's statement about Ars Acustica as an art initiated and administered by the institution (whereas, coming from Schöning and in view of the rich Ars Acustica history he was able to produce at the institution of the WDR, his statement should probably be viewed as ambiguous).

However, such a definition of Ars Acustica not only excludes much of the radio art initiated and produced outside — and sometimes even inside — these institutions, but also fails to describe the essence of networked radio art projects, as produced and developed collaboratively from different geographic locations since the early 90s.

KUNSTRADIO

<http://kunstradio.at>

In 1987 I had to replace my program on visual arts on the cultural channel of ORF and was able to do so by redefining the old program slot as a new space for original works of radio art. KUNSTRADIO-RADIOKUNST was to be the full title of what is since just known as KUNSTRADIO signifying more than the weekly program which is at the core of many radio art activities around and beyond it. Of course, I immediately renewed all my contacts with many of the international and Austrian radio artists, sound-, media- and communication-artists I had met in my many years as a cultural journalist — among them Hank Bull, G.X. Jupiter-Larsen or Hildegard Westerkamp, who had all worked regularly on CFRO FM — COOP Radio in Vancouver.

TELEMATIC RADIO ART

<http://kunstradio.at/SPECIAL/XR/razionalnik.html>

In Austria, just a few months before KUNSTRADIO-RADIOKUNST was founded, Seppo Gründler and Josef Klammer, who belong to a second generation of Austrian media artists realized Razionalnik, a telephone concert to which the notion of Telephone Music did not apply anymore. What was

sent over the telephone lines and modems connecting artists in Graz, Ljubljana and Budapest was not telephone sound but digital code (MIDI data). This data triggered sequencers and synthesizers at the respective locations and thus directly intervened in the concerts at each of the other nodes of the small network: the artists/musicians not only gave up part of their control about the local situation but none of them had any control over the project as a whole. There was no radio program yet to listen into this networked project or to become one of the nodes in the network.

But at the beginning of the 1990s, artists like Seppo Gründler, Gerfried Stocker and Horst Hörtnner, Mia Zabelka, Andres Bosshard, Isabella Bordonni and Roberto Paci Daló (Giardini Pensili) and others conceived of and realized their first telematic radio art projects. To do so they made utmost use of the broadcasting times and infrastructure of the National Austrian Radio ORF they found access to via KUNSTRADIO, which defined itself as an interface between independent artists and the institution.⁷

These, and very soon many more international artists, as well as a few engineers and other allies in public and independent, free and pirate radios, at festivals, universities, and artist-run centers, started and developed a specific tradition of networked radio art projects, later also described as on air-, on line-, on site projects.

Networked projects put into question State-regulated, one-way broadcast medium radio and investigated the changes to which radio is submitted under the pressure of the convergence of old and new media, their hybridization and remediatisation. They also run against traditional notions of the curator/producer, of authorship and copyright and of the finished work of art. Networked radio art projects include audio- as well as video- and data-streaming. Participants come from all fields of radio and art production, they collage old and new technologies, using and especially abusing them to their fullest extent. While they may contain all genres of *Ars Acustica* and radio art, music, sound poetry, sound art, etc., they do not define themselves as distribution systems for individual contributions, but rather as temporary, often experimental, networks for a decentralized, sometimes simultaneous, collaborative exchange and processing of material which can be rendered at all participating nodes into whatever versions are technically possible and aesthetically desired. Such projects can only be experienced in versions open to – and dependent on – the interpretation of their participants and dispersed audiences.

The advent of digitalization and its early reflections on the theory and practice of a horizontal production of art (and radio), exploded the vertical notions of *Ars Acustica*. Moreover, a gap had started to open between the institutionally owned technology of classical radio studio production and the increasingly sophisticated home-studio technology, partly combined with new communication technologies and thus also with easy access to the increasingly infinite archives of contemporary culture. All this gave art-

ists, who had themselves become experts in cutting edge technologies, which were frequently still viewed with suspicion by the institutions, control over the realization of their own intentions by setting up the specific parameters of their respective nodes as networked but otherwise independent members of the overall organism of such temporary collaborative networks. Participants at each node usually curate their own contribution and the specific on site and/or on air renderings they give to the data circulating in the network. Usually each node had and has to raise its own support.

<http://kunstradio.at/HORRAD/horrad.html>

http://kunstradio.at/RIV_BRI/index.html

On two occasions artists succeeded to inspire the participation of the majority of producers forming the EBU ARS ACUSTICA Group. Otherwise the ground breaking projects HORIZONTAL RADIO (1995) or RIVERS & BRIDGES (1996) would not have been possible. By 1995, some of the many institutions and artists participating in HORIZONTAL RADIO – among them the artists who founded KUNSTRADIO ON LINE as an art-project in its own right – had already found access to the World Wide Web. In 1996, artists were streaming audio and video over many hours and from such unlikely locations as a boat on the Danube river and a remote valley in the Tyrolean Alps. To connect the different nodes at EBU (and other nodes) artists tested new technologies such as the international compatibility of ISDN lines or methods for up and down links to and from an EBU satellite – making full use of the manifold possibilities of networking and interchange available to them.

But, true to the philosophy of early telecommunication projects, artists could (and can) also hook up to such projects via telephone. Hank Bull from Vancouver (but also artists from the East Coast and Québec) used the telephone for contributions until about 1998. In this year FIRSTFLOOR EASTSIDE as new “remote volunteers” (Tom Sherman, 1997) set up a stream, and a semi-automated non-stop one for that matter, from their home in Vancouver to participate in the networked on air-, on line-, on site project IMMERSIVE SOUND. In addition, Matt Smith, who, when living in Austria, had been part of earlier networked projects, set up streaming servers for both the Western Front and CITR Vancouver.

<http://www.kunstradio.at/BREGENZ/IS/index.html>

IMMERSIVE SOUND was produced in 1998 by KUNSTRADIO in Bregenz, Western Austria, of course with the help of artists at other locations. It was part of an exhibition, which featured a whole anthology of different sound installations – most of them in the public space of the small regional capital. IMMERSIVE SOUND, which went on for five weeks (and also streamed for this entire period non-stop on the Internet) was located as an immersive live sound installation in the Black Box of the experimental studio and re-

hearsal space of the regional theater. It used all the other installations in the city as well as three non-stop generative streams from Adelaide, Linz and Vancouver as material, and was projected into a series of radio programs and via loudspeakers into the public space of the city and, of course, onto the Internet. The on site and on line mix in Bregenz was curated and realized by weekly changing groups of artists – one group also comprising Peter Courtemanche and Lori Weidenhammer from Vancouver who had been invited to Bregenz to install their own sound piece in the public space of the city. During the nights and the entire last week, the machines took over in the form of SOUNDPOOL, a generative program designed by Austrian media artist Winfried Ritsch: in this type of automated, generative projects, notions of contained performances, installations and broadcasts accessible only within rigid time schedules, gave way to concepts of potentially unending interacting “flows.”

<http://kunstradio.at/SD/index.html>

One year later, SOUND DRIFTING took these developments several steps further. This networked project had two nodes in Vancouver and was already part of WIENCOUVER 2000.

WIENCOUVER 2000

<http://www.kunstradio.at/WIENCOUVER/index.html>

Through the new contacts with artist Peter Courtemanche, Media Director of Western Front, where also radio and telecommunications pioneer Hank Bull resides, the streaming commitment of FIRSTFLOOR EASTSIDE and radio artist Anna Friz, at that time also the program director of CITR, Vancouver, it was possible for KUNSTRADIO to embark on the development of the still ongoing series WIENCOUVER 2000.

The introductory text to WIENCOUVER 2000 on kunstradio.at reads as follows:

In 1980, when the modern Fax machine was still an exotic promise and computers either massive mainframes or playthings for the hobbyist, artists in Vancouver and Vienna were collaborating on the first of the projects known as WIENCOUVER. WIENCOUVER 2000 is not a nostalgic look at the early years of Art+Telcomm but an exploration of the new technology available for artists working in the field as we approach the new millennium.

The WIENCOUVER 2000 website contains links to many different projects realized since 1999. Yearly celebrations of ART'S BIRTHDAY have become the backbone of WIENCOUVER.

<http://www.kunstradio.at/PROJECTS/WIENCOUVER/ART/TIMETABLE/>
ART'S BIRTHDAY 1999 marked the launch of WIENCOUVER 2000:

Art's Birthday is an annual event first proposed in 1963 by French artist Robert Filliou. He suggested that 1,000,000 years ago, there was no art. But one day, on the 17th of January to be precise, Art was born. According to Filliou, it happened when someone dropped a dry sponge into a bucket of water. Modest beginnings, but look at us now. Filliou proposed a public holiday to celebrate the presence of art in our lives. In recent years, the idea has been taken up by a loose network of artists and friends around the world. Each year the eternal network evolves to include new partners – working with the ideas of exchange and telecommunications art. (Hank Bull, introduction to Art's Birthday, 1999)

<http://artsbirthday.net/>

ART'S BIRTHDAY celebrations had entered the matrix of collaborations between artists in Vancouver and artists from/in Vienna for the first time in 1991. Participation from Vienna, initiated by Roy Ascott and organized by Mathias Fuchs, was limited to email via ARTEX computer communication. Most of the other over twenty nodes also communicated by fax and/or videophone. The majority of the contributions to ART'S BIRTHDAY 1991 were protests against the first Gulf War. Hank Bull later wrote: "Just before showtime, the Americans started the bombing of Baghdad and our party turned instantly into a protest. We found ourselves in the possession of an international electronic network, just like CNN's, the important difference being that ours was interactive... Symbolically, this event offered an alternative to the television viewer's passive frustration." The ART'S BIRTHDAY protests 1991 was almost immediately followed by a networked project under the title (coined by Roy Ascott) TEXT, BOMBS AND VIDEOTAPE with strong fax contributions from many nodes, including Vancouver and Vienna.

An ART'S BIRTHDAY celebration in 1993 contained the first transcontinental on line MIDI exchange via telephone between Austrian artists and artists at the Western Front. The exchange was modelled on RAZIONALNIK (1987).⁸ In Vancouver, the event was transmitted on a local radio frequency.

Since 1999, ART'S BIRTHDAY celebrations are still reminiscent of, but also different from, the earlier fax-and/or videophone exchanges. Webcasts, i.e. audio- and video-streams, and chats, became the basis of the events, while telephone interventions and even birthday presents as mail art were, of course, also welcome. These presents were usually also put on line on special project-pages on kunstradio.at, and more recently also on websites in Vancouver, all of them accessible via artsbirthday.net. KUNSTRADIO did not always manage to get broadcasting slots for ART'S BIRTHDAY, so the main on-air part of almost all of the parties since 1999 was provided by CITR

Vancouver, the independent radio of the university of British Columbia, which, if at all, celebrates by having artists and their contributions on-air for amazing 24 hours of non-stop live radio art.

<http://scrambled.aaeol.ca/html/events/vanschedule.php?nav=3>

With a group of artists-in-residence at the Western Front in 2003, Peter Courtemanche embarked on SCRAMBLED BITES, a year long collaborative project culminating in the networked birthday-party 2004. The concept was to develop a network of local/remote situations involving robotic-like devices which could be triggered by data from the *Scrambler*, an on line tool, and in turn would send back data to this *Scrambler*. The result was that at many locations artists constructed funny and/or bizarre robots that contributed very much to an atmosphere of the networked project's all-over "translocal conviviality" (Tetsuo Kogawa).

Referring to the use of MIDI in earlier projects, the *Scrambler* also addressed, in a quite lighthearted way, a problem which networked artists have been confronted with since the beginnings of telecommunication art, i.e. the question of how to design on site events in a way that helps to make readily perceptible to local audiences how events (in this case objects) at their site are influenced by other nodes and the other way around. In other words, to make them conscious of the fact that they are part of the many dispersed audiences of a networked event.

<http://reverie.aaeol.ca/>

<http://kunstradio.at/AB2005/>

The ART'S BIRTHDAY 2005 celebrations were again initiated by the Western Front in Vancouver and by KUNSTRADIO in Vienna. Elisabeth Zimmermann, producer of KUNSTRADIO since 1999, succeeded in convincing her colleagues in the EBU ARS ACUSTICA group to become part of the birthday party.

For the Western Front, Elisabeth Fischer designed a virtual city, a "colaged urban landscape constructed of Web-sourced images from around the globe," as a complex and very beautiful web interface. A network of many independent artists and artist-run-centers made use of the possibility to inhabit this virtual city via nine poetic regional indexes. Peter Courtemanche had given the project the title REVERIE, which comes from Bruce Sterling's novel *The Artificial Kid*.

In the space of a few months, Reverie has gone from inception, through the rapid growth, and into the realm of historical architecture – a process that takes a real city many decades, often centuries, to complete. Following the frenetic events around Art's Birthday, Reverie has become increasingly static and at the same time increasingly dense; the live events taper and the number of archived sounds and images grow.

As time passes and technology evolves, the city will slowly decompose... Like many experimental contemporary practices, Reverie is ephemeral. (Peter Courtemanche in the publication REVERIE: NOISE CITY)⁹

<http://kunstradio.at/PROJECTS/AB2006/index.html>

Under the title TRANS DADA EXPRESS, proposed by the ARS ACUSTICA group and readily adopted by the network of international independent artists organized from Vancouver, ART'S BIRTHDAY 2006 celebrated the 90th anniversary of the foundation of *Cabaret Voltaire* in Zurich.

<http://devolve.aaeol.ca/online/float.html>

In 2002 Peter Courtemanche, together with a few selected artists realized the on line-, on air-, on site project *devolve into II*. As in other projects before, Courtemanche offered the participating artists a poetic project introduction along with a tool he had programmed. The audio-visual contributions of the invited artists are still accessible as a kind of on line generative installation, which Courtemanche calls *float*. There were also on site and on air versions of *devolve into II*, which, just as its predecessor, was a WIEN-COUCOVER project.

<http://devolve.aaeol.ca/online/rb-english.html>

In a text for the CD of *devolve into II*, art historian and media theorist Reinhard Braun states:

This networked streaming project carries on the... tradition of a telecommunication art from the seventies and eighties, however it interweaves this with a form of radio art, which defines itself as part of these telecommunication projects and reflects the change of radio through the development of new communications media... The transmission format of radio and its contents...now exists in direct relation to countless other media and communication formats...

From the point of view of Matt Smith, who used to run a weekly radio art show on CITR Vancouver from 2000 to 2005, aside from realizing projects that could be considered part of an "extended" or "expanded" radio art (see below) "the newer communication methods are permeating the traditional broadcast media. (To the artist/activist) they represent a conceptual entry into the vast possibilities offered by linking all the various communication paths together in order to create new spaces for expression and interaction. (...) In order to make full use of these powerful tools, one needs to understand the various conceptual relationships between media, technology and society..."¹⁰

REINVENTING RADIO

<http://www.kunstradio.at/PROJECTS/REINVENTING/start.php>

There is a history of artists, who in their projects scrutinize the ever-changing technological, social, economical, political and cultural context of radio and its technologies and, in their work, point to the recurring processes through which every new communication technology seems to be immediately not only subverted from “an apparatus of communication” into “an apparatus of distribution” (Bertolt Brecht) but also into an increasingly ubiquitous apparatus of surveillance and control.

This observation was the basis of an ongoing project KUNSTRADIO embarked on in 2004 at the Garage Festival¹¹ in Stralsund, and followed up with a contribution to the ARS ELECTRONICA Festival of the same year. This contribution consisted of a small symposium, three projects and a networked on line-, on air-, on site LONG NIGHT OF RADIO ART. The discussions of the symposium focussed on the tentative notions of an “extended” or “expanded” radio (art).

The LONG NIGHT OF RADIO ART 2004 event in Vienna marked, as a first live event, the start of the regular transmission of Österreich 1 broadcasts in 5.1 format (along with stereo). The format, for the first time, offered the very welcome opportunity to distribute incoming streams (among them one from Vancouver) on individual channels and thus to provide the listeners with an additional possibility to identify different contributions in the network.

<http://www.firstfloor.org/ARL/audiomobile/>

<http://kunstradio.at/SPECIAL/audiomobile/>

One of the three projects in the REINVENTING RADIO chapter of the ARS ELECTRONICA FESTIVAL 2004 was a Linz version of AUDIOMOBILE by Matt Smith and Sandra Wintner. The Vienna version followed in autumn 2005.

AUDIOMOBILE was developed as a project for ARTIST RUN LIMOUSINE, a mobile artist-run space located in a Vancouver-based white 1982 Cadillac Stretch Limousine. After the demise of the old Cadillac in 2004 on the trip back home over the Rocky Mountains from Winnipeg, where a version of AUDIOMOBILE had been realized for the *send & receive* festival, further versions of AUDIOMOBILE take place in locally provided cars able to comfortably transport a small group of passengers and equipped with a multi-channel sound system. Local artists who work with sound and radio are invited to contribute sound files to the project and to localize them along a proposed route of the AUDIOMOBILE through the streets of the respective city. After a meeting/workshop and in contact with the local artists, Matt Smith maps the sounds, so that they can be triggered by GPS (Global Positioning System which uses radio-transmission from and to satellites) within

the space of the car during tours through the city. The small audiences in the car experience unusual mobile soundscapes, while the familiar cityscape passes by the windscreen and car windows.¹²

<http://kunstradio.at/SPECIAL/XR/frameset.html>

AUDIOMOBILE is one of an increasing number of projects operating within paradigms which media artist Richard Kriesche was already able to describe metaphorically in some of his texts at the end of the 1980s.¹³

After first stating that “the sphere of...‘public art’ is that of the ‘publication of traffic’; of communication, information, telephone, radio, television, transmitting, broadcasting, of car, train and satellite networks, of global and cosmic traffic...,” Kriesche goes on to describe “radioman” by saying that

the electric man no longer listens to the radio – he himself is radio: set at the same time on reception and transmission. as a sign of his existence he thus leaves his marks on the data background. the drawing of marks is the basis of his existence (on video, banking card, telephone, fax, personal computer and so on). as if in recognition of the electric circuits in his own body, the “radioman” charges himself up with mobile electronic calculators, watches, data and dictating machines, Walkmans, cellular telephones, electronic locators, laptops, notebooks. supported by batteries, he creates around himself the postmodern aura of an omnipresence. his exterior is radiant..., his interior is embedded in the electronic community of the data background.

For more than a quarter of a century, the “imaginary city” of WIENCOUVER has been an oscillating entity, changing its volatile shape with every new project taking place in and around it. It is feasible that one day it will turn into a purely archeological site of the efforts of artists to connect and communicate – and thereby re-invent radio – and/or to make perceptible some of the otherwise invisible (power)-structures of the data background in which we are embedded as “radiomen.” And then, just as Peter Courtemanche anticipates it for “Reverie: Noise City,” also this other city of WIENCOUVER will “crumble into digital dust.”¹⁴

Notes

1: There are several earlier versions of this text, which has been revised and updated for this publication. To my knowledge there is no earlier English version that has been published in print. A Spanish version appeared in the magazine TELOS, issue no. 60, July – September 2004. The Institute for Electronic Music and acoustics, IEM in Graz published a version based on a lecture in 2004 in Graz, in its series “Beiträge zur elektronischen Musik”, No. 12, “Medienkunst”. 2005. 2: *Vancouver: Art and Artists 1931 -1983*, catalogue to the inaugural exhibition in celebration of the opening of the Vancouver Art Gallery, Oct – Dec 1983. Published by the Vancouver Art Gallery. Chief curator: Luke Rombout, 1983. 3: ART + TELECOMMUNICATION, ed.: Heidi Grundmann. Published by The Western Front and BLIX, Vancouver/Vienna, 1984. 4: I.P.Sharp Associates was a computer timesharing company based in Toronto but with a world wide network of offices connected by telephone. Users could dial in to local offices and join the network. The company was very sympathetic to artists and supported many projects throughout the 80s. Like most timesharing companies, I.P.Sharp had ceased to exist by the early 90s 5: op.cit. 6: “Selected Survey of Radio Art in Canada, 1967 – 1992”, ed. Dan Lander. Walter Phillips Gallery, The Banff Centre of the Arts. Published in conjunction with the book *Radio Rethink: Art, Sound and Transmission*. 1994. 7: s.a.: REALTIME – Radio Art, Telematic Art and Telerobotics: Two Examples, by Heidi Grundmann in *At a Distance*, ed. Annmarie Chandler and Norie Neumark (Cambridge, MA: The MIT Press, 2005). 8: s.again <http://kunstradio.at/SPECIAL/XR/razionalnik.html> 9: *Reverie: Noise City*, ed. Peter Courtemanche (Vancouver: The Western Front, 2005). Includes a CD. 10: Matt Smith in a statement on “radio as format and technology” at the Radio Biennial, Mexico City, 2004. 11: <http://garage.in-mv.de/2005/index.php> 12: As opposed to other GPS based projects the members of the audience find themselves in a small social community of fellow car passengers without isolating earphones and cumbersome backpacks carrying the GPS reception equipment. 13: Richard Kriesche, “In the Noise of Signals” in *Radio Rethink: Art, Sound and Transmission*. First formulations towards this text, which is based on the lecture Kriesche held at the radio-art symposium “THE GEOMETRY OF SILENCE”, 1991, Vienna /Innsbruck, appeared already in Kriesche’s performance RADIOZEIT, 1988. <http://kunstradio.at/SPECIAL/XR/frameset.html> (s.history). 14: Peter Courtemanche in *Reverie: Noise City*, ed. Peter Courtemanche (Vancouver: The Western Front, 2005).

The URLs in this text have last been checked on February 11th 2007.

Douglas Kahn

**RADIO
OF THE
SPHERE**

Before radio was a means of communication it was a commune with the nature of the electromagnetic. Radio is too quickly equated with communication, but commune should be more *common to many* now that electromagnetism has coursed, from wirelessness to the datasphere, through so much culture.¹ Yet, the sounds of radio heard before Marconi's invention only started becoming widely known in the 1990s, about 115 years after they were first heard, and are far from becoming common, despite the fact that they surround us as much as air. They were more mysterious then. They were heard at night when the sky opened up to the rest of the universe. Thunder had long been the tangible sound of the sky and electricity, and music coursed through the cosmos in the music of the spheres, the upward transposition of octaves evaporating past human capacity to hear to order the universe in an acoustic imaginary. Then, in the late-19th century, sounds generated electromagnetically began to precipitate to earth, prefiguring the flood of signals today, signals that are the elements through which the nature of the universe, ultimately its genesis and evolution, is measured, investigated and understood. People heard these signals long before they heard the untethered intensification of human generated transmissions. In other words, they heard the earth's ionosphere and magnetosphere on radio long before they heard each other. What they heard was both noisy and musical, and some chose to listen for aesthetic pleasure decades before the avant-garde and electronic music in the early-20th century. They actually heard the edge of the universe and not merely imagined its mute ordering. It was no longer a music of the spheres, it was the radio of the sphere on which they lived.

Since the late-19th century, cultural apprehensions of the cosmos have evolved from a mythical acoustics to a material electromagnetics. This does not mean that earlier myths lacked material bases or that contemporary cosmology has thrown off all vestiges of the ideal. Thunder itself was a sound others heard in common and experienced terrestrially, but then explained through transcendent tales, whereas the music of the spheres was never heard by anyone, but was based on the physical and mathematical abstraction of vibrating strings that people not only heard but shaped into elaborate and moving compositions. In other words, the former was a terrestrial sound that had a mythic explanation, while the latter was a mythic sound that had a terrestrial explanation. The cultural appropriations of the brute forces, subtle measurements and theorizations of contemporary cosmology have their own tales to tell. The point is to tease out the cultural negotiations between acoustics and electromagnetism in radio, and suggest what happened or what might happen when older harmonic orders are subjected to the new measured noises of the universe. And to hear them in what we hear on radio.

Three forges

There are three forges involved in hearing the universe. The first can be found in the materialist aesthetics of Gaston Bachelard, "The forge: expansion to the cosmic level,"² in which he confesses and apologizes for an obsession for collecting poetic images. He starts with sunsets, scenes through which a different cosmos can be imagined, but his obsession has led him to counter the beautiful, calming image of the sun setting with a violent and raucous one. Hidden within both is how everything is ordered or disordered. The ostensibly beautiful sunset image is common; it is one of "nirvana, an image of peace, of acceptance of nocturnal life..." This type of sunset image peels off postcards and drapes across people's minds in time to watch actual sunsets on holiday. With summer oscillating in a seasonal sine wave between hemispheres, this image crops up and disappears on a daily basis. Pitted against this frequency of self-possessed beauty, Bachelard has gathered a scant few images that convincingly invoke "a doctrine of anti-nirvana" of the sunset at the scene of a forge. The horizon is the anvil, the sun the molten iron that is beaten down by hammers; the recalcitrant sun does not set but is forced "to crash, to bury itself" in the night which then assumes the color of cold iron.

Bachelard is convinced that he is on the right track because his little cache of hammered suns is animated by a process of *amplification* that he has seen operating among his other, obsessively collected image regimes. The amplification starts in this case in the everyday of the forge, in iron-rich regions where "deities of functions require violent movement and great noise." The steps in this amplification involve the iron of the forge calling forth the subterranean, volcanic forges that, in turn, unite earthly activity with the force of the sun, the local star, gateway to the cosmos. "Noise, force, grandeur — in short, the cosmic nature of images is the result of the imaginary life's tendency to magnify."

Although Bachelard impressively found cosmic forges where there had been none, he was inadequately obsessive and forgot two famous forges. The first one, a clear case of amplification, belongs to the person who is reported to have minted, no less, the term *cosmos*. There are different origin stories of how Pythagoras arrived at the mathematical and cosmic status of music, and vice versa, but the most prevalent one involves a forge. As he walked by —

...he heard by a divine chance hammers beating iron on an anvil, and making mixed sounds in full harmony with one another, except for one combination. He recognized in these the octave and the fifth and the fourth, and he saw the interval between the fourth and the fifth was dissonant in itself, but was capable of completing the range of greatness between them. Delighted, then, that his project had the backing of the divinity, he rushed into the forge, and with varied tests he found

that difference of sounds was produced by the weights [sizes] of the hammers, not by the force of the blows or by the shapes of the hammers or by the position of the iron being struck...³

The steps of amplification from the forge to the cosmos were mathematical and geometrical, not imagistic, and the sound was harmonic, not dissonant, percussive or noisy. Indeed, it is ironic that the ideal that echoed in Plato's *Timaeus*, in medieval *Musica Universalis*, the Music of the Spheres, in Johannes Kepler's *Harmonies of the World*, social harmonies, and occult rationality came from the grimy racket of a forge. Bachelard's anti-nirvanic suncrash cosmos did not entail the noise abatement of filtering out the dissonances of the everyday and actual; he grounded his image in the nature, economy and labor of iron-rich regions, and stepped up slowly from the subterranean to the local star through a correspondence of materials, rather than mathematics.

The third forge is involved in hearing itself. Miniaturized in scale and amplified through embodiment, it is lodged in the rich region between the brain and the rest of the world in the form of the auditory ossicles — malleus, incus and stapes — the hammer, anvil and stirrup, the three bones in the middle ear. They are the smallest bones in the body, dampened by the shortest muscles, and their vibratory actions transduced into nerve impulses by the tiniest of hairs. They are involved in both amplification, leveraging approximately three-fold when needed for soft sounds, or in the attenuation of loud sounds, when the tensor tympani and stapedius come into play. They are located amid an array of image miniatures and material poetics — air, wings, drums, windows, shells, and immersive fluids — even more in Chinese acupuncture where the pinnae envelop two inverted fetuses, the points on their bodies correlating to locations in the host body. Oddly missing in the symbolic array of the ear is a string section. The most likely candidates, the 16,000-20,000 hair cells of the cochlea, go straight to where the acoustic trades with the electric, where gelatinous vibrations are transduced to neural signals. To conform, the string section would be forced to perform late-20th century electronic works, their strings undone, magnetically waving at girders like sea anemone tentacles in the dense auditorium air.

If there is a cosmological amplification of the hammer and anvil it is temporal, through a lateral axis of evolution, for the simple reason that the auditory ossicles are evidence that mammals evolved from reptiles. The hammer and anvil were previously part of reptilian jawbones until they migrated to mammalian ears. It is not as though everything we hear is spoken to us by a lizard — reptiles use their jaw bones for listening, as we do in part when we hear ourselves speak — but what we do hear has a kindred resonance with the reptilian brain of the amygdala, where fear, predation, affect and emotion are processed along with perceptual impulses, all the things we have difficulty putting words to, since we no longer hear ourselves speak

as lizards. On a short evolutionary scale, the distance from the jawbone to the middle ear was created in the time it takes a ground-hugging reptile to stand up and become an oddly musical hominid, who then looks to the stars and takes a bow. The stars themselves have likewise evolved and continue to do so, with a big bang at the very beginning instead of a crescendo reserved for the end of great symphonic works, lending no closure within which an idealized order can become stabilized. Our understanding has historically evolved, that is, to the point where the cosmos is no longer acoustic.

Universal organology

During the 19th century the Pythagorean musical cosmos became noisier and less ordered the more it became electromagnetic and radiophonic. It increasingly favored the quotidian anti-nirvana poetics of Bachelard's forge, that is, after the iron had been formed into an antenna. This was not just more *untuning of the sky* of the type that John Hollander described as having occurred in the 17th century,⁴ a scordatura within the acoustical givens of music, but a radiophonic drift into a different type of wave on an entirely different wavelength. The acoustical cosmos had long been associated with the ideal, divine, consonant, rational and with notions of social harmony. It could be heard on earth as it sympathetically vibrated with certain types of music and ideas about music. The electromagnetic cosmos was noisy, unpredictable and unstructured, broadcasting from every pit and pith to all the rest. Because faint residual static has revealed the nature of the universe and no supernova barks out Beethoven, it means that whole concert halls have sat dumbfounded in the big blare of primitive math and faulty physics.

There is obviously an evolutionary lag in aesthetics. The earthly resonance of the acoustical cosmos can still be found in ideas orbiting the symphonic repertoire, usually located in the string section, and then only first chairs. Indeed, the myth of correspondence between music and the cosmos has had amazing longevity. It lasted for centuries until suffering the fate of all harmony, distracted by the rhythms, timbres and noises of cosmic detritus, competing stars, auroras, other upper-end meteorological phenomena and social disorder on earth. At the moment God died Nietzsche realized all he had to do to undermine the anthropomorphic idealization of the cosmos, "of positing generally and everywhere anything as elegant as the cyclical movements of our neighboring stars," was to shift his gaze to the chaotic miasma of the Milky Way.⁵ Harmony was so fragile in the last quarter of the 19th century that simply looking askance could cause damage. Seemingly, the acoustical cosmos would have suffered its final demise in 1933, once Karl Jansky tuned his astronomical radio to 20.5 MHz and listened to song stylings broadcasting around the clock from the center of the Milky Way. Yet, it is alive to this very day, vibrating with each association of music, with

every wave, fluctuation, pulsation, perturbation, trembling, to-and-fro, peristalsis, dither and flat-line drone gently warped in space-time.

Physics professor Brian Greene in *The Elegant Universe* states outright, "With the discovery of superstring theory, musical metaphors take on a startling reality, for the theory suggests that the microscopic landscape is suffused with tiny strings whose vibrational patterns orchestrate the evolution of the cosmos. The winds of change, according to superstring theory, gust through an Aeolian universe."⁶ Conductors are incorrigible too, as demonstrated by Joseph Eger in his book *Einstein's Violin*:

Music is based on the same vibrating waves as the tiny strings (a trillionth of a trillionth the size of an atom!) described in string theories... Can it then be claimed that the only difference between superstring theory and the common understanding of music is a matter of scale? Consider for a moment the first violinists in an orchestra... If one takes a string and elongates it to cosmic scale, that string would be subject (like everything else) to curved space-time. The vibrating string, whether from a violin, or of quantum size, will eventually curve back on itself, like the superstring loops previously described. One can speculate that this vibrating string and its fellows could create a kind of "heavenly music" imagined by Kepler and other scientists before and after. The special wave and frequency patterns that we call music and that elicit universal responses from all life (not just from human beings but also from animals and plants) extends throughout the cosmos...⁷

This represents a stupendous comeback for the Pythagorean monochord, even though the microphones to pick-up and amplify these tiny violins oscillating in ten-plus dimensions remain in the design phase. Still, you would expect a conductor to be better informed about organology. The terrestrial strings of monochords and violins belong to the class of chordophones, to be sure, whereas the cosmic monochord and cosmic chordophones made of superstrings belong to the class of *cephalophones*, Erik Satie's name for instruments that exist only in the head. Sibyl Marcuse may have overlooked cephalophones, but not Raymond Roussel or Yoko Ono or other master-builders of imaginary instruments and conceptual sounds. Satie constructed modest versions that have only a "range of thirty octaves" and are "completely unplayable."⁸ Thirty octaves could be produced easily enough but an evening of cephalophonic music would be almost completely un-hearable (this may explain the long pauses in late-modernist works). This would not have to impact the quality of the night's entertainment, since each person in the audience would also have cephalophones, each one custom fit for guaranteed satisfaction.

The problem for most classes of musical instruments is that they rely on actual acoustics, the stuff that the vast vacuum of outer space fails to transport. This was not always the case. For about 400,000 years after the Big Bang the fledgling universe was dense enough with a hot admixture of light and gas to register fluctuations in energy density, if not a tune, and these fluctuations left traces on the mottled map of the Cosmic Microwave Background (the discovery of which empirically confirmed the theory of the Big Bang and remains the best text for reading about the early evolution of the universe). Sound, acoustics and, more specifically, symphonic music are used as analogies to describe the resultant pattern of these fluctuations even though the dense plasma might not provide the adequate ventilation for concert-goers, the fluctuations are thermal, the harmonics are spherical not monochordal, and there are several instruments playing entirely different tunes.⁹ The confused sheet music may be an homage to Charles Ives, or it may derive from the presumption of spherical dynamics at work, when in fact the universe may be convoluted or otherwise difficult to determine from the inside out, like a Frank Gehry concert hall.

Black holes are more musically promising.

NASA's Chandra X-ray Observatory detected sound waves, for the first time, from a super-massive black hole. The "note" is the deepest ever detected from an object in the universe... The black hole resides in the Perseus cluster, located 250 million light years from Earth. In 2002, astronomers obtained a deep Chandra observation that shows ripples in the gas filling the cluster. These ripples are evidence for sound waves that have traveled hundreds of thousands of light years away from the cluster's central black hole... In musical terms, the pitch of the sound generated by the black hole translates into the note of B flat. But, a human would have no chance of hearing this cosmic performance, because the note is 57 octaves lower than middle-C (by comparison a typical piano contains only about seven octaves). At a frequency over a million, billion times deeper than the limits of human hearing, this is the deepest note ever detected from an object in the universe.¹⁰

Fifty-seven octaves below middle-C outstrips the range of Satie's ceph-alophone, but concert-goers would have to travel 250 million light years at great expense and great personal risk of being sucked up and pressed into infinitely dense matter. This is perhaps why Deleuze and Guattari, who regularly invoke the forces of the cosmos, were not in favor of the possible auditory pleasures of black holes.

This synthesis of disparate elements is not without ambiguity. It has the same ambiguity, perhaps, as the modern valorization of children's

drawings, texts by the mad, and concerts of noise. Sometimes one overdoes it, puts too much in, works with a jumble of lines and sounds; then instead of producing a cosmic machine capable of "rendering sonorous," one lapses back to a machine of reproduction that ends up reproducing nothing but a scribble effacing all lines, a scramble effacing all sounds. The claim is that one is opening music to all events, all irruptions, but one ends up reproducing a scrambling that prevents any event from happening. All one has left is a resonance chamber well on the way to forming a black hole.¹¹

Their example of this destructive force was the gentility of John Cage's prepared piano music. Was it the hammers striking the metal strings like a forge that created such cosmic noise? Or was it the array of other blacksmith bits that Cage used in preparing the piano that brought on all events, all irruptions? The horn of the antenna through which Penzias and Wilson first heard the static hiss of the cosmic microwave background looked more like an overblown relative of the brass section ridding itself of sibilant spitfire. In fact, at first they thought that the radio broadcast sound of the universe was faulty equipment, in other words, that the hiss was produced by the mechanism itself. Following this reasoning, a malfunctioning appliance might invoke the universe better than an orchestral work by Scriabin or Stockhausen.

Natural radio

In contrast, the electromagnetic cosmos has been heard as an amalgam of noise and musical aesthetics broadcast locally by Very Low Frequency (VLF) electromagnetic waves that course through the earth's ionosphere and magnetosphere. This noise/music is to the Radio of the Sphere and electromagnetic cosmos what harmony and consonance were to the Music of the Spheres and the acoustical cosmos. They are related to our local star in that the solar winds from the sun constantly buffet the earth's magnetosphere and light up the night with the polar auroras and create a certain amount of VLF electromagnetic waves in the audible range. Sferics (short for atmospherics) and whistlers are the most common names associated with VLF phenomena in the atmosphere and magnetosphere. They are also known as musical atmospherics, auroral chorus, ionospheric radio, natural radio, among other names. VLF dominates the region from 1 to 30 kHz, with most sferics detectable using relatively simple equipment ranging between 1 and 9 kHz. These are enormously long waves, but since they travel at approximately the speed of light, once received on an antenna they end up in the human audible range without having to be transposed, unlike other signals which have to be brought up or taken down many octaves into the audible range, or sonified from mathematical models like the sound of the Big Bang, hundreds of thousands of years squeezed into fifteen seconds or so.

Sferics are caused by a variety of sources, primarily the full spectrum electromagnetic bursts caused by lightning, which then bounce around the ionospheric cavity and at times they are caught up in the magnetic ducts or flux lines of the magnetosphere. The higher intensity frequencies often travel faster than the lower, the delay producing quick sliding tones called tweaks and longer delays producing delicate glissandi called whistlers. They can bounce in the ionosphere and from one hemispheric pole to the next, spiraling around magnetic ducts, causing even greater delays and echo trains of whistlers. The initial bursts of lightning can be detected from over 1,000 km, and while the whistlers themselves can travel tens of thousands of kilometers, tightly spiraling the flux lines of the magnetosphere, itself measured in the magnitude of "earth radii." Sferics that are not prefaced by a proximate noise of a lightning burst most likely originate from lightning strikes in another hemisphere. Given that there are usually more than 2,000 thunderstorms in the world at any one time, with lightning flashing globally at 100 times per second, and adding to this the other sources of electromagnetic activity producing VLF, including the constancy of solar winds, exceptional coronal mass ejections, auroral activity, sprites, meteors — practically anything that moves generates electromagnetic signals — there is potentially a great intensity and variety of sounds to be heard, although that potential is rarely realized because it is often dependent on space weather and earth weather. There are a greater number of influencing factors.

Sferics were first heard by accident by Thomas Watson in 1876. You will know Watson as a sidebar in history, as Alexander Graham Bell's assistant, the first person to receive a telephone call; his name being the first transmitted word. For me, however, Thomas Watson was the cultural pivot of electromagnetism, the discoverer of radio, as well as the first aesthetic practitioner of noise, a fairly humble engineer entirely unaware that he was displacing Pythagoras, Marconi and Russolo, in that order. Just as Lautréamont had signaled the sound of the Big Bang of modernist aurality in his novel the *Song of Maldoror* when the protagonist's own horrific scream punctured the membrane of his deafness and created the new sense of hearing, Watson's accidental discovery of VLF signaled the electromagnetic signals of the same cultural Big Bang of aurality when the night opened to the heavens and he heard what had previously only been imagined. It happened right after the invention of the telephone when he hooked up a telephone to a half-mile long experimental line running over housetops in Boston. This line acted as an unwitting antenna.

It was the iron wire about half a mile long, grounded at each end...run over the housetops very soon after work in the new laboratory was started. It was the first outdoor telephone wire ever put up and it played an extremely important part in the development of the invention... I

used to spend hours at night in the laboratory listening to the many strange noises in the telephone and speculating as to their cause. One of the most common sounds was a snap, followed by a grating sound that lasted two or three seconds before it faded into silence, and another was like the chirping of a bird. My theory at the time was that the currents causing these sounds came from explosions on the sun or that they were signals from another planet. They were mystic enough to suggest the latter explanation but I never detected any regularity in them that might indicate they were intelligible signals.¹²

Merely speculating on the source alone would not have kept him listening for hours at night, instead, the pleasure he found in the noise/music had precedent in the regular nature walks he had taken all his life. Other engineers and telephanists in the late-19th century would hear the same as they listened into lines and cables using telephones. VLF began attracting serious scientific attention only after WWI, with a paper by the German scientist, Heinrich Barkhausen, in which he cited the experience of soldiers involved in electronic surveillance of enemy communications.

During the war, amplifiers were used extensively on both sides of the front in order to listen in on enemy communications. Partly because of faulty insulation and also due to inductive action, stray earth currents spread out from the vicinity of the telephone line. Although these currents are extremely weak, they could be made audible by exceedingly high amplification...At certain times a very remarkable whistling note is heard in the telephone. At the front it was said that one hears "the grenades fly." So far as it can be expressed in letters, the tone sounded about like "peou."...These whistling tones were so strong and frequent on many days that at times listening in was impossible.¹³

Russolo described the acoustical signature decay of the fuse in shells and grenades flying overhead as "a furious *meow*, simultaneous with the explosion itself. No matter how short, this *meow* produces a rapid enharmonic passage, descending more than an octave... I remember that soldiers remarked of the first shrapnels that there must have been a cat inside."¹⁴ Electromagnetic *katzenmusik* makes the sound *peou*. In the mid-1920s similar electromagnetic sounds crept into people's homes through their radio loudspeakers: "the hiss of frying bacon and the wail of a cat in purgatory."¹⁵ For most people, such noise interfered with the signal, for others it was the signal. The poet and artist Stefan Themerson built himself a wireless set in 1924, when he was 14 years old, and reveled in what many other people found wonderful:

What fascinated me more than the fact of hearing a girl's singing voice coming to my earphones from such strange places as Hilversum, was the *noise*, to me the Noise of the Celestial Spheres, and the divine interference-whistling when tuning. It became an instrument for producing new, hitherto unheard sounds, which at the time no person would have thought had anything to do with "music."¹⁶

The composer Pauline Oliveros, recounted something similar while growing up in the 1930s:

I used to listen to my grandfather's crystal radio over earphones. I loved the crackling static. I used to spend a lot of time tuning my father's radio, especially to the whistles and white noise between the stations... I loved all the negative operant phenomena of systems.¹⁷

The whistling is, of course, heterodyning, the sound of the mechanism itself, not the whistlers of sferics. Actual sounds of VLF would not be used, or attempted, until the 1967, when Pauline Oliveros invited Alvin Lucier to University of California at San Diego for a residency. Lucier had heard a scientific recording of atmospherics and wanted to do a live performance using those sounds. They tried unsuccessfully to detect some, no doubt because they were too close to electrical interferences from civilization and because they didn't know what they were doing. It was not until 1981 that Lucier recorded VLF atop a Colorado mountain for his composition *Sferics*.

Lucier, a composer known for conceiving of music as an attendance to phenomena, much like others in the Cagean tradition, but one for paying special attention to acoustical phenomena in particular, without attaching metaphysical riders to them. He also is keenly interested in the performative aspects of the science of acoustics. Other composers in the 1960s and 70s moved their scientific encounters into instruments (synthesizers, computers), but Lucier has always been interested in the sound that occurs within acoustics, so to speak. He arrived at his compositional strategy using acoustics through a systems approach characteristic of electronic music. His strategy was to take the processes inherent in electronic music he encountered in the 1960s and to turn them inside out. The musicians using electronics at the time were using hardwired circuits within synthesizers, or programming institutional mainframe computers, or using DIY approaches with separate modular components, ala David Tudor. Thus, they were all involved in modifying sounds by sending them through the system as signals, releasing them acoustically only at the end of the process. Lucier, on the other hand, developed a way to break open the components and circuits and let some air in, to let the acoustical properties of space modify sounds. *Sferics* may at first seem somewhat anomalous within the context of the rest of his work, his traffic and trade between acoustics and electron-

ics, between sound and signal, found natural lodging at that point where electromagnetic signals coincide with the human audible range. In fact, it may be exemplary for a body of his work where space, in the sense of distance, let's call it *long sound*, is used to generate and modify sound/signal. In *Music on a Long Thin Wire* (1977) Lucier took a Pythagorean monochord and stretched it out over the length of a performance space; in *Quasimodo the Great Lover* (1970) sounds are miked and amplified through a series of rooms of a building, or over other long distances, with the intervening space modifying the sounds at each relay; and in *I am sitting in a room* (1970) the sound is recycled through the same room to both intensify the resonant frequencies of the space and to lengthen it. For Lucier, knowing the means of the production of sferics was a primary source of poetics. These are huge global phenomena, actually, larger than global since magnetospheric phenomena themselves are measured in earth radii. Most are produced by the monumental power of bolts of lightning and bombardment of solar winds, traveling thousands and thousands of kilometers to produce the most delicate and sublime little blips and slides. If Grand Coulee Dam was rigged in its entirety to play the delicate lilt of a shakuhachi, it would still not embody the difference in magnitude.

The musical and artistic use of sferics has flourished since the 1990s and there are now dozens of examples of the use of sferics and related VLF phenomena, some of the most interesting found in the work of London artist Joe Banks/Disinformation, New York musician David First, Sydney artist Joyce Hinterding, and New Zealand artists Adam Hyde and Honor Harger. Strings and other instruments have begun to reconcile with the new cosmos in the Kronos Quartet commissioned composition by Terry Riley called *Sun Rings*, based on atmospheric and radio astronomy signals, Pauline Oliveros' *Primal/Lift* based on a new age interpretation of the Schumann Resonance, Maggi Payne's *Solar Winds* and Amy Gosfield's *Lost Signals and Drifting Satellites*. Others are working with the electromagnetics emanating from insects, synapses, household appliances, consumer electronics and the saturation of signals in urban environments. Such terrestrial activity signals the development of a different noise/music aesthetic, where the Aeolian harp has become a spark harp, jumping across the gap of an arc welder to amplify the sound of a different forge into the imagination of the cosmos. It is grounded in the quotidian where the CMB can be heard between stations and VLF presents itself in the audible range. Brain waves, data sphere, recursive astronomy chaotically cradle people in a cosmos of signals; communications perforate the body, meld with spectral communities constituted in the atmosphere amid natural radio couched in a universe rife with radio signals and subtended by the faint cry of its birth, the atmosphere left over from the Big Bang. This is a genre of cosmos we should get use to, one based on the ubiquity of the signal; it has been here for over 130 years already and is definitely not going to go away.

Notes

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Sophea Lerner

LIVE
FEEDS...
HYBRID CUI-
SINE FROM
THE NEW
RADIO
KITCHEN...
A DINNER
INVITATION
TO RADIO
COOKS EVE-
RYWHERE

We are at a particular moment where radiomaking offers the possibility to build audience relationships that bridge the listening modes of terrestrial and net broadcasting by drawing on the diverse bodies of practice that have grown up around these technologies, and around the ways they are regulated and distributed. The forms of radio production that emerge are not the Futurist ideal where food can be centrally broadcast directly into the stomachs of the listeners, but a network of exchange, where specific and local conditions must negotiate spatial and temporal distance to be shared.

Taking food as a model for participatory activity, collaborative creation, and sonic exchange, our radio cooks explore ways to lay on splendid feasts for our listeners...

[sizzle sizzle]

We are radio cooks. Our audiences are not consumers but diners. They talk with us while we are in the kitchen. They help chop the vegetables. They comment on what we serve up. And maybe they bring some ingredients or a bottle of wine.

[pop glugluglug chink]

Cooking together as a creative activity can be a very revealing collaboration in miniature. Are you a whizz at following the nuances of complex recipes with the best ingredients? Or do you shine brightest in the kitchen when improvising with leftovers? Perhaps you are the beloved guest who pays the compliment of wanting third helpings? Whatever your appetites, this is radio that aims to nourish!

Hybrid radio cuisine distributes active performer/participants and lurking performer/participants throughout the networks in which it takes place — there is no separate location for audience. It is a networked experience both in its conception and execution. Rather than represent a network to participants, let us invite them to share food/food for thought from their own global position and local variables. We aim to provide suitable hosts and clear protocols for open participation.

We exchange recipes and we share ingredients, exploring models of open content and accessible technologies as ways to circumvent commercial and legislative gatekeepers of spectrum and net. Our recipes are in a state of constant variation as we experiment with the ingredients and utensils at hand.

[clatter clang slosh rattle crunch]

We have learned a great deal from the fine cuisines of radiophonic tradition and as we enter new territories we seek to work with what is fresh and local. Let us take our time to savor a “slow media” like “slow food” — a culinary ethos, which contends that local fresh produce prepared carefully and consumed at leisure may be more nutritious.

Everybody needs to eat and the radio experience should nourish everyone who participates in it. If the experience doesn't provide sustenance our guests will choose to dine elsewhere and in better company.

[crackle hiss whine click beep whirr tick hum]

What is interesting about radio as a live network between remote locations is the location and not merely the fact that it is remote. Here and there have different flavors. Food, like sound, enters the body and indexes it in place and time. The processes of digestion and metabolism are temporal and cyclic and cannot adjust easily to sudden changes of time zone, resulting, for example, in being hungry at the wrong time when jet-lagged.

Listen globally, eat locally.

From grabbing a text-only coffee and cake in an ascii only virtual world, all the way to gourmet dinner shared across continents, the idea of food sharing as a trope for exploring remote social interactions is not a new one. But this myth of a shared eating space gives way to an engagement with local conditions of possibility for the meaningful exchange of sonic and kin-aesthetic experiences based in actual eating spaces which are not shared, and which are located in very different places and spaces.

Without attending to the specificities of the places involved, the transmission of their locales collapse into indistinguishable virtual space, which can never be truly remote nor fully present. Our radio cooks explore the local motives and conditions that precipitate remote connection, particularly through an orientation to sound. Sonic experiences as indices of being in place and time precipitate a close knit region of intertwined concerns between the interfacing of spaces and the technologies and techniques of remote connection.

[murmur shuffle scrape crunch crunch]

In the text "Where are We Eating? and What are We Eating?" John Cage brings together place, sound and motion around the trope of food by describing the practicalities of finding meals as the calorific furnaces of Merce Cunningham's dancers on tour metabolize time and place. Food becomes a filter of circumstance. This invites an analogy between food consumed and energy expended, between time, place and what is eaten. Nearly 30 years later the question "where are we eating?" has some different resonances and perhaps the digital kitchen engages culinary quanta in a somewhat changed economy of consumption.

Food cannot be broadcast. We cannot download food, it must make a physical journey if we are to eat it far from its origin. The Futurist vision of "nourishment by radio" is a logical extreme of the ways in which those physical journeys are backgrounded in contemporary food economies. And the fascist aesthetic of disconnecting the substance of food from its nutritional

function that pervades Futurist gastronomy, calls for a cuisine of olfactory and oral sensations that is as divorced from the necessity for sustenance as it is unsustainable.

To what extent does the consumption of food impact the ecology and economy of place? The availability of foods in a certain place may also have a great deal to do with the displacement of people. "Where are we eating?" can mean "where are we when we eat?" It can also mean "what place do we consume?" Broadcasting originates as a local scattering of seeds for the production of food, dependent on the immediate environment of reception in order to germinate and flourish.

What time is dinner? As dinnertime moves through different time zones, so does dinnertime conversation move through different languages and geopolitical contexts.

What are the sounds of differing food cultures? And how are our "foodscapes" changing? Does the contradiction between welcoming foreign foods, but not always foreigners, ever leave a bitter taste for those far from home in the wrong kitchen with the wrong ingredients? But also, what is local and fresh? What is in season where you are?

The audience is invited to the table, and their physical listening space considered. Whether cooking or dining or a bit of both, where they are determines their mode of reception. Of course, it is utopian to suggest there is a place at the table for everyone, even if none are turned away. Where are we eating? And which ingredients of the situation define "we"?

In a culture of media practice that frequently privileges visual modes, the preparation and consumption of food demands the extension of our sensory perception's engagement to sound, tactility and taste. The challenges of engaging these very "present" sensations remotely provide a rich ground for investigation and experimentation as well as for exploration of the connection of motion and gesture in public space, hybrid transmission spaces and dispersed, mobile modes of exchange. Welcome to a moveable feast with its morsels of digital finger-food for sampling and digestion.

[crackle squelch whirr gurgle]

Whilst customs differ as to how the invitation is framed in different styles of cooking and eating, few need an explanation that food invites participation. With the emergence of cooking facilities that are distributed rather than centralized, passive consumption of radio can yield to the possibility of dishing up whatever we find delicious by getting in the kitchen and cooking from wherever we are.

The early histories of radio are filled with traces of possibility that re-surface as the Internet has provided a vehicle for exploring radio as a networked medium in a way that the State-regulation and commercial exploitation of radio spectrum has made difficult. However, we now come to this space with a history of radio art, which has contested and negotiated its

place on the dial, engendering a body of practices that have nourished our ears.

Beyond being a new venue for pre-existing utopian ideas, net radio practices engage not only the specificities of the Internet as a medium for audio but also the increasing necessity to address the dwindling access audiences have to radio art on terrestrial radio.

There is a diminishing space for live practices on public radio arts programs, and a proliferation of new ways to feed material into net radio practices using participatory tools or simple techniques such as podcasting. We can conserve access to our radiophonic delicacies by stocking up our online larders. But alongside sumptuous morsels of canned duration, let us also prepare fresh feasts in a proliferation of live feeds.

[clatter swoosh clang rattle scratch]

INGREDIENTS

Here are some popular ingredients for hybrid radio cuisine. Recipes should be adapted to individual tastes and according to locally available ingredients.

Transmission:

Mini-FM is always a popular delicacy and there is nothing fresher than the crackle of a home baked transmitter. But even if you live somewhere with very harsh broadcasting legislation that doesn't permit micro-broadcasting, keep your ears peeled for seasonal opportunities such as special event licenses.

Locating a transmitter near a good net connection or vice versa will allow you to operate your station from anywhere with online access. This innovation in kitchen ergonomics opens the way for many cooks to add ingredients to the mix.

Server:

Any reasonably fast machine will do. Operating system to taste. If you can stomach administrating Linux then this robust and versatile choice will enable you to serve up a tasty selection of experimental artist's software in a variety of delicious open sources. A light and lean "heat n serve" variation could be as simple as a Mac-mini. Either way you'll want to season your box with at least an audio player, access for uploading files and a means of remote control.

Netconnection:

Bandwidth is a bit of a decider between dishing up a whole station and relaying a snack of a stream to a server somewhere else. Even if you are eating on the run with free wireless in a café someplace, every spot on the network has it's own local flavor. If you can't get the bandwidth you need for what you want to bake, then you need to take advantage of available band-

width somewhere else (see serving suggestions). This may sound like importing off-season fruits from the other side of the world, but it uses a lot less fossil fuel.

Telephones:

I.P. telephony and computer-based phone interfaces, SMS to speech gateways, etc., all enhance your options for contribution and signal routing. Sometimes a plain old telephone is just the easiest way to do a live feed. Handy hardware to have is a hybrid for connecting the phone signal to an audio mixer. You can try making your own, see if your DIY radio friends have an old family recipe.

Software:

If you enjoy software slightly *al dente* then test driving experimental artist's software can be a real treat as there are a lot of very fresh morsels around for remote real-time collaboration, developed by practitioners in the field. Though this often necessitates direct collaboration on produce that you won't find in the marketplace. For those looking for something a little less rare there are many cheap or free options for streaming, playing, storing and routing audio. Exact flavors depend on which platforms are most easily available to you.

Programs:

Of course the most important ingredients in the new radio kitchen are the programs themselves. Technology salad by itself is never going to provide the nourishment a listener or participant needs. Following the debates about GM food makes it quite clear that consuming only items subject to exclusive intellectual property regimes may not be entirely healthy. Fortunately, there are numerous ways to approach open content and creative commoning as a radio practice that encourages diversity and experimentation.

SERVING SUGGESTIONS:

ÄÄNIRADIO

Making the most of cool low cost special event licensing to the non-profit and education sector in Finland, and of the abundant bandwidth available in this Nordic country all year round, ääniradio is a sporadic FM broadcast in Helsinki that celebrates open content and creative radio. Take whatever radiophonic ingredients you have available, add a large pinch of imagination and don't expect it to turn out the same two years in a row. It's a fairly economical dish that can feed the entire city of Helsinki and an online audience with unexpected listening for up to a month at a time. Open content programming policies will keep your copyright collection costs down of course, but requires careful sifting to keep copyright material out, as this

can sour the whole dish. Making use of various bleeding edge collaborative remote scheduling and mixing software allows cooks to stir the pot from anywhere on earth with a net connection. Just sit your program server and streaming box next to the FM transmitter and connect it to the Internet. Easier than baked alaska.

GRILLIRADIO & where_are_we_eating?

This is a high calorie treat for occasions such as ISEA2004 that makes use of digital food available on the streets of Helsinki as part of a multi-course meal served up in various locations around the world. Grilli kiosks are an important part of local food culture in Finland. Small street kiosks that open at night to sell sausages, burgers, and other hand-held fast food to people on their way home from drinking. This dish foregrounds the grilli as a street interface to the where_are_we_eating? global sonic feast. Take one informative and witty tour of grilli kiosks accompanied by radio operators relaying a mix of the tour, a stream of grilli sounds from around the city and the sounds of international snacks and suppers from around the region gradually fading in and out. Garnish with on-the-spot phone interviews coordinated by chat over GPRS and mixed through a phone hybrid back into the stream going up to the transmitter and out to the radios on the street. After the ranskalaiset and lihis with kaikki mausteet, follow with another six courses over the next ten hours from Sydney, Copenhagen, Brighton, Baltimore and Santa Barbara...

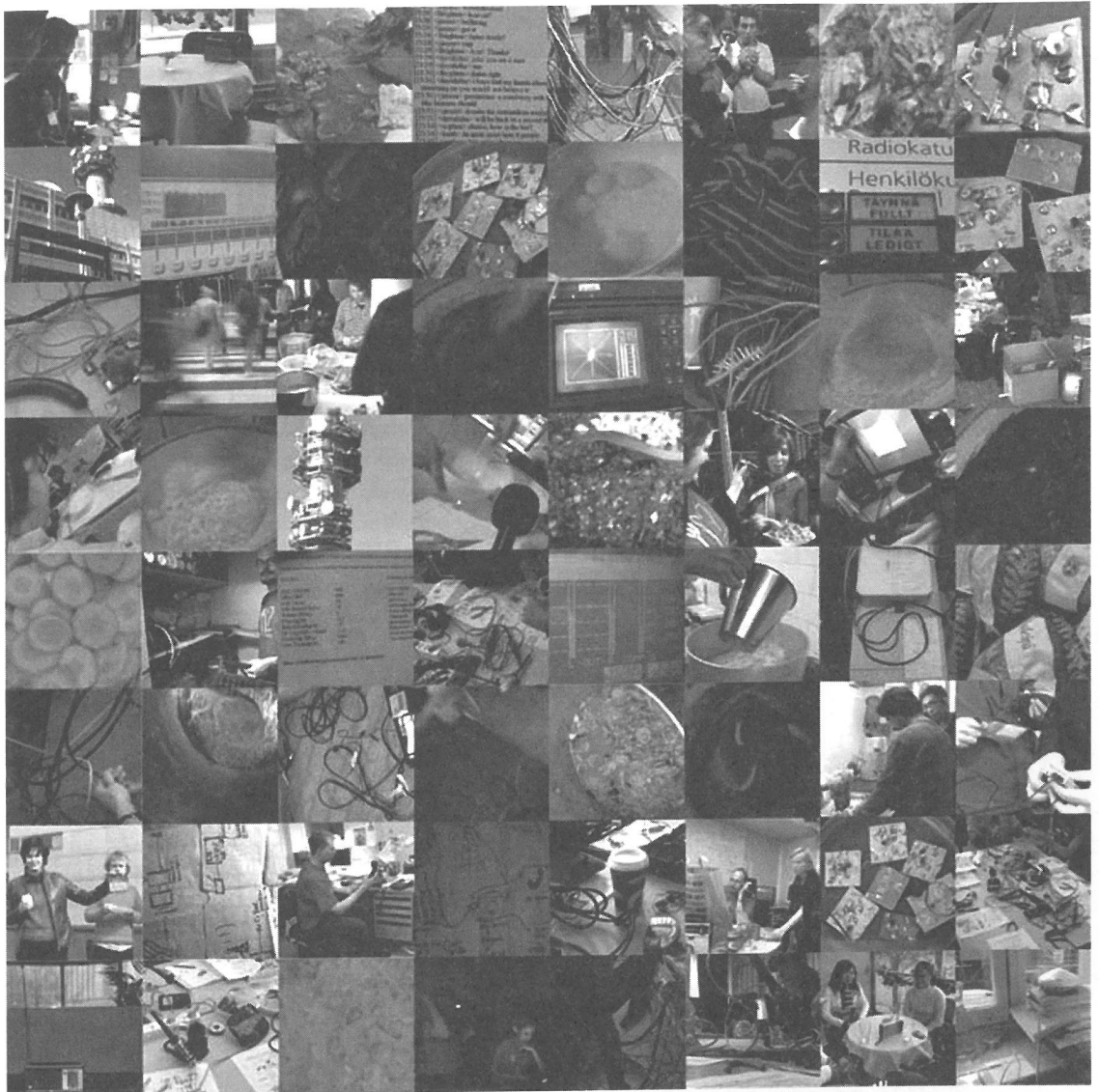
Particle / Wave

Why not have a really big cook off over five days with tens of fantastic radio cooks from all over the world. Select flavorsome practitioners from diverse areas of creative radio practice for an exchange between traditional public radiophonic production practices and the techniques and tactics of newer network-based radio arts. Take the output of 20+ artists talking, listening, performing, and making radio on air, online and on the streets... and cooking together, and combine all the ingredients at once. Serve on a platform of ääniradio. Makes a great accompanying dish for Pixelache festival.

*

where_are_we_eating?, particle/wave and ääniradio 1.0 & 2.0 were realized by many people many places including: Adam Hyde, Alexis Baghat, Andrew Burrell, Andrew Paterson, August Black, Björn Ross, Bo Bell, Carol Hobson, Christopher Holtom, Colin Black, David Knight, Dinah Bird, Elisabeth Zimmermann, Emmanuel Madan, Erik Conrad, Erik Sandelin, James Vella, Jay Needham, Jo Frgmt Grys, Jodi Rose, John Evans, John Hopkins, Joshua Gumiel, Kate Sieper, Katja Kwastek, Keith Armstrong, Kelli Dipple, Lars Relander, Lee Azzarello, Leena Gävert, Linda Duvall, Lotta Partanen, Maria Tjader, Marie Wennersten, Mark McLaren, Matti

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elpueblodechina a.k.a. Alejandra Pérez Núñez

**BENDING
INF-ORMIA-
TIONAL
CIRCUITS**

Context

Radio Territorios (2006) was a series of five radio broadcasts on local FM radio “La Radioneta” located in centro cultural Ex Carcel, a former jail infrastructure situated on top of a hill in the city center in Valparaiso, Chile. *Radio Territorios* was made to intersect with the *Radio Territories* publication, experimenting with radio format in order to develop strategies for bending paths where information circulates. For this I primarily retransmitted content from other Internet radio programs, particularly content taken from Radio Numero Critico run by Jana Aravena and her network of Latin American lesbian-feminist radio organizations and from www.streamtime.org, which included Internet radio emissions from Iraq. In addition, the broadcasts included interviews with invited participants and a selection of not-so-easy listening music.

It was made as a way to experiment with the radio format as an interface — an interface to play with structures of the collective imaginary, such as the “mediascape”.¹ Mediascapes can be seen like layers of icons, words, ideas, combinations, patterns of information, symbols, cultural trends and economical tendencies that pervade our environments and daily routines. What would it take to make an effective intervention over these mediascapes in order to produce resonances within and through symbolic spaces? The approach was meant to address the possibility that as a medium community radio frequencies make visible, through radio’s ability to intervene, alternatives to mainstream media agendas. I see in this possibility of drawing new patterns in the mediascape (in this particular case, in Chile), a way to mobilize units of social change.

As part of my project, I took archives from streamtime.org ftp and broadcasted files, specifically instances where Iraqi community radio commented on their own practice, reflecting on the trouble in making community radio in a country where persistent censorship has been enforced. A non-authoritarian vision to self-organize was their starting point, yet the lack of experience at enforcing the right to speak and support each other’s points of view was an obstacle to their practice. Chronic situations of war influenced what I understand as the “collective imaginary,” in the sense of not allowing models based on collaboration to be understood and constructed. Somehow similar situations can be recognized in post-dictatorship Chile, where civil participation is still scarce, disarticulated and precarious. The regularity of censorship and the continuous use of authoritarian models seem to impoverish mediascapes through a systematic disappearance of diversity in related discourse.

Strategies of visibility: Informational patterns to be performed against the mediascape

The Internet radio project “<http://radionumerocritico.cl>” began in 2002, although Chilean lesbian activist Jana Aravena started her media

practice long before.² The broadcasts are structured around a series of debates engaging issues that don't arise within the public news, such as feminist analysis of society, and news about political prisoners, women's sexual rights and lesbian organizations. For example, the program "Tribadas" focuses on feminist analysis and debates. Lesbianism in Chile is a political position, a role in representing a silenced diversity (kontrainformacion). Chilean media, such as newspapers and television, is dominated by the oligarchic class and is primarily centered around national news and the life of TV artists, singers, soccer or tennis players. This systematic media agenda leaves aside a high number of interests of citizens that perform their practices away from these central circuits of both identity and media. In contrast, the labor of feminist media workers in Chile is focused on giving voice to the under-represented and under-mediated, especially in the case of lesbian groups and political prisoners. They mainly do Internet broadcasts and have an archive open for retransmission. Retransmitting operates as an active and dynamic means for producing radio broadcast, inserting alternative content, commenting upon existing material, and charging a sense of consciousness against the usual option of being passive and receptive to media production.

As part of my project *Radio Territorios* I wanted to listen to a variety of patterns on the radio, not only by paying attention to music playlists but also through active reflection and dialogue with invited participants. I retransmitted content in order to interrupt media-patterns; I wanted to bend the mediascape. In using content from www.streamtime.org, specifically files from community radio in Baghdad, the perception of the foreign and faraway was utilized as a change in the usual patterns heard on local radio. My intention was not to be journalistic. This was an intervention planned more on a perceptual level, on a direct sound plane. I interviewed people representing various sectors, such as lesbian organizations, free software community, and cultural philosophers, and incorporated this into the transmissions, intersecting different languages, contexts, and intentions.³

bending strategies:

- retransmission
- cut-up
- overflow
- persistent use of discontinuity
- silence
- recursion
- recycling

A mixture of localities, of temporalities, to recycle content in order to develop discourses, interpretation and share a semantic drift. Away from the dominant media agenda, these experiments dealt with the need to liber-

ate our mediascapes from repetition and homogeneity. It is an action against the uniformity that remains from military domination in Chile and that today takes the form of the powerful logics of the market. The kind of pattern we attempted to develop in the radio broadcast was recursive, looking at itself over and over. Such strategy was understood to undermine the tendency toward production enacted by mainstream media, a rapid fanaticism toward the production of content, a kind of anxiety for and with production.

Night writing

I guess there is a difference between a morning writer and a night writer, the one writing during the night is missing light and only distinguishes shapes; she circulates more in a space where the writing happens as a shape that she tries to unfold. A media “polygon” is a shape made of human instances, a form of a social nature since it depends on collective work, as in the Gollum Project (<http://gollum.artefacte.org/mapuse/map.html>) — a drawing of networks of streaming instances, meaning found in a configuration of technological parts, human labor, infrastructure and bonds. A media polygon is a network of conversations, intercontinental processes of exchanging information and bits. This image is at least a snapshot of the mediascape, where there are angles and shapes of emissions facing each other. We can also see these abstractions happening on the web through the linking of RSS feeds for example, and we can perceive constantly sharp forms in advertising that links corporations to daily life. Media acts in space: there are coordinates, nodes, polarities, and platforms. Media performs a landscape of events⁴ that extends over-crowded fields of information. Media polygons are abstract representations of these media configurations performing in the physical space of frequencies, from radio to microwaves and code. Media polygons have an effect at a perceptual level, direct, physical, representational, by giving us a form of the mediascape, but I also want to understand it as a figure, a polygon, a geometrical abstraction upon and against which to perform. Perhaps it is the night that is not letting me see the concepts and only the shapes, but in this way some bending strategies were designed and mapped. In *Radio Territorios* we tried to design a perceptual intervention, where elements such as re-location, silence, and changes of rhythm had the role to re-draw the official mediatic patterns that so negatively strike people with a propagation of boredom, and install open and non-linear patterns to be filled by collective imagination.

Multiple strategies have to be invented and re-appropriated in order to erode the currents of present media. Tetsuo Kogawa speaks of “micro-radio,” where radio stations are re-appropriated by individuals or small groups. I would like to add to this, the relocation of online broadcasts to open frequencies, and the amplification, for example, of a closed circuit of information coming from the Internet landscape, that of hackers or sexual minorities to the public of FM frequencies. I think we need to pipe content

instead of producing it anymore. Perhaps what I have tried to do here is a kind of composition that is self-referent, repeating over and over things that were somewhere said in the mediascape: to trace the movements of the media figures over and over, as a form of amplifying and overwriting their presence. It is echoing emissions from different locations, reflecting and discovering silenced corners of these mediascapes, where small voices think of more advanced forms of society.

Units in exile that can link together

Kogawa's concept of "micro-radio" relies upon low-power radio transmitters. On the one hand, his practice deals with the actual communication technology, its cybernetics and the sound of different recursive orders. On the other, micro-radio is designed to counteract informational patterns. In *Radio Territorios* I wanted to start from a similar stance, but forcing attention to the narrative spaces within the mediascape and thus towards the creation of an independent "microstory space." The method of "in exile" inspired this design where I linked different geographical locations. I wanted to start from the idea of different cybernetic orders to be able to understand actions happening over mediascapes.⁵ Circulation within these spaces is mediated by agendas of different sorts that have an effect on the legitimization of cultural contents.

Chilean mediascape may be seen as homeostatic and extremely conservative, a system that is closed and functions through circulation within a fixed number of components that make contact with the environment in order to preserve a form of equilibrium between external and internal coordinates. What happens then when I overlay Internet radio from Baghdad over FM radio in Valparaiso? Content that is 4 years old, retransmitted over the city? Is this content dead? Or could it still resonate within the imagination?

If we think our mediascapes as narrative environments and thus as sets of recursions, verbal and non-verbal, where our symbolic imaginations are shaped through exchanges, repetitions, and consensus we can also understand it as a landscape composed by different systems, following some conditions, deriving some rules out of the history of interactions between symbols, media, and environments.

Kogawa wants to focus on the microspace: "given the age of various global means such as satellite communications and the Internet, micro-radio can concentrate itself into its more authentic territory: microscopic air-wave space."⁶ I have chosen to concentrate on the micropolitical space where subtle transductions and overt collisions against subjectivities are being performed by market driven logics. A mixture of cybernetics is to be tested here, observed: a mixture of localities, a mixture of temporalities of "microstories" and of cultural issues, and finally, a mixture in the form of different orders applied inside the action itself covering the content transmitted, the ways to broadcast and the ways to reflect upon the practice.

Unusual political figures arise as the result of processes of production of the imagination

Chile never had a woman president, and never a president with a personal history like Michelle Bachelet. Her father was tortured and killed during the Pinochet dictatorship. I see the election of Michelle Bachelet in 2006 as recognition to the families of "detenidos desaparecidos" (families tortured and killed by the military regime). She is also a woman divorced, which for a catholic country such as Chile makes her an outcast (the right to divorce has only found judicial support since two years ago). Some barriers in the collective imagination have moved, fear of our history ceased for some time, enough to give us a smiling woman president, the first one for Chile, where women have a secondary role and male culture is a hegemonic and oppressive barrier that leaves women and other minorities in a silenced condition. Chile is an ultra-conservative country, if we think for example that the incorporation of women to the work environment is only 37% and that sexual and reproductive rights are non-existent. Many laws that were implemented during dictatorship times still rule, like illegality of abortion, (not even as a medical right).

Collective imagination may be creating other forms of governance that take into consideration the needs of non-recognized populations, minorities as poor, *sin-papeles*, immigrants, precarious workers, women, etc. A later example of this movement in the imagination, also happening early in 2006 was the mobilization of thousands of students from secondary school, claiming their right to free transport and free access to examination to go to university. Again this was never seen before, 16-year old students calling the government to make a decision towards their list of priorities. They actually gave an ultimatum to the government threatening it with the organization of a national strike that would involve work sectors. Chile is a society profoundly embedded in masculine logics, which made possible military rule and extreme violence.⁷ Something has "moved" within the collective imaginary that made possible the election of a woman and the success of student movements, something has empowered vectors of social recognition.

Changes of the imaginary are followed by microscopic activity of social monades, like student organizations or like feminist groups. In general, groups that represent the non-represented and invisible. They are highly mature groups, ready to be open to higher degrees of social complexity. These are groups that elaborate novel forms of democracy and other social systems, as self-produced, anarchist and self-organized systems. I think these changes are preceded by small variations, and in the radio project I present in this article I wanted to give voice to some of these creative forms that work on appropriating the mediascape and conduct alternative movements inside the spaces of the imagination.

Notes

1: Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis: University of Minnesota Press, 1996). 2: Thanks to Jana Aravena from Radio Numero Critico and Eleonora Oreggia from streamtime.org 3: The interviews for *Radio Territorios* included: Paula Galvez presented the activities of local lesbian groups and commented on the need to self-organize. There is a group formed by affinity, as a way to find peers and environments to identify with. She also reviewed the history of the lesbian movement in Chile, a marginal story of one of the less represented collectives in the country. She finally gave information related to the VII Lesbian Feminist meeting of Latin America and el Caribe to be held in 2007. (<http://elflac.blogspot.com/>) Free Culture and Free media (medios libres) was conducted through a conversation with media hacktivist and software dealer Yves Degoyon. We spoke about circuits and paths where Free culture seems to concentrate, through hacker meetings, festivals and websites, the strategies involved in media streaming and how a network of servers can make possible independent media. Yves also commented on the relationship between Chilean Internet radio <http://radionumerocritico.cl> and the Gollum project <http://gollum.artefacte.org>. Sociologist Leticia Arancibia analyzed the changes of imaginary collective representations: imaginaries of power and identity in post-dictatorship Chile, the persistence of authoritarian imaginaries, and of contents in dispute with hegemonic content. The interview was made to have a sociological point of view on a micropolitical scale, wondering about the rise of different imaginary structures, those that can execute domination and those that can perform liberation at various levels. There are changing processes regarding cultural representations. At a micropolitical level we can observe how authoritarian content operates in diverse areas. There is no equality of conditions to construct symbols, and people are forced to cope with official narratives, which implements a deep fog of homogenization. Here is where radio comes in as a medium to make possible a platform to question this homogenization. We also discussed around the question of bringing non-linearity to the mediascape, for media works supposing that daily life is homogeneous, which has a relation with domination. Non-linearity would bring diversity, drawing such processes into question. If there is cultural hegemony, it means that there are contents installed as legitimate. Nonetheless, there are different groups in society thinking at a micropolitical scale, placing interests and viewpoints in permanent dispute. 4: See Paul Virilio, *A Landscape of Events* (Cambridge, MA: MIT Press, 2000) and *Desert Screen: War at the Speed of Light* (London: Athlone Press, 2002). 5: See H.R. Maturana & F.J. Varela, "Autopoiesis and Cognition: The Realization of the Living", *Boston Studies in the Philosophy of Science*, vol. 42. (Dordrecht: D. Reidel, 1980). 6: Tetsuo Kogawa, (November 24, 2002/May 7, 2003/May 22, 2006). A microradio manifesto in <http://anarchy.translocal.jp/radio/micro/index.html> 7: Thanks to Leticia Arancibia for sharing her ideas and her current work for her PhD thesis on the imaginaries of post-dictatorship Chile.

CD NOTES

LIGNA

“Future of Radio Art” (2005; excerpt)

Text LIGNA; Voice Anna Stern; Production Radio Copernicus;

Credit to Martin Conrads, Sabine Breitsameter.

The Future of Radio Art is written to be performed in any pedestrian zone of an inner city by at least 10 big radios that are hidden in plastic or other shopping bags. The radios have to have a certain distance to each other, that the passerby could not recognize immediately from where the voice is coming. Then the situation of the homogeneous pedestrian zone could be irritated by the dispersed voice. The dispersion of the radio fills the empty space as a present without being dominant, introducing another logic than that of the exchange of commodities.

Kode9

“The Last 3 Digits” (2006)

Composed from transmissions of London pirate radio station

Rinse FM 100.3, 2003-2006.

Kristen Roos / Jackson 2Bears

“Echo Location: The Parking Lot Transmission” (2005)

This recording is the result of two audio art projects that were formed in Victoria, Canada in 2005: *Echo Location* explores the contemporary relationship between mobile communications technology and the body. Our process typically involves traversing a selected course in a chosen environment, gathering sonic material using mobile phones that record directly onto electronic voice mail, as well as using mini-disc and DAT recorders to capture field recordings from the area. The sound obtained during these audio walks is then used as source material to be manipulated in a performative context. *micro radio* is Kristen’s ongoing radio art project that also involves capturing audio material using portable recording devices. After the audio is gathered, it is sculpted using digital sound software, and broadcast to mobile radios (in cars and boomboxes) within the environment that it has been captured from. The sounds are stored on a laptop and broadcast using a portable, extremely low-power radio transmitter.

The recording that appears on the *Radio Territories* CD is a live *Echo Location* performance (Open Space, January 2005) that involved using sounds captured from downtown Victoria. This recording was subsequently used for a *micro radio* broadcast in a parking lot in downtown Victoria in May of 2005. Listeners were encouraged to arrive by car, and tune in on their car radios. The parking lot itself is situated between an emergency shelter for the homeless on the right, and a derelict building (that was once a train station) on the left. The abandoned train station has a history of squatters, and currently stands with plywood over the windows and doors. Homeless people use the back and sides of the building as a place of refuge. The shelter to the left of the parking lot is another place of refuge. At all hours the homeless use the doorway as a place to wait, sit or sleep. The parking lot that stands between these two buildings has the remnants of clothes, needles and condoms;

one must look closely to see these details, and the many levels of *repurposing* by various members of the community that are taking place. Given this environment, it may seem terribly inappropriate that the sound collage that has been broadcast within this space does not contain the voices of the homeless population of Victoria. The sounds have been collected with technology that is largely inaccessible to this population. It is the *ear* of the *cellular telephone* that is broadcast to an audience who sit within their cars. Both of these technologies (cars, and mobile phones) speak of *mobility* and *speed*. The sounds that have been collected are also in keeping with these themes — cars, heli-jets, float planes, and the sounds of cell phones being dialed. The receiver of these *captured and controlled sounds* may choose not to focus on the derelict building, the homeless population, and the details of the strewn about objects (such as used condoms and old soiled clothing) by rolling up their windows, turning up the audio on their car stereos and focusing on the sounds that are being broadcast. In so doing, the audience experiences the captured aural environment of *urban telematic space*, while sitting in a vehicle that may have contributed the sound of its internal combustion engine to the collage that is received on its radio (many of the sounds of cars that appear in the recording were captured from the street that the parking lot resides on). The sound collage is a statement on the various forms of repurposing that are possible in any microscopic urban locale, as well as asking questions about the dominant forms of sound and noise that occur in urban settings catering to tourism and consumerism. Having said this, not everyone arrived to the broadcast by car. Some listeners came by bike or foot, and sat on the ground with portable radios and walkmans. The contingency of the broadcasts adds strength to the overall project by leaving certain elements to chance and uncertainty. It is in this sense that the transmissions act as *poetic proposals* that envision possible uses for radio. Rather than a grand world transforming vision, the broadcasts are small pockets; temporary moments in time that may change the everyday consciousness of the people involved.

Jason Kahn

“Space Stream” (2006)

Space Stream was composed from live audio streams of Jupiter’s radio transmissions, solar bursts and galactic background radio noise. These sound sources represented the most distant radio territories I could find. The galactic radio transmissions are caused by electrons spiraling through magnetic fields, though some people hold the theory that these broadcasts contain information as yet deciphered by our scientists.

apo33

“POULPE — fragment de flux (Bourges)” (2005)

This fragment of the octopus audio streaming from the tentacle installed in the Bourges public library was recorded one morning during breakfast when the flux coming out of the octopus that we had installed as a sound background started to develop complex and surprising form-mixing extracts of modified voices with

sounds coming out of the library, reorganizing its sound environment into a configuration of heterogeneous planes integrating modulation of rhythms & melodies. Breakfast became a listening session. Something happened in our daily practice that changed the movement.

Steve Bradley/ John Hudak / Joe Reinsel

"ShadowCast: Out of the Dark" (2006)

Notes by Steve Bradley: For the past six years, I have been experimenting and working with the "secondary medium" radio, net.radio (webcasting), and streaming technologies under the project name, art@radio — <http://art-radio.net>. I began the project initially to explore the use of radio in a university context to augment curriculum I was implementing in the Department of Visual Arts at University of Maryland, Baltimore County (UMBC). In December 1998, I released an international call to artists and musicians for "sounds from the fringes of sonic expression," and by January 1999, over 30 small CD, DAT and cassette tape size packages had arrived. By the next month, I had well over 45 submissions of sound and music to initiate art@radio. Prior to launching art@radio, few students at UMBC had little or no knowledge that there was a sonic-centric culture nor that streaming media was a growing and viable conduit for reaching a broader audience, now called net.radio. My interests, aside from presenting an open venue for radio broadcast for artists and musicians, was the potential of establishing a democratic virtual space for audience exposure to sound and experimental music that is rare in "traditional" radio. Most compelling for me at the time and which continues to hold my interest is the potential of building a community of listeners and participants without worrying whether or not what was broadcast had "commercial" or resale value.

In spring 2002, I was awarded a *rivercommission* from Hull Time Based Arts (HTBA), Hull, England. As part of my project "Reading the River," I proposed that art@radio be part of the commission in order to explore net.radio in a new context. During my residency, I presented two different events that would be streamed live from Hull, England. "art@radio on the River Hull" was a series of streamed works by artists dealing with acoustic ecology and variations on the theme of the river, was comprised of five evenings of approximately three hours each broadcast. The second net.radio component was an evening of live performance in collaboration with eight artists from Hull called "sonic landfill" streamed from the Ferens Art Museum, Live Space. During the performance we had 50 audience members and another 30-40 virtual listeners logged into the stream. This was the first time that the museum streamed from their site. This has since become a common practice for the museum in their LIVE Space. The possibility of connecting physical with virtual spaces through streamed events became my focus for the past three years. It has become important to me to investigate ways in which to incorporate the visual aspects of a live event through web camera technology as well as potential ways an audience might interact with the stream.

During my residency at HTBA it became obvious to me that art@radio did not have to be "tied" to the confines of the radio booth, but could explore remote loca-

tions depending on network access. This new access brought live net.radio into the fold of the evolution of networked performance. The ubiquity of broadband Internet connections, wireless local area networks, and the integration and constant improvement of streaming software and an audience hungry for sound outside of mainstream radio presented an ideal point of departure for art@radio.

Since moving art@radio out of the confines of the radio booth into more flexible remote sites, the potential of building a different kind of audience and participant has emerged. art@radio is a two-pronged project, promoting artist works through a regular weekly broadcast and sponsoring networked performance opportunities through invitation and query. "Shadow Cast" was one of the first projects to evolve from this new format. Three artists performed live for two hours in remote locations: Dobbs Ferry, NY; Baltimore, and Catonsville, MD, USA. The final mix was retrieved by "Particle / Wave," part of the *PIXELACHE 2005 Festival* through ÄÄNIRADIO, 99.4 FM and rebroadcast over Helsinki airwaves.

Each artist selected a site in or around his studio for a live microphone to be located. I set up a microphone next to a make-shift bird feeder on a roof ledge outside of the attic studio window, capturing bird sounds, periodic traffic noise from the street below, and the sounds of suburbia such as lawn mowers and children playing. The Catonsville sound was panned to the far right. Joe Reinsel's microphone was placed inside the kitchen of a second story apartment facing a busy street corner in the city of Baltimore. During this period he conducted various domestic chores; cooking, cleaning and rearranging his workspace. His particular sound was in the center of the stereo field. On the left channel was John Hudak, who chose to place his microphone just outside of his living room, capturing both domestic interior sounds and the sounds from a suburban neighborhood in Dobbs Ferry, New York that included a small bubbling birdbath, children playing, and air and car traffic. Each artist could monitor the transmissions from any of the three sources and chose to incorporate, process, incorporate feedback, mix or ignore the stream(s). Every 10 minutes I would slowly shift the source locations from left, center and right predominance creating a measured shifting between the three remote sound sources. During the performance we were receiving chat messages from a Helsinki audience at the M-Bar, who were sending us their impressions while we were performing. I made the final sound mix and encoding in Catonsville as each source was received and mixed.

One of the more compelling and perhaps obvious questions that arose from the performance was the relationship between the artist and the audience. Is it necessary to address the presence of the artist during the performance? Based on several conversations with one another and with individuals who were in the audience in Helsinki, it appears it would have intensified the sound to have some sort of visualization that signified where the action was emanating from. For example, building into the system an interactive element that the audience could have "talked" back to the artists would have made the source locations more concrete. As far as anyone knew the sound could have been emanating from an audio CD, rather than a live multiple node performance.

The most obvious solution might be to incorporate a web camera in each artist's space that is then mixed in a similar way as the audio before it is streamed out to the final destination. We are investigating solutions that would mix or juxtapose the web cam images to create a sense of who and what we are up to during the performance. In one of our discussions about the project, Resinsel expressed that "It is not always necessary for us to be there. The locations of our machines are just the node points for the different realities to be connected. The soundscape that we developed is just the effect of this fusing of streams. The documentation of the performance is the artifact from this connected experience and this is the representation that is a finished work." Resinsel adds, "Another way of thinking about it is as if we are creating 'Temporary Worlds,' or multi-plane realities. Imagine the place where you are presently being represented on a multi-dimensional solid like a cube or some other platonic figure. Philosophically, this is an interesting visualization because I could be existing on one plane of the solid, John another and you another. This is also an aspect [or] an idea of or a part of "String Theory." We all agreed that it was essential to represent the presence of the artist in some manner besides the sounds. This is even more essential to an audience that might not be familiar with the location from which the sounds emanate. Since we all were using site-specific sound, it became even more important to also explore in future performances the potential of geographic representation of the sites.

James Sey / James Webb

"Book of Imaginary Wavelengths" (2006)

What you are about to hear, recently unearthed in a private vault in Barabas in North-East Africa, are some of the last remaining documents produced by one of the most intriguing and mysterious, and darkly influential, scientific and literary figures of the last hundred years. These tales of eugenic fantasy, of misbegotten experiments, of poetry and perversion, point to a hidden history, a sinister undercurrent running through much of the key aesthetic and scientific discoveries of our age. They also point to a great psychological and personal cost for those who were carried along on the tide of monomaniacal charisma the author exuded, a terrible collateral damage for hundreds of the finest minds in many different fields of endeavor. Within these documents lie plausible reason, scientific and literary genius, sinister passion, magick, and a presiding sense of dark derangement... In the service of truth, then, we present to you — A Compendium of Imaginary Wavelengths. (These extracts form part of a continuing collaboration between James Webb and James Sey, centered on the creation of a fictitious author and their oeuvre, which acts as a means of exploring notions of a secret history of the wavelength.)

Disinformation

“Bexleyheath to Dartford” (2002)

Copyright Joe Banks, published by Iris Light Music

Un-mixed magnetic field radio recording, Lewisham Railway Station 2002 – “Bexleyheath to Dartford” is based on a precedent set by the piece “R&D Track 10” released on the “R&D2” CD by Ash International in 1997.

Ellen Waterman

“Found An Angel” (2006)

With Gogo Godot and Really Happening, and delegates to the 2005 National Campus and Community Radio Association conference at CFRU 93.3 fm Guelph, Ontario.

SR c (excerpts from radio projects)

Steven Cuzner, “Ensam med Gud/Alone with God” (2004)

Marie Wennersten and Steven Cuzner, “SR c in the big window” (2002) with Fia Stina Sandlund, Ida Lundén and Sebastian Franzén.

Jean-Louis Huhta and Ninni Hasselberg,

“Familjen-ett gisslandrama” (2003)

Susanne Skog, “Sovarna/Sleepers” (2005)

Mark McLaren, “Bedside Manner” (2005)

Joanna Rose and Matti Kallioinen, “In i det svarta hålet och kanske ut igen/Into the black hole and maybe out again” (2004)

Anna Friz

“Radio CRTX” (2006)

Radio CRTX began as a live performance piece for voice, accordion, and 2 low-watt FM transmitters and multiple receivers, created for the Third Coast Audio Festival (Chicago, 2003). The present version was composed especially for *Radio Territories*, and incorporates sounds from other artists' submissions to this anthology. Indoor/outdoor/in-car field recordings of sonar and other radio debris recorded at the free103point9 Wave Farm in Acra, New York, and at the Desrosiers farm in McCreeary, Manitoba.

elpueblodechina a.k.a. Alejandra Pérez Núñez

“puebloJana” (from the project *Radio Territorios*, 2006)

This track is a reprocessing of Tribadas broadcast with Jana Aravena on the microphone, using software to simulate the existence of different cybernetic orders where information circulates. Retransmission was used as a bending strategy to perform an open pattern over the mediascape.

BIOGRA- PHIES

Steve Bradley engages with time-based media, sound performance/installation, and material culture in his art practice. He explores the boundaries of urban and suburban culture by collecting debris, sound, and images from the consumed and littered landscape. Since 1999, he has curated art@radio, a net.radio broadcast of sound art and experimental music.

Kabir Carter is an artist based in New York City. His compositions, performances, and sound installations have been presented at Art Interactive, Atlantic Center for the Arts, Bronx Museum of the Arts, Diapason, Dorsch Gallery, d.u.m.b.o. arts center, Jersey City Museum, PS122 Gallery, Rensselaer Polytechnic Institute, Socrates Sculpture Park, and in public presentations throughout New York City. Carter has been artist-in-residence at LMCC/Workspace: 120 Broadway, and has received awards from the American Music Center, Experimental Television Center, Media Alliance, and Rhizome.

Disinformation is an experimental installation and sound art project, active since 1995, whose repertoire pioneered the use of the electromagnetic noise induced by live mains electricity, lightning, laboratory equipment, industrial and IT hardware, railway systems, geomagnetic storms and the sun as the raw material of musical and fine art presentations. Disinformation contributor Joe Banks curated "The Rumble" exhibition at The Royal Society of British Sculptors, and his "Rorschach Audio" research project appears in *Strange Attractor Journal*, and in *Leonardo Music Journal* (MIT Press).

elpueblodechina a.k.a. Alejandra Pérez Núñez is a sound artist, performer and media designer, working with FLOSS tools, electronics and text, using recurrent subjects such as social imaginaries and feminist critical thinking. Together with euromovements, she develops interfaces for browsing digital libraries using semantic analysis of unstructured databases with texts produced during European social forums. She is currently based in Europe where she has worked in mapping and the activation of social networks with Barcelona based group RedActiva, and for the online archives of Universite Tangente in Paris.

Anna Friz is a sound and radio artist living in Montreal. For the past eight years she has created self-reflexive radio for broadcast, installation or performance, where radio is the source, subject, and medium of the work. She has presented installation and performance works across Canada and in international media art contexts such as the Third Coast Audio Festival, Chicago; Digitales, Brussels; Radio Revolten, Halle; Club Transmediale, Berlin; Ars Electronica, Linz; and the Fifth International Biennial of Radio, Mexico City. She is a doctoral candidate in the Joint Communications and Culture program at York/Ryerson University, Toronto, and a free103point9.org transmission artist.

Steve Goodman runs the MA Sonic Culture at the University of East London. He also runs the record label Hyperdub, and as Kode9 hosts a weekly pirate radio show. In addition, Goodman is one of the resident DJs at the Forward>> club at Plastic People, London, and has released tracks on labels such as Replex, Tempa, and his own Hyperdub imprint. He is currently writing a book on sonic warfare.

Sophie Gosselin (apo33) lives and works in Nantes. While developing her PhD, she works as part of apo33. Apo33 is a collective of anarchists based in Nantes researching and developing multiple activities based in sound art, technological development, alternative media, knowledge sharing, and philosophy. In apo33, Gosselin organizes seminars and research projects on issues of emerging creative practices, social and cooperative practices, urban developments, and technological transformations.

Heidi Grundmann has worked as cultural reporter, art and theater critic, editor, program producer and consultant at the ORF (Austrian National Radio/TV) since the 1970s. In 1987 she created the radio program KUNSTRADIO-RADIO-KUNST (original artworks for radio) broadcast weekly on Ö1, the cultural channel of the ORF. Through her involvement in telematic radio-art projects, she organized and curated several international symposia and exhibitions related to art practice in the electronic media. She is the editor of "Art & Telecommunication", Vienna/Vancouver, 1984; "The Geometry of Silence", Vienna, 1991; "On the Air", Innsbruck, 1993; "ZEITGLEICH", Triton Verlag, Vienna, 1994; or "SOUND DRIFTING", Triton Verlag, Vienna, 2000.

John Hudak's current sound work focuses on the minimalism and repetition of sounds below the usual threshold of hearing, sounds that are filtered out or considered non-musical. These sounds are recorded, deconstructed and processed, their rhythms and textures being the basis for aural manipulations.

Erik Granly Jensen is a post-doc in the Department of Comparative Literature and Modern Culture at the University of Copenhagen. He is currently working on a project concerned with the relationship between technology and the arts in early European radio.

The free radio group **LIGNA** exists since 1995, consisting of media theorists and radio artists Ole Frahm, Michael Hüners, and Torsten Michaelsen, who since the early 90s have been working at the "Freies Sender Kombinat" (FSK), a public non-profit radio station in Hamburg. In several works they have been investigating the importance of dispersal in radio as well as of the radio, such as in *Radioballet* (first invented in 2002), where listeners listen to a choreography of excluded gestures in formerly public spaces, or in *The Future of Radio Art*, where a single voice is dispersed over a pedestrian zone with hidden radios.

Douglas Kahn is founding Director of Technocultural Studies at University of California at Davis. Research concentrations are in auditory culture, history and theory of sound in the arts and new media arts. He is author of "Noise, Water, Meat: A History of Sound in the Arts" (MIT Press, 1999), co-editor of "Wireless Imagination: Sound, Radio and the Avant-garde" (MIT Press, 1992), and an editor of Leonardo Music Journal and the Technoculture and the Arts book series at University of California Press.

Jason Kahn grew up in the United States and moved to Europe in 1990. He has given concerts and exhibited sound installations in North and South America, Europe, Japan, Korea, Israel, Turkey, Russia, Egypt, Lebanon and Australia. Kahn currently lives in Zürich, Switzerland.

Brandon LaBelle is an artist and writer working with the specifics of location. He is the author of "Background Noise: Perspectives on Sound Art" (Continuum, 2006) and co-editor of the anthologies "Site of Sound: Of Architecture and the Ear" (1999), "Writing Aloud: The Sonics of Language" (2001), and "Surface Tension: Problematics of Site" (2003), all published by Errant Bodies Press. He is currently a post-doc at the University of Copenhagen.

Sophea Lerner is an Australian sound artist who has worked across radio, performance and new media. For the last few years she has been based in Finland teaching media & sonic arts at Sibelius Academy. Sophea directs special-event hybrid FM station ääniradio, an open content broadcasting platform and is an active participant in the foodradio_network.

neuroTransmitter (Angel Nevarez + Valerie Tevere) formed in 2001 as a collaborative whose work fuses conceptual practices with transmission, sound production, and mobile broadcast system design. neuroTransmitter has created visual works, performed, and broadcasted live on local bandwidths in public spaces and galleries throughout New York City; St. Petersburg; New Plymouth, New Zealand; and Munich, Weimar, and Stralsund Germany. From 2003-04, nT was artist-in-residence with the Research and Development program at Eyebeam, New York City, and in 2005 was awarded a New York Foundation for the Arts artist fellowship.

Mikkel Bolt Rasmussen is Assistant Professor at the Department of Comparative Literature and Studies in Modern Culture, University of Copenhagen. He is author of "Den sidste avantgarde. Situationistisk Internationale hinsides kunst og politik" (The Last Avant-Garde: The Situationist International beyond Art and Politics) and co-editor of, among others, "Livs-form. Perspektiver i Giorgio Agambens filosofi" (Form-of-Life: Perspectives in the Philosophy of Giorgio Agamben). He has published articles in journals such as Oxford Art Journal and Third Text.

Joe Resinsel creates sound and video art using digital and analog tools and instruments. His works question the linkages of interpersonal relationships in the media and real life through allegory and real-time samplings of the environment. Resinsel's background in music composition provides a base from which to explore interests in a range of electronic media.

Kristen Roos is an artist whose approach to creating sound art is informed by aspects of acoustic ecology, radio art and phonography. His work has been exhibited in artist-run centers and festivals across Canada. He is currently living with his wife and daughter on Cortes Island Canada, where he has a weekly radio show called *radiophonic* on Cortes Free Radio.

Kate Sieper is an audio artist and broadcaster working with rural communities. She has been working for Australian public radio ABC since 1999 and is the Executive Producer of the Northern Territory Country Hour, and currently operates a solo studio in Katherine in the Northern Territory. Recent projects include producing the temporary experimental radio station at Pixelache 2005 and An Earful of Alice, a series of sonic postcards sent in by listeners in Alice Springs, Australia.

James Sey is a writer, theorist and multimedia practitioner who has conceptualized, directed and performed several large-scale multimedia projects in South Africa over the last twenty years. In recent years he has collaborated with artist James Webb on the "Compendium of Imaginary Wavelengths" radio project, a series of narrative-based sound designs intended for radio broadcast or site-specific live performance. Sey is currently working on a book on cult film.

Jackson 2Bears is a Kanien'kehaka (Mohawk) installation and performance artist currently based in Victoria B.C. Canada. 2Bears' installation works have been exhibited in both artist-run centers and alternative public and private spaces across Canada. He has also presented his theoretical work to an international audience, and has numerous ongoing projects available on the Internet. Currently he is the Production Assistant at the Pacific Centre for Technology and Culture and a PhD candidate at the University of Victoria.

Ellen Waterman is Associate Professor in the School of Fine Art and Music at the University of Guelph. Waterman is a professional flutist specializing in improvisation and contemporary music, and her research is at the intersection of performance studies, ethnomusicology and critical theory. Her anthology "Sonic Geography Imagined and Remembered" (Penumbra, 2002) provides the first cultural critique of acoustic ecology. She is also founding co-editor of the peer-reviewed open access electronic journal "Critical Studies in Improvisation/ tudes critiques en improvisation."

James Webb has exhibited, broadcast and performed in South Africa and other parts of the world. Operating in a variety of media and contexts, his work explores the realms of magick, exoticism and alienation, and impossible environmental phenomena through installation, live action and intervention. Notable projects include "The Black Passage," a recording of an empty elevator cage descending 3km to the bottom of the world's deepest goldmine, and "There's No Place Called Home" an on going, world-wide intervention using incongruous birdcalls broadcast out of speakers concealed in trees, for example the calls of South African summer birds installed in Japanese trees during midwinter.

Marie Wennersten was born in Stockholm in 1968. With a background in community radio, documentary making, film and cultural studies at Stockholm University, she graduated from the Dramatic Institute majoring in Radio in 1993. Ever since then, Marie has been a regular at the national public Swedish Radio, producing the weekly "The philosophical room" as well as creating experimental and diverse work on topics such as the ugly, consciousness and Meredith Monk. In 2001, she dreamed up the web project SR c (www.sr.se/src) radio for art and ideas.

Achim Wollscheid is an artist, writer, and teacher based in Frankfurt am Main, Germany. Since the early 80s he has created both recorded and installation work, collaborating with a variety of artists and musicians around the world. His work in sound has led him to an interest in the relation between sound, light and architectural space, which he continues to pursue and investigate. He is a member of SELEKTION, an organization for the production and distribution of information systems, and author of "The Terrorized Term" (SELEKTION, 2000).

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**TRACK
LISTING**

Radio Territories

Edited by Erik Granly Jensen and Brandon LaBelle

The legacy of radio and the arts has spawned forms of radical culture, from early Modernist notions of the “Wireless Imagination” and its subsequent vernacular tongues to Acoustic Ecology’s call for “Radical Radio” based on removing the DJ, transmission and broadcast media upsets and redistributes understandings of place, corporeality, social exchange, and the politics of information. Such instances of radicality find their current expression in radio networking and streaming, which seek to counter or supplement forms of public broadcasting through creating unique forms of collectivity. In response to these current initiatives, Radio Territories seeks to open the book on radio’s historical, medial, and aesthetical status.

Critical and creative essays by historians, media theorists, and radio producers, including Steve Goodman, Heidi Grundmann, Douglas Kahn, Mikkel Bolt Rasmussen, and Ellen Waterman, are coupled with artistic and activist projects, from such practitioners as Anna Friz, LIGNA, and apo33, with a view toward locating the expanding and deepening reach of radio. Presupposing an intrinsic relation between transmission and place, Radio Territories aims to examine in what ways physical and cultural geographies become both defined and unsettled by the powers of broadcast. While radio through the Modern period stitched together an electronic network by expanding outward, current radio may fulfill Marshall McLuhan’s global idea of the “extended nervous system” by networking individual lives on a cellular level. Radio is not only out there in the ether, but also totally inside, as signals that intensify the stratifications of culture.

Including additional contributions by Kabir Carter, Sophie Gosselin/apo33, Erik Granly Jensen, Brandon LaBelle, Sophea Lerner, elpueblodechina a.k.a. Alejandra Pérez Núñez, Kate Sieper, James Sey, neuroTransmitter, Marie Wennersten / SR c, and Achim Wollscheid.

With audio works by apo33, Joe Banks, Steve Bradley, John Hudak & Joe Resinsel, elpueblodechina, Anna Friz, Jason Kahn, Kode9, Kristen Roos/Jackson 2Bears, SR c, Ellen Waterman, and James Sey/James Webb.

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