SIOBHAN LEDDY[1]

CANNIBALS LOVERS BOTH NEITHER

An Experiment in Mimetic Communication with Tardigrades

ABSTRACT

This paper emerges from an artwork developed by the author that sought to mobilise the affective potential of sound and image to communicate beyond the species lines—in particular with a species of tardigrade, *Macrobiotus macronyx*. Tardigrades were chosen due to their incredible gift for survival: they are resilient to extremes in temperature and climate, while some species may have already survived five mass extinctions. Could they, then, help us to survive our own mass extinction? Or is the formulation of such a question fundamentally extractive and anthropocentric? Through the construction of an artwork, the author aimed to develop less Promethean forms of knowledge-sharing and creation while simultaneously resisting some of the more universalising tendencies common to new materialism. Through what Anna Gibbs has called "mimetic communication," the artwork aimed to open up alternative configurations for knowledge-sharing within a multidirectional, but always partial, network of human and nonhuman actors.

KEY WORDS: bioart, mimetic communication, affect, tardigrades, *Macrobiotus macronyx*

INTRODUCTION

On my desk currently are two different tardigrade cultures, living in small glass vials: *Dactylobiotus dispar* and *Macrobiotus macronyx*, the former's larger cousin. Tardigrades cannot be seen with the naked eye, they are far too small, although verdant puffs of algae, both the tardigrades' food and something to grip onto, accumulate at the bottom of each vial. Tardigrades are undoubtedly fascinating creatures: they can withstand extreme climatic conditions, and they are commonly described in popular media as 'immortal' (although this is, as we will see, an oversimplification). Some corners of the Internet have even suggested they drifted to our planet on an asteroid, since they are so decidedly unearthly. The last time I saw them—by which I mean, living and eating and moving under the lens of a microscope—was several months ago, when they acted as collaborators in an artwork I produced, along with sound designer Benjamin Yates, called *cannibals lovers both neither*. This artwork and the research surrounding it is the basis of the following paper.

This work also emerged from the desire to address the serious environmental threats to our way of life on Earth, including ecosystem collapse, climate change and mass extinction. There are many more besides, too many to name here, and the greatest risks are all anthropogenic. As a result, theorists from a diversity of disciplines have turned their thoughts to the Earth and the nonhumans who inhabit it. Yet, as urgent as comprehending our planetary entanglements have become, these relations are often simultaneously described as unthinkable, due to their scale and complexity. How, then, are we to imagine our relations with something as large as a planet or as small as a gut microbe, scales of which are so beyond that of the human? Could art, as a methodology, a way of thinking and communicating, help us to reach beyond species lines and better comprehend those relations?

Any attempt to expand an ecological worldview, however, comes with pitfalls. As the human is expanded into what some, such as Rosi Braidotti, have come to call the posthuman,[2] forming assemblages through various entanglements and reaching dizzyingly large scales, one risks slipping into universalisms. Think, for instance, of the Anthropocene, or the autopoietic Gaia: both posit the Earth and all who live on it as contained within a total planetary system. Similarly, new materialist ontologies also tend towards universalisms, particularly, as music theorist Robin James writes, when mobilising

1 Siobhan Leddy is currently a PhD student at the Freie Universität Berlin, researching more-than-human relations in artistic practice. She also holds an MA in Global Arts from Goldsmiths, University of London, and a BA in Art History from the University of Manchester.

2 Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013).

sonic metaphors and sound.[3] As James notes, new materialist thinkers such as Elizabeth Grosz, Karen Barad and Steve Goodman often refer to sound or vibrations as means of reaching beyond the human, developing universal ontologies aimed at bringing all matter into the fold: "At the molecular or quantum level," writes Goodman, "everything is in motion, is vibrating."[4] These gestures of enclosure are not only less politically useful than is often assumed, but they will also always and inevitably exclude the most marginal. Could an artwork, as a material construction limited in time and space (there is no planetary *Gesamtkunstwerk*, after all) offer a way of thinking through and with materialism in less universalising configurations?

Building on the idea that an artwork is, as art theorist Simon O'Sullivan writes, a "bundle of affects,"[5] *cannibals lovers both neither* (from here on simply referred to as *cannibals*) was an interactive installation making use of both image and sound to produce affective intensities, in order to mediate communication between humans and tardigrades. This was an experiment into what Anna Gibbs calls mimetic communication, a mode of embodied communication in which affective intensity is transferred and mirrored between interlocutors.[6] The fundamentally affective quality of artistic works means they are uniquely positioned for this kind of communication. In putting different affective registers and percepts to use, I aimed to create highly specific conditions that might facilitate affective transfer, and thus mimetic communication, between humans and tardigrades.

I sought communication with one species of tardigrade in particular, *Macrobiotus macronyx*. Tardigrades were chosen due to their incredible gift for survival: as many species stand on the cusp of extinction, could tardigrades communicate their resilience to others? This paper could be considered a fabulatory roleplay of a scientific report, including elements such as hypothesis, method and results. After outlining initial theoretical considerations and guiding research questions, I then describe how the artwork was constructed. Moving onto the results section, I offer some of my observations as I invigilated the installation each day, and reflect on what this might suggest. Yet this is also very much not a scientific paper: any 'results', in so far as they can be considered such, could never be understood as scientific fact, and the terms of the hypothesis itself collapse in on themselves more than once. This is perhaps inevitable when trying to enclose an artwork, with all its affects and abstraction, into words.

3 Robin James, *The Sonic Episteme: Acoustic Resonance, Neoliberalism, and Biopolitics* (Durham and London: Duke University Press, 2019).

4 Steve Goodman, "13.7 Billion B.C.: An Ontology of Vibrational Force," *Sonic Warfare* (Cambridge, MA: MIT Press, 2010), 83.

5 Simon O'Sullivan, "The Aesthetics of Affect: Thinking Art Beyond Representation," *Angelaki: Journal of the Theoretical Humanities* 6, no. 3 (December 2001): 126.

6 Anna Gibbs, "After Affect: Sympathy, Synchrony, and Mimetic Communication," in *The Affect Theory Reader*, eds. Melissa Gregg and Gregory J. Seigworth (Durham, NC: Duke University Press, 2010), 186–205.

TARDIGRADES AND EARTHLY SURVIVAL

The creation of *cannibals* began with one problem and one nonhuman species. Most fundamentally, faced with imminent ecosystem collapse, we must urgently reconstitute our relation to the Earth and its inhabitants by better comprehending our relations. We exist through our entanglements with others, both human and nonhuman, and recognising this fact helps us to dismantle our anthropocentrism and see that we are part of, rather than observers to, the Earth.[7] Yet our entanglements are, despite this urgency, often quite difficult to comprehend. While the Anthropocene is a useful framework for thinking about issues such as climate change as shared planetary phenomena, it is exactly this same planetary scale—with all its abstraction, distance and complexity—that is hard to imagine. The requirement to imaginatively leap from, for instance, atom to microbe to human to ecosystem to planet has led to what literary scholar Timothy Clark has described as "derangements of scale," in which "the difficulty of conceptualizing a politics of climate change may be precisely that of having to think 'everything at once.'"[8]

As humans have become increasingly aware of our precarious position on Earth, interest in the tardigrade has grown. The resilience of tardigrades is underscored by the vulnerability and extinction of so many other species in the Anthropocene. They are a phylum of microscopic aquatic invertebrates found all over the Earth. Yet, despite their diminutive size, the mythology that surrounds them stretches vastly, into deep time and space. Occasionally (and mistakenly) supposed to be immortal, tardigrades are nonetheless highly robust: they have likely survived five mass extinctions and many tardigrade species (of which there are more than 1000) may survive our own.[9] They can survive dehydration, outer space and extreme temperature ranges; without access to water, they curl up and lie in what some scientists describe as a temporary death-like state, or 'tun', for long periods of time.[10] These qualities are

7 See, for instance, Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), Anna Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton and Oxford: Princeton University Press, 2015), or Thom van Dooren, *Flight Ways* (New York: Columbia University Press, 2014).

8 Timothy Clark, "Scale: Derangements of Scale," in *Telemorphosis: Theory in the Era of Climate Change* 1 (Michigan: Open Humanities Press, 2012), 152.

9 David Sloan, Rafael Alves Batista and Abraham Loeb, "The Resilience of Life to Astrophysical Events," *Scientific Reports* 7, no. 5419 (2017), doi: 10.1038/s41598–017-05796-x.

10 Thomas C. Boothby, "Desiccation of Hypsibius exemplaris," *Cold Spring Harbor Protocols* (2018), doi: 10.1101/pdb.prot102327. Takuma Hashimoto et al.,"Extremotolerant tardigrade genome and improved radiotolerance of human cultured cells by tardigrade-unique protein," *Nature Communications* 7 (2016): 12808, doi: 10.1038/ncomms12808.

of interest to scientists, who wish to equip human cells with the same ability to protect against environmental stress. At Tokyo University, for instance, scientists have extracted genetic material from *Ramazzottius varieornatus*, a particularly hardy tardigrade, and discovered a protein that protects DNA from radiation damage.[11] When they embedded this tardigrade protein into human cells, the latter expressed unprecedented and "increased radiotolerance."[12]

I was, too, initially intrigued by tardigrades for their incredible survivalist qualities. As we face dramatic transformations to our environment and widespread species extinction, I wondered what tardigrades could teach us about earthly survival. But this question, I soon realised, formulated a Promethean relation with the tardigrade before I had even begun. The terms of the question itself—what knowledge do they hold that can help humans to survive?—relegates the tardigrade as a mere resource for knowledge extraction, mirroring the material extraction of genetic matter described above. I do not wish to situate an artistic approach as inherently superior to or more ethical to a scientific one (art, after all, has served many nefarious ends throughout history), but art nonetheless functions differently to science and makes propositions that science simply cannot. Perhaps, then, an art-led approach could open up alternative models for knowledge-sharing with tardigrades, centring communication over extraction.

I was also interested in the potential of an artwork as something that, as Elizabeth Grosz suggests, does not "order or control chaos but . . . contain[s] some of its fragments in some small space . . . to reduce it to some form that the living can utilise without being completely overwhelmed."[13] This definition suggests that art may be uniquely positioned for thinking beyond the human without attempting to think the whole planet at once. An artwork is inevitably partial; there is no total or planetary *Gesamtkunstwerk*. No artwork affects all entities and matter equally, nor can it synthesise all things at all times. Yet art may, as a means of manipulating affect, help to bring some multispecies relations and knowledges into the frame of human perception.

FORMULATING NEW LANGUAGES OF THE EARTH

There are several obstacles to communicating with tardigrades. In a very practical sense, it was necessary to find a non-linguistic form of communication. While tardigrades do not 'speak' in the anthropocentric sense, lacking both ears and vocal chords, it should not necessarily be assumed that they lack communication altogether. When thinking of communication beyond the

11 Hashimoto, 2016.

12 Hashimoto, 2016.

13 Elizabeth Grosz, *Chaos, Territory, Art: Deleuze and the Framing of the Earth* (New York: Columbia University Press, 2008), 28.

human, it is therefore important to note the vast array of "processes by means of which entities 'perceive' other entities, or are affected by those entities."[14] I will return to this idea of affective transmission later, drawing on mimetic communication as a potential framework for multispecies relation.

Yet, beyond questions of viability, finding ways to communicate outside of an inherited lexicon may also help to move beyond inherited (and extractivist) knowledge regimes. In *A Billion Black Anthropocenes or None*, geographer Kathyrn Yusoff implicates the lexicons of geology in bifurcating matter into two categories: active and inert. Being a racialised lexicon as much as it is a geological one, the category of active or human becomes equivalent to whiteness. The inert or nonhuman is simply everything else, including resources such as coal or gold, and plants of the plantation, but also the Black bodies who extract those materials.[15] This imagined equivalence leads to the violent extraction of all those deemed inert, as the geological lexicon "allowed slaves to turn into and displace gold."[16] These same geological and racialised exclusions and inclusions, Yusoff argues, are still at work today in discourses of the Anthropocene. She is, however, careful to warn against broadening the pre-existing categories under the imperative of greater inclusion. The idea is not to make everything human, which would also mean to make everything white, but to dismantle the lexicons themselves, calling instead "for the disruption of the connotative powers of language."[17] As Yusoff puts it, "A new language of the earth cannot be resolved in biopolitical modes (of inclusion) because of the hierarchical divisions that mark the biocentric subject."[18]

Yet the Anthropocene is the inclusionary concept par excellence, commonly situated as a universal concern between all entities on Earth, a kind of "negative bonding in terms of sharing the same planetary threats: climate change, environmental crisis or even extinction."[19] Likewise, artist and environmental engineer Tega Brain describes a common tendency to conceptualise the planet as a total cybernetic system (an approach with roots in mid-20th century Gaia theory), through which the Earth is assumed to be in a closed "state of dynamic equilibrium."[20] In this politics of assumed total planetary inclusion, it is worth considering who or what is excluded as these universal categories are drawn up.

14 Steven Shaviro, *Discognition* (London: Repeater, 2015), 38.

15 Kathryn Yusoff, *A Billion Black Anthropocenes or None* (Minneapolis, MN: University of Minnesota Press, 2018), 18.

16 Yusoff, 20.

17 Yusoff, 18

18 Yusoff, 56.

19 Braidotti, 103. Note that Braidotti was not advocating for this brand of entanglement, instead arguing for a more affirmative relation with the Earth.

20 Tega Brain, "The Environment is Not a System," *APRJA* 7, no. 1 (2018): 155.

What 'new languages of the earth', as Yusoff phrases it, can be formulated that do not endeavour to bring everything into the fold of the human? That do not aim for total inclusion and relegate all those left outside as fundamentally extractable? Rather than ask what those designated nonhuman can do for those designated human, extracting their knowledge (whether as material, DNA, labour, or any other resource), I was eager to find modes of communication predicated on reciprocity, non-universality, and the development of languages beyond human ones—not to replace the existing languages, but rather to broaden and enrich the possibilities for communication.

MIMETIC COMMUNICATION

Building on these preliminary thoughts, I endeavoured to use artistic research in order to conduct an experiment in what Anna Gibbs has called "mimetic communication."[21] The word mimesis has a long history in thinking about art, stretching back to Plato, yet mimetic communication offers something more than "life-like representation," with its implication of inferiority; it is, rather, "a form of corporeal copying . . . involving a sharing of movement and form."[22] It is the active bodily response to the actions of another in a moment of encounter, "a borrowing of form that might be productively thought of as communication."[23] Between humans, this may manifest as a mirroring of facial expressions, tone of voice, postures or movements, which help foster a sense of recognition of, and affiliation with, an interlocutor.[24] Indeed, our ability to mimic the actions of others is our first recognition that our interlocutor is somewhat *like us*, and that they recognise us as *like them* in return. Mimetic communication, then, is the recognition of being simultaneously *kindred with* but *distinguishable from* an encountered entity.

Gibbs describes the nature of this communication as a contagion affect, in which embodied mimicry leads to "a tendency to converge emotionally."[25] But what is meant by affect, exactly? While philosophers and psychologists alike have attempted to pin down this rather slippery concept, here I will be following on from Gregory Seigworth and Melissa Gregg's definition of affect as something that "arises in the midst of in-between-ness: in the capacities to

21 Gibbs, "After Affect," 186–205.

22 Anna Gibbs, "Mimesis as a Mode of Knowing: Vision and Movement in the Aesthetic Practice of Jean Painlevé," *Angelaki: Journal of the Theoretical Humanities* 20, no. 3 (September 2015): 43.

23 Gibbs, "After Affect," 193.

24 Gibbs, "After Affect," 186.

25 Gibbs, "After Affect," 186.

act and be acted upon. . . . synonymous with force or forces of encounter."[26] It thus precedes individualised feeling or emotion, and exists as a force between different bodies. This definition stresses the relational and reciprocal nature of affect, as a kind of communication that precedes language. When two bodies encounter one another, the transmission of affect alters the form or behaviour of those bodies, as an acknowledgement and expression *to the other* of that encounter's intensity. Affect, then, is not simply a precursor to communication between bodies, but rather a form of communication itself.

It is also important to note that Gibbs is not reducing mimetic communication to the simple and direct imitation of body language, movement or action (for instance, if I were to mirror the hand gestures or facial expression of my interlocutor)—although it certainly may include this. Rather, due to its affective nature, mimetic communication is more often a "cross-modal" communication, in which the transmission of affective intensity is expressed in an equally intensive yet different form. The example Gibbs offers is based on an observation by psychoanalytic theorist Daniel Stern, who describes mimetic communication between a mother and her baby:

> when a nine-month-old girl becomes excited about a toy and is able to grasp it, she "lets out an exuberant 'aah!' and looks at her mother. Her mother looks back, scrunches up her shoulders, and performs a terrific shimmy with her upper body, like a go-go dancer. The shimmy lasts only about as long as her daughter's 'aah!' but is equally excited, joyful and intense."[27]

In other words, while there is a mirroring of affective intensity between mother and baby, the "cross-modal translation" of this affect means there are two different modes of expression: the 'exuberant ahh' with one and the 'terrific shimmy' with the other.[28] This affective equivalence creates a moment of social closeness, while its different embodied expressions upholds the understanding that those two bodies are distinct from one another. Particularly significant for my own research is that this translational aspect makes mimetic communication promising for interspecies communication. While we may never be able to answer Thomas Nagel's famous question—what is it like to be a bat?[29]—a cross-modal transmission of affective intensity

26 Gregory J. Seigworth and Melissa Gregg, "An Inventory of Shimmers," in *The Affect Theory Reade*, eds. Melissa Gregg and Gregory J. Seigworth (Durham and London: Duke University Press, 2010), 1–2.

27 Gibbs, "After Affect," 195.

28 Gibbs, "After Affect," 195.

29 Thomas Nagel, "What is it Like to be a Bat?," *The Philosophical Review* 83, no. 4 (October 1974): 435–50.

may enable some of that bat's embodied experience to be communicated in a moment of encounter.

In choosing to explore mimetic communication between species as an artwork, I also had in mind the words of art theorist Simon O'Sullivan, who describes art as "a bundle of affects . . . waiting to be reactivated by a spectator or participant. Indeed, you cannot read affects, you can only experience them."[30] Thinking of art as more than mere representation, I instead wished to tap into the affective properties of art in order to facilitate the transmission of affective intensity between humans and tardigrades. The artwork would therefore create the conditions for an encounter, in the hope that mimetic communication could take place.

METHODOLOGY

The final installation, titled *cannibals lovers both neither*, was exhibited in January 2020 at Im Grünen Bereich, an artist-run project space in Berlin. The title was deliberately ambivalent: while tardigrades are, depending on the species, both cannibals and lovers, there is also an absurdity in using such emotionally weighty human concepts to describe them. I wished to work with tardigrades in part because of their incredible resilience in extreme climates, but in doing so, I was also interested in pursuing models of knowledge transfer that exceeded scientific and extractivist models. Mimetic communication, as a fundamentally affective mode of communication, seemed as though it could open up alternative models for engaging with tardigrades, particularly since it did not require direct imitation of body movement or activity (which, given the different physical attributes of the two species, would be impossible). Likewise, I looked to art because of its fundamentally affective properties, which may enable me to create conditions in which humans and tardigrades could commune with one another.

While there are many species of tardigrade, *Macrobiotus macronyx* was chosen for its large size and ease of microscopic capture. Thanks to help from microbiologist Thomas Fromm, their movements were captured via bright-field microscopy. Enlarged to many times their original size and then projected onto one wall of the exhibition space, the tardigrades could be seen wriggling and grasping at algae, while they would at times bump into one another (see Figs. 1 and 2). Humans were also filmed as they entered the space. A camera on the far side of the room captured footage of visitors as they entered and navigated the exhibition space, which was distorted into colourful silhouettes and then streamed live onto a large television that leaned against an adjacent wall.

30 O'Sullivan, "The Aesthetics of Affect," 126.

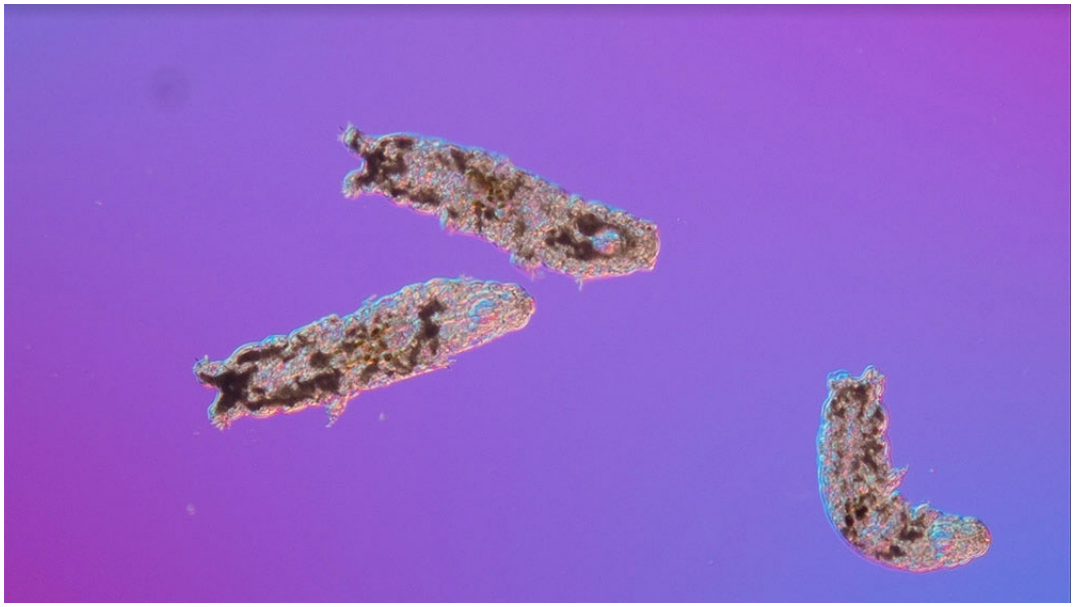

Figure 1.
Bright-field microscopy of *Macrobiotus macronyx*. Thanks to microbiologist Thomas Fromm.

Figure 2.
Installation shot of *cannibals lovers both neither*, at Im Grünen Bereich in January 2020.

Both sets of moving images then became sound maps, from which these moving images could be translated into a different perceptual register. Using Max for Live, a piece of software for sound and visual performance, the image was divided into several zones, each of which would correspond to a particular sound. When a movement in a zone occurred, that zone's noise would be triggered and then played into the space through speakers. The various movements of both human and tardigrade on their respective 'sound maps' would therefore trigger sounds of various frequencies to be played simultaneously. The sounds generated from the two separate image streams therefore sonically came together, resulting in an ever-changing soundscape produced by both human and nonhuman 'performers.'

Sound is frequently referenced in both affect studies and new materialism. In both fields, sound has become detached from its typical human or cochlear associations. Musician Will Scrimshaw, for instance, describes sound as "the *affective matter* of which music is composed."[31] While for Scrimshaw, music is made from affective matter, Anna Gibbs describes affecto-mimetic communication as fundamentally rhythmic and musical, as in the synchrony and alternation between two humans in conversation.[32] In this, Gibbs reflects a common sentiment in affect studies: if we are to think of sound in its most expansive sense, beyond the limits of the human ear, we must think in terms of rhythm or vibration. Conceptualised in this way, sound refers as much to the tremor of an atom or the ebb and flow of the tide as it does a musical composition. As something expressed by humans and nonhumans alike, non-cochlear sound thus suggests a universal mode of communicability between different entities.

Vibration and rhythm are also mobilised in new materialism. As music theorist Robin James has noted, prominent new materialist scholars Elizabeth Grosz, Jane Bennett and Karen Barad all theorise sound in terms of vibration or rhythm to conceptualise more-than-human ways of being.[33] Musician and philosopher Steve Goodman, meanwhile, refers to an "ontology of vibrational force" in order to expand sound into its most universal and non-anthropocentric form, more related to affect than the human ear.[34] In this vibrational ontology, all entities, alive and inert, are affected by the vibrations and rhythms of other entities.[35] Sound thus becomes a universal force, since everything vibrates: stillness is merely a quality bestowed on matter by humans based on their own level of perception.[36]

31 Will Scrimshaw, "Non-cochlear sound: On affect and exteriority," in *Sound, Music, Affect: Theorizing Sonic Experience*, eds. Marie Thompson and Ian Biddle (London: Bloomsbury, 2013), 31 (emphasis added).

32 Gibbs, 198.

33 James, *The Sonic Episteme*, 96.

34 Goodman, 81.

35 Goodman, 83.

36 Goodman, 83.

Yet, as already noted, any attempt at universal inclusion inevitably always excludes, even if that exclusion is not perceived. As media theorist Eva Haifa Giraud writes, "it is important to recognize that all epistemologies or political and ethical approaches—even complex, pluralistic, and seemingly open ones—carry their own omissions."[37] James takes this further, underscoring the violence of new materialism's universalising gesture: in a new materialist ontology, in which all entities resonate and affect one another through their vibration, what is coded out into "the red?"[38] What, in other words, is left outside in the creation of a total sonic ontology? Such a universalism also risks foreclosing the exact emancipatory politics it wishes to unfold; can a vibrational relation that cannot be perceived create any kind of meaningful ethics at all? Additionally, as Giraud writes, any politics that insists on total inclusion neglects the fact that "particular forms of exclusion, refusal, and opposition play a productive and creative, rather than wholly negative, role."[39]

The *cannibals* artwork, therefore, sought a mode of affective communication that was both perceptible to humans and worked with, rather than against, its own partiality. The work's use of sound makes no attempt at total enclosure, nor could it: here, sound is an affective material for human perception, a technology to mediate cross-modal translation between two species that would never be able to engage with one another without such mediation. The technologies involved (which also include the artwork as a whole) enabled that which could not ordinarily be seen by humans to be seen, and that which cannot be heard to be heard. The microscope enlarged the tardigrades, while the software sonified movement into a human-scale sensory register. In so doing, I created a highly localised network of communication between humans and tardigrades that would not exist (at least in this way) without my intervention or the mediation of the technologies involved. Without the artwork, its speakers, software and microscopes, no mimetic communication would take place: it was therefore a situated relation, limited in time and space. As a mimetic communication event that comes about strictly through encounter, the work attempts to bring one particular (and potential) relation into being, rather than abstracting further into the realm of the general, universal and imperceptible.

James levels a second charge against sonic thinking that *cannibals*, to some degree, addresses. That is, the automatic assumption that, in disturbing the West's supposed ocular hegemony, sound is incontrovertibly more ethical. In this, James builds on Jonathan Sterne's "audiovisual litany."[40] Sterne critiques

37 Eva Haifa Giraud, *What Comes After Entanglement?* (Durham, NC: Duke University Press, 2019), 4.

38 James, 6.

39 Giraud, 4.

40 Johnathan Sterne, *The Audible Past* (Durham, NC: Duke University Press, 2003), 15.

the idea often taken for granted in philosophy that vision and hearing are a natural dichotomy, in which "hearing brings us into the living world, sight moves us toward atrophy and death;" only hearing, with its "pure interiority" can bring us to "the clear light of reason."[41] Goodman makes this claim in similar, although perhaps less explicit, terms:

> An ontology of vibrational force . . . can assume the guise of a sonic philosophy, a sonic intervention into thought, deploying concepts that resonate strongest with sound/noise/music culture, and inserting them at weak points . . . where . . . its ocularcentrism [is] blinded.[42]

In using both sound and video together, *cannibals* refuses the adversarial and binary "audiovisual litany" separating sound and image. Premised on the idea that percepts cannot be fully isolated from one another, *cannibals* functioned according to a mimicry between sound and image (perhaps not unlike the one taking place between humans and tardigrades), in which image quite literally *became* sound. Together, sound and image contributed to an almost synaesthesia-like affective event.

RESULTS

Although I invigilated the exhibition space for four days, it became clear almost immediately that while, at times, the various noises of the installation came together harmoniously, at others they were jarring and discordant. Whatever relations took place, they did not always result in sonic synchrony. However, even during these discordant moments, in their coming together, the sounds were sometimes louder than others, suggesting occasional moments of affective intensity. Yet this could never be more than speculative: affect is pre-cognitive, pre-epistemic, not to mention pre-linguistic, phenomenon, and an artwork, as a "bundle of affects," resists the idea of the 'result' in the scientific or analysable sense. *Cannibals* could produce no scientific fact, no calculable information or data. The artwork, in contrast to the scientific experiment, defamiliarises rather than clarifies.

Mimetic communication, therefore, risks seeming somewhat vague, or difficult to pinpoint. Although, acting as invigilator, I heard the coming together or falling apart of sonic elements, this is not the equivalent of affective sensation felt in the body. Even for those engaged in mimetic communication, mimetic impulses may register "only at the nerve ends, so that these impulses might not

41 Sterne, 15.
42 Goodman, 81.

even be consciously experienced, particularly by adults trained in the arts of polite spectatorship."[43] Mimetic communication may therefore sometimes only be an imaginative capacity, rather than finding expression in physical movement.

Given the unknowability of affect as scientific fact, particularly in the context of an artwork, perhaps *cannibals* could be said to operate as speculative fabulation. Speculative fabulation, as Donna Haraway describes it, is a mode of thinking that, while not incompatible with science fact (another of several 'SFs' she refers to), disrupts existing ways of knowing and being, and creates alternative configurations for knowledge-making.[44] The creation of new affective states, mimetically responding to those of nonhuman interlocutors at the moment of recognition, may have the potential to take one to a previously unknown feeling or thought.

While *cannibals* did not yield results as science fact, I was able to observe some responses in human behaviour as they entered the space. Some visitors would wave their arms and legs in an attempt to trigger as many noises as possible, while others were more ruminative, slowly moving back and forth. When some human visitors realised that their movements triggered different sounds within the space, or that their distorted image was streamed onto the television, they increased the frequency and range of their movements around the room. Steps became broader and wider, arms waved above their heads. One visitor even came to the space every day, staying for around half an hour each time, apparently transfixed by the sounds and movements of the tardigrades and swaying his body to the sounds and images. It would seem, then, that some form of relation, communication or perhaps even a mimetic response was taking place, expressed in physical movement. The work's interactivity meant that visitors were asked, as philosopher Julia Kristeva puts it, "not to contemplate images but to communicate with beings."[45] In recognising the role of their own movements in contributing to the audio-visual landscape of the space, human visitors were unable to remain removed or detached from the artwork and, by extension, the tardigrades.

In *cannibals*, these moments of connection were mediated by the artwork, which laid out the parameters for mimetic communication in advance. Also fundamental were microscope, projector, software and hardware, and it was technology as much as the behaviour of tardigrades that human visitors were responding to. When the tardigrade or human moved, they triggered a transformation in the software's algorithm (analogous to a switch turning on), translating physical movement into changes in code. At the same time, the human visitors were also responding to the output from the software; as the software and speakers output more sounds, the humans moved their bodies to

43 Gibbs, "Mimesis as a Mode of Knowing," 48–49.

44 Donna Haraway, *Staying with the Trouble* (Durham, NC: Duke University Press, 2016), 14.

45 Julia Kristeva, quoted in O'Sullivan, 130.

a greater extent. Could, then, mimetic communication be taking place between more than the two most obvious interlocutors (model and mimic), but also with inert matter (machines, algorithms, speakers, projectors)?

If so, mimetic communication operates between a multidirectional network of human and nonhuman actors. Where, then, could the limits of this network lie? Mimetic reactions may take place within human and tardigrade bodies, but also in the walls and air of the space as the sound reverberated and resonated, in the activation of software triggers, and the responses of the hardware to the software's activity (such as computer fans increasing in velocity). Did the mimetic network end with the walls of the exhibition space? Or did the light of the projector that fell onto the street outside also produce mimetic effects for passers-by? In this sense, the mimetic network in *cannibals* was much broader than the one I had originally considered at the outset of the work.

Yet, this network of mimetic communication (as affective transmission and translation) was far from totalising. This was no planetary network, a universal entanglement of all entities bound together through affect. Rather, this is a network that, echoing Haraway, keeps "the edges open."[46] Affective mimetic communication is necessarily a communication based on embodied encounter, of recognition of an interlocutor, even if there are many encounters taking place at once. This particular communication network was thus fundamentally partial, despite its limits or affective threshold never being fully known.

Returning to the artwork's initial conceit—could communication with tardigrades help us to survive mass extinction?—is by now impossible. Such a Promethean question could never be 'answered' through mimetic communication, due to its affective and pre-cognitive nature. Mimetic communication and knowledge-sharing do not allow for scientific facts to be extracted in any conventional sense. Yet, at the same time, if we think of artworks as one mode of speculative fabulation, one that allows humans and tardigrades to share a moment of affective intensity, then perhaps mimetic communication may help us to reconfigure what it means to gain knowledge in the first place.

CONCLUSION

There is an irony in devoting so many words to something as difficult to pin down as affective communication. As humans we seem to have a strong desire to give a name to things; think, for instance, of the various epithets given to our current geological epoch, from Anthropocene to Chthulucene (Haraway) to Anthrobscene (Jussi Parikka). Yet to put words to things imposes structure and lexicons onto that which may resist it. This is certainly true of affect, which by definition pre-exists language, even cognition. But despite these difficulties,

46 Haraway, 72.

this paper has attempted to pull out some strands of thought prompted by the creation and exhibition of a single artwork that attempted to facilitate communication between humans and tardigrades: that fundamentally strange and intriguing phylum of microscopic creatures, capable of survival in extreme climatic conditions.

This paper began with simple questions for tardigrades: how can we survive the next mass extinction? What can you tell us? Yet, the work soon exceeded and failed to meet the terms of the question. The lexicon that shaped the question itself was impossibly anthropocentric, while its approach to knowledge-sharing was extractivist. Broader, speculative questions soon emerged: what kind of communication *could* take place between species? What new lexicons can be formed through the creation of artworks?

The final artwork, *cannibals lovers both neither*, looked to mimetic communication, following Anna Gibbs' definition, as a one possible mode of knowledge-transfer: an embodied approach related to the transmission and mimicry of affect in moments of encounter. As Gibbs writes, more than mere "monkey see monkey do," mimesis is "a complex communicative process in which other sensory and affective modalities are centrally involved."[47] In other words, mimetic communication is not a case of direct reproduction, but involves various translations of form and expression—albeit with equivalent affective intensity between interlocutors.

The artwork's network of relation was not limited to humans and tardigrades alone: software, hardware, even the pavement outside experienced mimetic transformations through these encounters (although whether or not the software's response to human and tardigrade movement is affective is an interesting question, albeit beyond the scope of this paper). Yet this mimetic communication network was predicated on encounter, meaning that this network was partial rather than total. While the edges of the network are impossible to know, it is this fuzzy threshold of indeterminacy—a Schrödinger's threshold of inside/outside—that may allow for a materialist ethics that refuses the logic of total entanglement.

At the close of this paper, it is difficult to pinpoint any kind of scientific fact that can be extracted from *cannibal*s' "bundle of affects." Nor could any secrets of survival be extracted from tardigrades by humans. Yet, clearly embodied, and perhaps even mimetic, responses were taking place within the mimetic communication network that *cannibals* mediated. Perhaps artworks, then, facilitate moments of what Donna Haraway calls speculative fabulation, as visitors, through their engagement with an artwork, enter into an affective network that defamiliarises and reconfigures what it means for knowledge to be transferred. Mimetic communication via an artwork may offer a shared moment of affective intensity between even the most unacquainted entities, and the creation of entirely unfamiliar embodied knowledges. ⊡

47 Haraway, 191.

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