

On Transduction:
Sound as Touch and Phase Change

Charles Rudig
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CUNY Graduate Center

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Sound and Society

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All touching entails an infinite alterity, so that touching the Other is touching all Others, including the “self,” and touching the “self” entails touching the strangers within. Even the smallest bits of matter are an unfathomable multitude. Each “individual” always already includes all possible intra-actions with “itself” through all the virtual Others, including those that are noncontemporaneous with “itself.” That is, every finite being is always already threaded through with an infinite alterity diffracted through being and time.

Together with Derrida, we might then say that “identity [. . .] can only affirm itself as identity to itself by opening itself to the hospitality of a difference from itself or of a difference with itself.

Karen Barad, *On Touching- The Inhuman That Therefor I am* pg. 214

Having a future, having an effect, making a difference. We are now drawn to the notion of effectivity, where “having” an effect is not understood in a proprietary sense, but rather as the enactment of agencies that make a difference—through making a difference, by having an effect, an agency is delineated. In a recording collaboration, what has effects? Certainly, not just living humans, all fleshy and present; sounds, machines, discourses—all manner of non-humans, material and nonmaterial—also matter.

-Stanyek and Piekut *Deadness: Technologies of the Intermundane* pg. 307

As Karen Barad notes in her essay *On Touching*, classical physics tells us that no two things, people, or places can really touch in the common-sense way that we think of things touching. Instead, ‘contact’ involves an electromagnetic repulsion that keeps the touchers suspended by a razor-thin boundary of force whose intensity increases as distance between touchers decreases.¹ Likewise, conventional understanding of hearing tells us that we can never experience a sound directly (“Nearness, it seems, cannot be encountered directly”²): it always contacts us through an in-between. In our common-sense way of thinking about sound we tend to reduce out of the formulation movement through space, through bodies (coded and cut through by regimes of discipline and control), and through conceptual and epistemological meshworks. A good amount of writing about this already exists in the sound studies literature. I propose that if we extend Barad’s argument about the ramifications of quantum physics on how touch behaves to how sound behaves

¹ Barad, 2012. pg. 209

² Heidegger, 1971. pg. 164

we may arrive at a more radical concept of sonic mediation: one that privileges this *process* of phase change over the ‘sound *object*’.

In this essay, I will argue that sound itself *is* transduction as opposed to the other way around. Transduction is a process that is observable only in the difference of one sound iteration to another. This aligns with the difference between two accounts of change held by American analytic philosophers Albert North Whitehead and Bertrand Russell respectively. For Russell, a given proposition produces a different truth value at different times, then that is change. For Whitehead, change is more than a difference in temporally-situated samplings of the same proposition. It is a constitutive force that is just as real as matter.

We may say that this in-between process of mediation is a constitutive attribute of sound that (using some of Barad and Deleuze’s language) articulates the multiplicities of intra-actions that elaborates virtual possibilities of sound’s self-transduction, collaboration and competition with other sounds both material and virtual, and movement through materials (that only crystallizes into sound-phenomena under the influence of knowers). Sound only becomes sound (an iterative phenomenon) by “opening itself to the hospitality” of its constitutive differences: its multiple forms that emerge under variegated transductive scenarios.

A transducer is conventionally defined as a tool which converts energy from one form to another. Touch is a transductive technology since it converts energy from the body of the self to the body of the other. It can convert energy from the self to the self or the thing to the thing as well, and this self-touch is of importance to Barad in reference to the articulation of self-alterity, or what I call xenosubjectivity.

It should be noted that while I will use transduction to refer specifically to the transduction of sound from one object, surface, medium, to another as well as to the audio-technological object

called the transducer or tactile transducer, I am not speaking metaphorically when I also use the word transducer or transduction to refer to registrally broader processes. As Manuel De Landa says in the introduction to *A Thousand Years of Nonlinear History*,

In a very real sense, reality is a single matter-energy undergoing phase transitions of various kinds, with each new layer of accumulated "stuff" simply enriching the reservoir of nonlinear dynamics and nonlinear combinatorics available for the generation of novel structures and processes. Rocks and winds, germs and words, are all different manifestations of this dynamic material reality, or, in other words, they all represent the different ways in which this single matter-energy expresses itself

Manuel De Landa, *A Thousand Years of Nonlinear History* pg 21.

This is to say, transduction as I describe it in this essay is a *fundamental material process* akin to a De Landa-ian phase transition process. In a hybrid of Barad and De Landa's frameworks, I am arguing that these *ways in which this single matter-energy expresses itself* are fundamental to the things themselves being expressed, to the degree that if you had to locate a thing at all it would be in the process. They are processes of transduction between material realities popping in and out of virtuality producing the world and the possibilities for other worlds.

Though this paper is not specific to musical sound, I must disclose that the inspiration comes from my own compositional and sound art practice, which involves the use of tactile transducers, refuse objects, conventional instruments, and feedback loops to create networks of materio-human intra-action. Like much other art, it is an attempt to describe particular attributes of the world, and this paper can be viewed as an attempt to crystalize some of those thoughts about the world, and particularly about the world as it manifests as sound, via the medium of language. In a strictly non-metaphorical sense, it is a sound-to-language transduction of my compositional practice.

I. The Soundscape As Phenomenon (Sound-Iteration)

In communion with the Sound Studies corpus, perhaps we can attempt a rehabilitation of R. Murray Schafer's concept of the soundscape. In Schafer's original formulation, the concept is not defined particularly rigorously. In the decades since the publication of *Our Sonic Environment and the Soundscape: The Tuning of The World*, it has been further diffused by other well-meaning scholars and at this point it can be and is used to refer to any thing, place, event, or cultural practice involving sound. Perhaps Schafer's original definition as "any acoustic field study" is not all the much more narrowly delineated than its current incarnations:

The soundscape is any acoustic field of study. We may speak of a musical composition as a soundscape, or a radio program as a soundscape or an acoustic environment as a soundscape. We can isolate an acoustic environment as a field of study just as we can study the characteristics of a given landscape. However, it is less easy to formulate an exact impression of a soundscape than of a landscape. There is nothing in sonography corresponding to the instantaneous impression which photography can create. With a camera it is possible to catch the aerial features of a visual panorama to create an impression that is immediately evident. The microphone does not operate this way. It samples detail. It gives the close-up but nothing corresponding to aerial photography.

R. Murray Schafer, *Our Environment and the Soundscape* pg. 4

Objective properties refer to phenomena, not to abstract 'objects'. For example, ultrasound technologies do not reveal an observation-independent entity with inherent properties, rather the [microphone/camera] sonogram records properties of the intra-action of ['the soundscape'] 'the foetus' as iteratively constituted through various practices and the apparatuses of [listenings] observations

Karen Barad, from the Agential Realism entry in *Encyclopedia of Feminist Theories* pg 16.
Bracketed text added by Charles Rudig.

By placing these quotes from Schafer and Barad back-to-back, I want to highlight a problem with Schafer's formulation (which, though is defined as "any acoustic field of study" quickly narrows to the sound equivalent of a landscape), and perhaps offer a way out. Schafer's framework caters to an old school anthropocentric ecological practice³. Schafer speaks of "creating an impression". Who this impression is meant to be communicated to is clear.

³ I recall a conversation I had with my composition professor, who is an ecological and animal rights advocate, about what he called "silent spring" activism. In the old days activists would campaign for environmental legislation not because the lives of nonhuman others have moral or agential weight, but because we will lose all these pretty things that

However, a more fundamental issue with this concept is that it assumes that, at least for visual landscapes, it is possible to create an observer-independent recreation (that *is* or *becomes* the landscape) via photography or some other technology of capture. The claim that this is difficult or impossible with microphone technology is identified by Schafer as a problem to be solved. Thinking with Barad, I would characterize this not as a problem to be solved, but a constitutive property of observation and the proliferation of phenomena.⁴ Her example in the above quote is of ultrasound technology, but any sort of technology of capture, or observation itself (human or nonhuman sense organs being the technology of capture) can be substituted.

Therefore, perhaps we imagine a new form of soundscape. A soundscape-as-phenomenon that celebrates the apparatus and process of capture as essential componentd of the soundscape's procedural elaboration. Instead of indulging in the impossible and ultimately dishonest project of attempting to disguise a phenomenon, with its technical and agental processes of capture and touch, as a soundscape-in-itself: the unvirtualized Real of 'nature' that ignores the multiagent process-formation of a phenomenon, let us imagine a new soundscape practice that celebrates those attributes as well as the agency of our nonhuman others, and the vitality of matter.

I will begin by amending Barry Truax's guidelines for the construction of a soundscape⁵ to remove the most obvious strains of anthropocentrism and introduce new guidelines that celebrate the iterative and immanent process inherent to the formation of a phenomenon. Then, I will propose such a piece that satisfies the amended guidelines. Perhaps I will call my formulation a

people like to experience as eco-tourists. This is just another stratum of the Copernican legacy of us putting ourselves at the center of things.

⁴ Barad 2003. pg. 16

⁵ Truax 2008. pg. 106

sound-iteration as it acknowledges its status as a particular material, site-of-presentation, and knower specific crystallization (as phenomenon) of iterative virtualities.

1. Listener recognizability of the 'source material' is maintained (or *enhanced*, in the case of sounds that are too quiet or diffuse to register in their original environments. They may be brought out through the particularities of recording technologies or microphones) despite unavoidable constitutive and sympoetic becomings-with via the mediation of recording technologies, the site of presentation, the bodies of listeners, digital signal processing, the choices made in regards to what speakers or transducers used to playback the soundscape and so on. These irreducible aspects of the soundscape recording process should be aestheticized and poeticized instead of silenced. They should be allowed to suggest their own aesthetics and poetics. At the same time, the human capturer is an important and indivisible part of the process.

2. The listener's knowledge of the environmental and psychological context of the soundscape material is invoked and encouraged to complete the network of meanings ascribed to the music (this point unmodified from Truax)

3. The composer's, listener's (human and nonhuman), inhabitants of the space the soundscape is recorded in (human and nonhuman)'s, materials and agents of capture, etc.'s knowledge of the environmental and epistemological context of the soundscape material is allowed to influence the shape of the composition at every level, and ultimately the composition embraces its status as new iterative phenomena of reality. It is not and can never be a representation of some past temporo-spatially situated moment.

4. The work creates its own world as it simultaneously fosters our understanding of that world for all knowers, critters and materials present in that process. While it can speak for people, places,

and things in a qualified sense it acknowledges that those voices are decentered maps and traces in a wholistic, immanently produced meshwork.

Imagine a scenario for a work of sympoetic art that fulfills these requirements for a sound-iteration. This example is an iterative encounter with the flora, fauna, knowers, and materials present at some moment in a garbage dump. It is also a situated encounter in communion with its own capture and iteration at various steps in the process of the presentation of the work.

Firstly choices are made about where to point the microphones based on their specific characteristics (omnidirectional or not? Etc.). Perhaps the recording device is allowed to clip, articulating its boundaries and particularities as a capturer.

Without attempting to foist a bourgeoisie-ecological message on the recording decisions, the human capturer should go around and try to record as many sound-makers as desired, to be a speaker for the living, and a Harawayan speaker for the dead⁶ while simultaneously celebrating the contingency of this iterative phenomenon (what flaws in the recording system articulate its agency?), and articulating their own human aesthetic values.

While maintaining or synthetically enhancing (soft sounds may be made cyborg) the sounds recorded, the human capturer assembles them in a DAW as they see fit. Any form of digital signal processing may be used. One should not try to hide the unavoidable presence of the DSP. One may use spectral analysis to isolate particular ranges of partials, equalizer to adjust the balance, distortion or bitcrushing to temporarily pull the sound from its recognizability, etc.

After the recording has been made, the capturer decides how it will be played back in the performance space. In this case, the sound-iteration producer returns to the garbage dump. They

⁶ Haraway 2016 pg. 69

select four metal refuse objects of varying size, resonance, shape etc. and return with them to the site of performance. They are arranged in the space depending on the space's shape, the location of the audience, etc.

Additionally, two large PA speakers are arranged in the room. Large tactile transducers are attached to each of the four refuse objects. The four transducers and the two PA speakers are hooked up to a mixer to allow for six channel diffusion. The audience arrives, and the performance begins.

The sound-iteration assembler diffuses the recording through the six channels in real time, responding to the materiality of the room, the position of the audience members, the recording itself, etc. The imperfect transducer/object assemblage speakers play back the recording in a way that is quirky and highlights their own materiality. The PA speakers allow for “clean” playback when aesthetically and poetically desirable.

II. Transduction As Communion with One's Inhumanity

The symbiotic view of life suggests that all organisms are involved in boundary crossings and gene-shuffling. All organisms (including humans, carrying genes from other organisms on and beneath our skin, in our guts and in our cells) are thus transboundary, and like Haraway's transuranic elements or transgenic creatures, simultaneously fit within historically and socially constructed taxonomies while drawing attention to their constructed, nonessential and non-transcendent nature.

-David Griffiths, *Queer Theory for Lichens* pg. 36

How truly sublime the notion that it is the inhuman—that which most commonly marks humanity's inhumanity as a lack of compassion—that may be the very condition of possibility of feeling the suffering of the other, of literally being in touch with the other, of feeling the exchange of e-motion in the binding obligations of entanglements.

-Karen Barad, *On Touching- The Inhuman That Therefor I am* pg. 219

Through listening's transductive constitution, we are put in touch with our own status as what Gilles Deleuze calls *dividuals*⁷ (like individuals but non-monadic, divisible, multiple): shot

⁷ Deleuze 1992 pg. 5

through from inside and outside by inhuman others that constitute ourselves as composite multiplicities that can only be understood pragmatically as a set of intra-actions condensing immanently at a given moment in time and space. These are our entanglements, and we have obligations to them. As David Griffiths notes in his paper *Queer Theory for Lichens*, our internal divisibility and status as substratum of ecosystemal and global organizational units is illustrated by contemporary biological understanding of organism-level interpenetration⁸. He cites the article *A Symbiotic View of Life: We Have Never Been Individuals* by Gilbert and Sapp in *The Quarterly Review of Biology* and the conversation that it raises about our external and internal sympoetic relationships and obligations.

We would die without the presence of specialized bacteria in our digestive systems that allow us to process food. Likewise, the evolution of these gut bacteria is indivisible from the evolution of our digestive systems and they would die without us. We are entangled in one of these obligational webs. Donna Haraway compares these to a string figure (like a cat's cradle) and uses SF as a compound abbreviation (speculative feminism, string figure, science fiction, etc.)⁹

Each of our cells contains foreign DNA from viruses and bacteria that have deposited themselves over millennia of interspecies living and dying together. Likewise, according to the endosymbiotic theory of the development of mitochondria (which contain their own xeno-DNA), they are ancient symbionts who evolved alongside early eukaryotic organisms. We are in constant contact with the other: the inhuman that therefore we are. The boundary between touching the other and self-touch is always diffuse and malleable since in more sense than one, we contain multitudes (Classic D&G: "Since each of us was several, there was already quite a crowd"¹⁰).

⁸ Griffiths pg. 3

⁹ Haraway 2016 pg. 9

¹⁰ Deleuze and Guattari 1987 pg. 1.

When sound is produced in the transductive intra-action of knowers, materials, realities and virtualities, we engage in self-touch and we touch the other: an other inside and outside of ourselves that iterates our own xenosubjectivity. Listening announces our inhumanity it phase-changes between our internal multiplicities and the external others we share communities and a planet with. It offers the condition of possibility of being in touch, in transduction with our others. When John Cage says that all sound is music he is right. Sound requires intra-material transduction that actualized a poetics of inhumanity and thus sympoesis, empathy, and collaboration: an artistic, communicative framework.

Does this open up the possibility for extra-sapient aesthetics? I am not arguing that. Instead transductive self-touch de-anthropocizes aesthetics and situates the knower democratically in a web of crystalizing virtualities they only have peripheral influence on. I recall a talk by Graham Harman¹¹ where he argues against the position that the works of art in the Louvre will continue to be works of art after machinic time and our own hubris's eventual and unavoidable snuffing out of the human race. He argues the sapient position in an aesthetic encounter is like one of the hydrogen atoms in a water molecule. It is not the center, but if you remove it, it ceases to be water. A knower is required to condense the web of virtuality to a phenomenon: a necessary condition for the crystallization of an aesthetic happening.

In that sense, as much as this portion of the paper serves to problematize the culturally and historically situated concept of "the human", it also acknowledges that there is something special to cherish and protect in sapient, conceptually and discursively fluent knowers. Listening situates our knowing, from within and without, as heterogeneous and eternally bound to the agency of our material and biological transductive littermates.

¹¹ Harman 2014

III. Transduction Articulating Thing-Power

Thing-power perhaps has the rhetorical advantage of calling to mind a childhood sense of the world as filled with all sorts of animate beings, some human, some not, some organic, some not. It draws attention to an efficacy of objects in excess of the human meanings, designs, or purposes they express or serve. Thing-power may thus be a good starting point for thinking beyond the life-matter binary, the dominant organizational principle of adult experience.

Jane Bennett, *Vibrant Matter* pg. 20

Thinking of the process of sound's phase change, its transduction from one material to another as primary to its moment-to-moment effect on materials (recalling Whitehead v Russell's accounts of change) leads to a reconsideration of where sound emanates *from*. Instead of thinking of sound as originating at a human or nonhuman object-source, sound relies on the vitality, or thing-power of matter to *fuel* the process that it springs from.

If sound is this intra-material transduction, then the thing-power of the materials, agents, concepts, language, etc. that it moves through are its fuel, and sound announces the thing-power of matter by speaking through it. In this sense (and this is central to my compositional and sound art project) by transducing sound through objects we are in a very real way articulating that matter's vitality.

As Jane Bennett notes in the second chapter of *Vibrant Matter* (The Agency of Assemblages), recognizing thing-power "draws attention to an efficacy of objects in excess of the human meanings, designs, or purposes they express or serve."¹² Working with sound in ways that draw attention to its primary status as a process of change has actual political resonances. Articulating the vitality of nonhuman voices silenced in anthropocentric discourse invites Copernican humiliation. We thought we were at the center of the universe, then we learned we were wrong. We thought we were at the center of the solar system, then we learned we were wrong. We thought we were the center of the earth's biological community, then we learned that was not accurate either.

¹² Bennett 2010 pg. 20

What happens when we realize that we are not even at the center of our own bodies, or that condensed moment-to-moment materiality plays second fiddle to processes and that the material does not even rule over the virtual? Things do things according to their own material motivations, and things and humans are born of the same stuff. As noted by Lucretius, “there is not one of all the things, whose nature is seen before our face, which is built of one kind of primordia. nor anything which is not created of well-mingled seed.”¹³

IV. Transduction and the Telephonic/Phonographic Binary

In his article *Fidelity vs. Intelligibility* James Lastra provides us with a useful framework for understanding differing to sound recording practice. *Phonographic* recording practice concerns itself with a fidelity to accurately representing a “spaciotemporally specific musical performance”¹⁴ whereas telephonic recording is about valuing “intelligibility or legibility at the expense of material specificity”¹⁵. The former he describes as perceptual simulation, and the latter he compares to writing. Writing particularly about film music and sound, he credits the former with producing an invisible auditor with the effect of “rehumanizing the cinema when it most threatened to become inhuman”¹⁶.

Considering Barad’s radical assertion that becoming aware of one’s inhumanity is a precondition for compassion, understanding, touch, and all manner of communion with the other¹⁷ (conceptual territory the humanistic subject considers itself to have annexed), perhaps there is value in exploring an acceleration of this becoming-inhuman, one made possible by a transductive or process-oriented epistemology of listening.

¹³ Lucretius 50 BC *On The Nature of Things*

¹⁴ Lastra 2012 pg. 248

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Barad 2012 pg. 219

Both of these attitudes about recording rely on a Cartesian brain-pilot both behind the mixing board and in the skull of the listener. Returning to Barad's metaphor about the role of the agent in Agential Realism, perhaps we can propose a *sonographic* attitude towards listening to recordings made in both of these modes. Firstly, returning to my critique of the soundscape concept, the phonographic mode of recording is inherently 'infidelitous' since it posits the possibility of revealing an observation-independent reality of a particular spatiotemporally situated sound object.

There is a double-capture inherent to this that ultimately prevents it from doing what it is supposed to do. To use a particularly grotesque analogy, Hostess recently released a product called a 'deep fried twinkie' that is sold pre-deep fried and frozen. The consumer is meant to take the product and deep fry it again at home. What is produced is a victim of such a double-capture. It is like a recorded sound that has already been devirtualized into phenomenon by recording-capture and then re-devirtualized by a listener's perceptual apparatus. It is not a deep fried twinkie of the sort you would get at a state fair. It is instead like a performance of *I Am Sitting in a Room* or an experiment in continually downloading and uploading an image in a lossy file format. The twinkie, with its expanding shell of batter, is well on its way to becoming a material condensation of its apparatuses of capture.

This comparison between telephonic recording and writing that Lastra makes is very apt. After all, this attitude to recording technology developed as a way of maintaining the fidelity of speech. It removes noise (in the sense of unwanted sound, not specifically aperiodic sounds) at a relatively high threshold. This is like what writing does with visual information. One could draw a limitless variety of different figures and shapes of different thicknesses and size, but the semantic noise filter of writing allows these shapes and figures to transduce into the conceptuo-material

register of language, providing direct semantic compartment and all the other good things that come along with the technology of language.

In this sense, the telephonic mode of recording has greater capacity to be fidelitous It makes no claims to reproduce a spacio-temporal sonic situation and embraces its status as a form of materio-conceptual transduction or phase change. As De Landa asserts, “Rocks and winds, germs and words, are all different manifestations of this dynamic material reality.”¹⁸

This mode of recording is admittedly very lossy, to jump off my non-metaphorical high horse. Amplification of contextually meaningful sounds comes at the expense of that sounds transductive, conceptual, and intra-material littermates. Let us elaborate a *sonographic* listening and recording attitude that embraces Barad’s insights regarding touch and alterity. From this telephonic mode, we can adopt an embrace of the technology’s unavoidable tendency to touch: to affect itself, its others, and their situation in ways that are overdetermined and cannot be divided out. We can also adopt the sort of cyborg sympoesis that this technology allows for. Meaning through intelligible language is only arrived at through a process of making-with: virtual technological objects and human agencies crystalizing into phenomena through processes of knowing and capture. Let us extend the idea of these sorts of noise-gates utilized by written language and telephonic sound to other aspects and actors of/in the recording process.

Incidental, ‘environmental’ sounds are of more value in the phonographic modality of recording, since they create the illusion of binding the recording to a particular spatiotemporal context. I would like to argue that what they do, how they exert their thing-power, is different between their ‘original’ spatiotemporal context and their context in recording and playback. This made Heidegger very grumpy, but I think it is actually a good thing. That difference can be productive within our sonographic model of listening. These sounds should not be thought of in a

¹⁸ De Landa 1997 pg. 21

decontextualized, acousmatic form, instead they should be thought of constitutively as their difference from themselves: as the transduction from the thing power of them in their spacio-temporally situated form to their recorded form and its various iterations-as-phenomenon is actually *them*.

Their own xenosubjectivity, self-touching, or self-alterity allows them to be conceived of as forces and as our others in the continual elaboration of material-energetic being. How does the sound of footsteps on a recording articulate various materio-conceptual registers of the recording in a given iterative phenomenon? These include the placement of the microphones, the affectual bodies of the audience and the listeners to the recording, and the space in which one listens to the recording.

This inquiry can be expanded eternally exploring the variegated components of an immanent and iterative phenomenon produced each time the recording is played back. Perhaps this is a form of Oliveros-ian deep listening particularly keyed into the nature of sound as process-elaboration and self-touch.

Throughout this paper I have explored some of the ramifications for sound, its behavior, and how we interact with it according to Agential Realism, with particular emphasis on how this relates to Karen Barad's highly developed theory of touch and how it articulates alterity and self-alterity. I also explored how this theory of touch relates to phase change in the radical materialist philosophy of Manuel De Landa, and how both of these frameworks can be useful for understanding the process of transduction, which I posit as the *place where the thing lies* of sound. We looked at the concept of the soundscape, the inhumanity of (self)touch, the vitality of matter, and recording technology.

Ultimately, I think the greatest value for this theory of sound-knowledge-reality is in how it informs our sound-making practice in relationship to our internal and external others. These are

poetic and aesthetic encounters, but they are not necessarily musical. Maybe they are under an expanded musical ontology. “What is music?” is a boring and unproductive rabbit hole to go down.

Sound as a process of transduction articulates its status as a constant making-meaning-with, a sympoesis in the language of Donna Haraway. I think there are major potentialities for poetic acts of inter-species and inter-material artistic and collaborative action in recognizing sound as principally transduction: its disclosure of inhumanity and its vitalization of matter. The anthropologist Margaret Mead claims that “If we make one criterion for defining the artist... the impulse to make something new... -a kind of divine discontent with all that has gone before, however good- then we can find such artists at every level of human culture, even when performing acts of great simplicity”.¹⁹ I argue this impulse cuts across species, density, intensity, map, materiality, and virtuality. The simplest acts of performed sounding in the world articulate our commitments and obligations to friends, family, lovers, littermates, selves, prosthetics, and inhuman others from within and without: an unfathomable multitude²⁰.

¹⁹ Mead and Baldwin 1971

²⁰ Barad 2012 pg. 2014

Glossary

Throughout this paper I use various non-standard terminology primarily from the writings of Karen Barad, Donna Haraway, and Gilles Deleuze (as well as a few words I made up myself). Below I have included a few definitions for neologisms and words used outside of their common-sense dictionary meanings.

Agental Realism- A theory of knowledge and reality developed by Karen Barad “whose fundamental premise is that reality consists of phenomena that are reconstituted in intra-action with the interventions of knowers”²¹

Dividual- *Individuals have become “dividuals,” and masses, samples, data, markets, or “banks”²².* My usage is much less gloomy than Deleuze’s original usage. I am using it to highlight the constitutive multiplicities of personhood and trouble the essentialist, humanist figure of the individual.

Littermate- Cyborg Littermates²³

Cyborgs are critters in a queer litter, not the Chief Figure of Our Times. “Queer” here means not committed to reproduction of kind and having bumptious relations with futurities. Irreducible to cyborgs, the litter interests me, the particular kin and kind nursed on the fluid and solid effluvia of terra in the late twentieth and early twenty-first centuries.

Non-Linear- “strong mutual interactions between components”²⁴

Phase Transition / Phase Change- A material-energetic process moving from one register to another: bone to concrete, sound to language, etc. I frequently modify De Landa’s language from *transition* to *change* do draw a parallel between that and accounts of change from Whitehead and Russell.

Phenomenon- In Agental Realism, a condensation of virtualities and possibilities (like an electron cloud) into a particular material iteration under the influence of a knower.

Sympoiesis- *Sympoiesis is a simple word; it means “making-with.” Nothing makes itself; nothing is really autopoietic or self-organizing. In the words of the Inupiat computer “world game,” earthlings are never alone. That is the radical implication of sympoiesis. Sympoiesis is a word proper to complex, dynamic, responsive, situated, historical systems. It is a word for worlding-with, in company. Sympoiesis enfolds autopoiesis and generatively unfurls and extends it.²⁵*

Virtual/Virtuality- In Deleuze’s philosophy, the virtual is real but not actual. In other words, it is a generative force that is elaborated or actualized in the material world. Barad uses virtuality in relationship to quantum indeterminacy: a particle inhabits a virtual realm of potentialities, and is crystalized into a phenomenon via the influence of a knower.

Xenosubjectivity- A concept of the subject and subjectivity that folds in its own self-alterity.

²¹ Karen Barad 2003 pg. 15

²² Gilles Deleuze 1992 pg. 5

²³ Donna Haraway 2016 pg. 301

²⁴ Manuel De Landa 1997 pg. 14

²⁵ Donna Haraway 2016 pg. 58

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