MAST

The Journal of Media Art Study and Theory

Special Issue:

Media, Materiality, and Emergency

Edited by Timothy Barker

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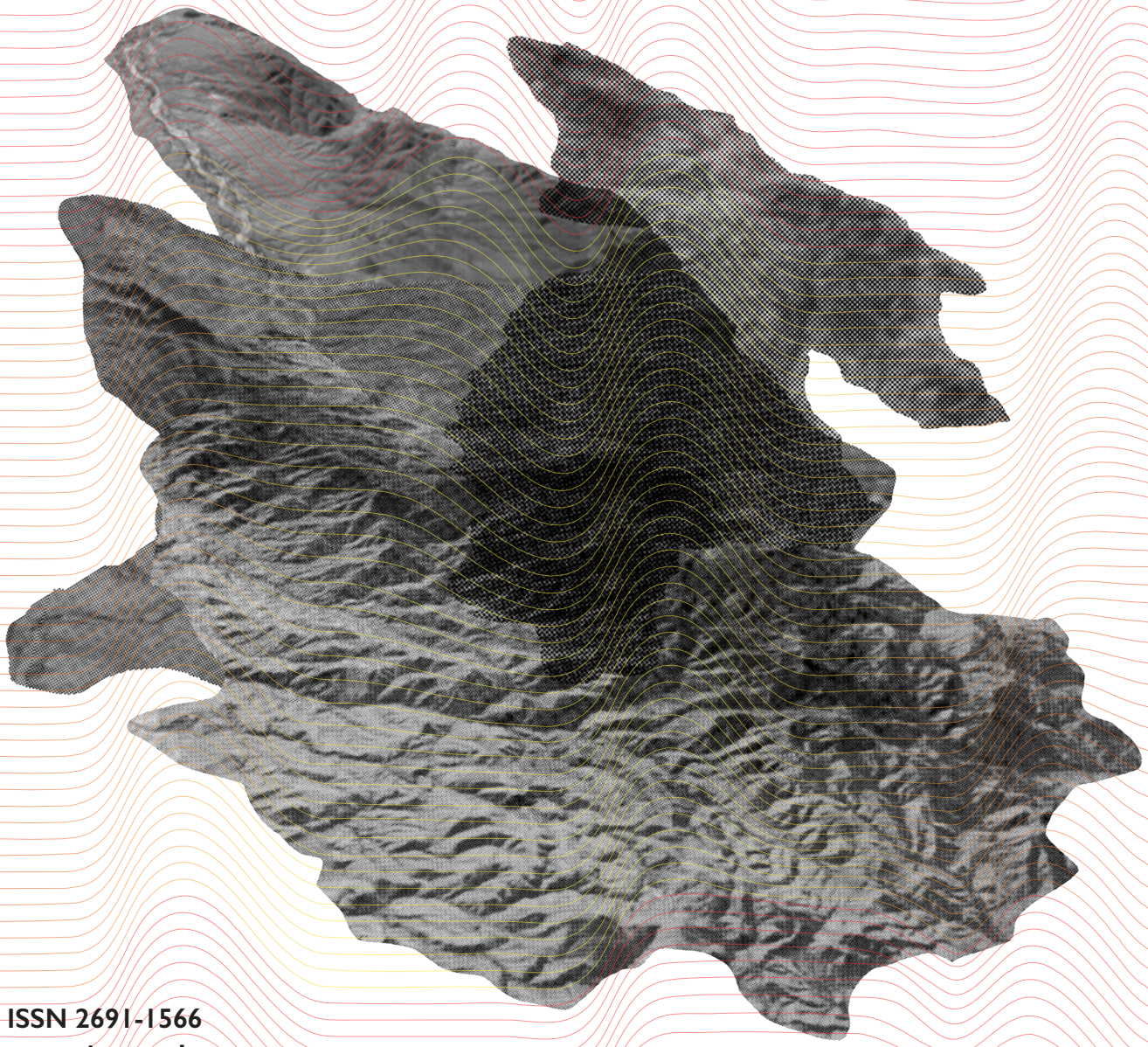

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MAST is an online, open-access, and double-blind peer-reviewed journal featuring interdisciplinary scholarship in the domain of media studies. *MAST* stands for "Media Art Study and Theory" and aims to publish innovative research, writing, and work by artists and scholars who present new methods, approaches, questions, and researches in the field of media studies in theory and practice. The journal is relevant to academics, artists, researchers, theorists, and art curators with an interest in artistic research, theory, and praxis of media, introducing works that demonstrate creative engagements with current debates in media studies. *MAST* is housed in and sponsored by NeMLA (The Northeast Modern Language Association) at the University at Buffalo, State University of New York. *MAST* issues are published digitally twice a year (Spring and Fall).

Contents

Issue 2: MEDIA, MATERIALITY AND EMERGENCY
Edited by Timothy Barker

Introduction

Between Emergence and Emergencies: An Introduction to the Special Issue 'Media, Materiality, and Emergency' 3
Timothy Barker

Interview

Contagions, Sleepwalkers, and the Nonconscious of Social Media: An Interview with Tony D. Sampson 23
Jernej Markelj

Practice-based Studies

***The Unreal*: Imaginaries of Techno-colonialism** 46
Gloria López-Cleries and Sive Hamilton Helle

***Autoimmune*: Media, Computation, and the AIDS Crisis** 57
Marcos Serafim

Descending Parnassus: The State of Material is in Play 66
Jason E. Geistweidt

Articles

Echoes in the Desert: Digging Out the Disappeared in the Digital Age 76
Irina R. Troconis

Mourning Absence: Place, Augmented Reality (AR), and Materiality in *Border Memorial* 103
Alyssa Quintanilla

Searching for a Remnant in Pixels and Static: The Fleeting Materiality of Plane Crashes 124
Kathleen Williams

Alpine Topographies of Loss:
On the Media Temporality of Glaciers 148
Dominik Schrey

Catastrophe in a Bottle: Ellie Ga's Medial Detritus of Drift 173
Christian Whitworth

Living in Emergency:
The Response of New German Documentary Theater 196
David Barry

COVID-19 and the UK Live Music Industry:
A Crisis of Spatial Materiality 219
Iain A. Taylor, Sarah Raine, Craig Hamilton

***teamLab Borderless*: Bridging Borders in Simulated Ecologies** 242
Wendy Haslem

Book Review

Lac Bugs, Petrocapitalism, and Data:
'Mediatic Musicology Without Music' 264
Ryan Nolan

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Between Emergence and Emergencies: An Introduction to the Special Issue 'Media, Materiality, and Emergency'

Timothy Barker
University of Glasgow

In late 2019 I was asked by the editors of *MAST* journal to put together a special issue based on questions of media and materiality, a few months before the start of the COVID-19 pandemic. I had been immensely interested in the relationship between the materiality of media, the concept of emergence, and the kinds of emergencies that might be seen to threaten the annihilation of the current assemblages of matter. These were a set of ideas that I was starting to tinker with based on my interest in Alfred North Whitehead and Gilles Deleuze and the way they can be used to think about the emergence of novelty in a non-deterministic world. "Let's put together an issue on media, materiality, and emergency," I said, rather pleased with myself at the etymological connection that I'd made between 'emergence' and 'emergency,' which I thought could provoke some interesting media philosophical enquiry in the context of contemporary and historical crises (in other words, *emergence* is the process that can bring things into being, but *emergencies* could be seen as threats to existence, or at least our so called 'normal' experiences of existence). In this sense, this would be a project that involves thinking about process, becoming, and novelty hand-in-hand with the loss and the perishing of 'actual entities' that accompanies process. Who would have known that the topic would

become so timely and would open so far beyond its intended scope, which, in relation, might have originally been, I have to admit, fairly narrow? The current global emergency brought about by the novel coronavirus pandemic now reconfigures the way vast swathes of the globe use communication media to relate to others, to remain insulated from the outside and to create what Peter Sloterdijk once called 'spheres of immunity.' It therefore seems like a good time now to start asking questions about how the materiality of media is related to the emergence of catastrophic events, both in terms of the current global pandemic, the deep structural inequalities and racism that it has exposed, but also in terms of the climate crisis and other contemporary emergencies that we are still living with. The two interrelated questions that frame this special issue stem from these concerns. They are: *How do emergencies change the way we use or think of media and mediation?* and *How does media and mediation change the way we think of emergency?*

The materiality of media has been at the center of a brand of media scholarship and media art practice that holds the position that objects such as transistors, capacitators, typewriters, gramophones, celluloid, cathode ray tubes, and liquid crystal diodes impact on the conditions for communication, the conditions for representation, and in turn the conditions for knowledge. Those usually invisible things—objects and technical processes that make images, sounds, and written texts possible—are for people interested in this brand of scholarship precisely those things that are fundamental to understanding the efficacy of media content in general. The invisible side of media culture is made visible by media theorists that look to uncover the implicit, 'behind the scenes' processes that underpin aesthetics and the mediation of relationships and in turn the development of a so-called culture. This same invisible side of

media is also made visible by artists that show us how media can be understood or made to act differently in the face of emergencies.

Media is commonly situated as the 'inbetween' of bodies—and perhaps this is one reason it has become so important during the current pandemic. Media is the thing that allows a movement between two poles. It is the material that makes possible the movement of data, over space (transmission) or over time (storage). A sender and a receiver, one and the other, stand at either sides of a divide and communicate via a medium. In this sense, media might, following Sybille Krämer's reading of Habermas, be considered as erotic, connecting material bodies, providing the conditions for the emergence of material assemblages, as a receiver grasps and pulls into itself data that is transmitted from a sender. Of course, media may undertake the opposite role, as Krämer also points out, dividing matter into separate bodies, keeping the sender and receiver at a distance (creating 'immunity,' rather than 'community'). Media arts practice and media theory in the most general sense has been about asking questions about these functions of mediation, which connect, divide, and express material conditions.

Another approach to questions of materiality and media has focused on the hardware of media, particularly with respect to the way it may provide the framing for discourse, social relationships, and experience in general. Friedrich Kittler perhaps most famously said that "media determine our situation" (*Gramophone* xxxix), pointing to the impact of technical media on the conditions for discourse in the 19th and 20th century. Or, as Daniel Miller argues, often it is the invisibility of material objects that give them their power. Miller writes, "Objects are important not because they are evident and physically constrain or enable, but often precisely because we do not 'see' them. The less we are aware of them, the more powerfully

they can determine our expectations by setting the scene and ensuring normative behavior, without being open to challenge" (5).

The question that interests me—and that I am happy to see has spurred on so many modes of enquiry in this special issue—is: what is the relationship of materiality and emergence? We might ask, following Deleuze, how do new things come into the world? But also, what older things are put at risk? We might ask, following Whitehead, how can we chart the creativity of the world as though an arrow, as a process that resists deterministic terms? How can we start thinking about the state of *emergence* (where new information enters the world) by looking at the conditions of *emergency*? How should we start to think of the materiality of media and the way it embodies information when the very materiality of the world seems to get thrown into flux? How can we think about the world as both *a becoming* and *a perishing?* In the introduction to this special issue, as a precursor to the following creative and thoughtful essays that it has been such a pleasure to collect, I want to first set up some of the context for the discussion of materiality and media that follow. Secondly, this introduction will outline the way I first conceptualized the term 'emergency' when I was crafting the Call for Papers in early January, months before the scale of the COVID-19 emergency became apparent.

It is no surprise that in the context of the COVID-19 pandemic, illness and contagions are a recurrent feature in the artistic and theoretical responses collected together in this special issue. However, this is by no means the only topic addressed. In fact, in this special issue the authors predominately avoid the 'Covid Now' rush to understand the present. Instead all the essays and practice-based studies in this issue explore the ongoing conditions for contemporary emergencies and the ways that media culture is implicated in and can be used to reflect on the

multi-faceted crises that are emergent within the contemporary world. For example, Iain Taylor, Sarah Raine, and Craig Hamilton's paper on COVID-19 and the UK live music scene inquires into the impact of COVID-19 on gigs, but also, more than this, discusses the spatial materiality of music itself. The realities of COVID-19 are importantly addressed in their paper, but so too are the spatial conditions that have given character to the current crisis in the live music industry. The other piece in the special issue that most explicitly engages with the COVD-19 pandemic is Jernej Markelj's far-ranging interview with Tony D. Sampson. Their discussion addresses viruses and modes of contagion but also the 'dark refrain' of far-right populism and social media. Much more than the current state of emergency due to COVID-19, Markelj's conversation with Sampson addresses the political and relational conditions of contagion in general. Wendy Haslem's paper also discusses the experience of the closing of borders in Australia in order to combat the spread of the virus, but she uses her writing about COVID-19 alongside the devastating Australian bushfires of 2019 and the experience of the immersive installation *Borderless* by teamLab in order to unpack questions of borders, transmission, and immunity, inspired by Krämer's already mentioned work in the area of media philosophy.

The broader topics of illness, technologies, and politics are further explored in Marcos Serafim's art project *Autoimmune,* where a machine learning algorithm is used to generate images that bring into question the misinformation that circulated along with the AIDS epidemic. Like the Markelj and Sampson interview, this work puts into relief the relationship between images, technology, illness, the distortion of public communication, and contagion. Jason Geistweidt in his *Twittage* project also deals with issues around the instability of communication and social media. In *Twittage* he uses a computer program to pull text and

images from social media streams in order to create an overlaid collage of images that appear like a pentimenti. The work itself probes the programmability of rules and media temporalities, using the ephemerality of social media posts tagged with words such as 'fake news,' 'isolation,' and 'loneliness' to create ghost-like, abstract compositions.

As well as the topic of bodies and communication technologies, there is a reoccurring theme in a number of the essays that address concepts of borders and the processes of border crossing. Irina Troconis and Alyssa Quintanilla each in their individual contributions to this special issue discuss the attempted crossings of the USA-Mexican border and the memorial traces of those people that have lost their lives in the desert. Quintanilla's essay offers a close reading of Craig Freeman's *Border Memorial: Frontera de los Muertos*, while Troconis, also referencing Freeman's augmented reality (AR) work, amongst others, explores questions of mapping, space, and affect. In both essays there is an emphasis on loss, memory, and the ongoing traces of the lost within space (both virtual and actual). Kathleen Williams's essay in the special issue also address movement and loss by focusing on questions of affect but in a different context and set of circumstances. In her essay Williams discusses the informational *and* affective assemblages of media devices in the search for Malaysian flight MH370. In her piece, Williams reconsiders the relationship between media technology, air travel, and the natural world, using the circulation of passengers and planes around the globe to discuss the global flows of information and what happens when this incredibly controlled, planned, and ordered system breaks down.

Expanding on the focus of movement, borders, and struggle, several authors provide new perspectives on the refugee crisis by focusing on the movement of messages and people over land and sea, along with the records of forced migration and their mediation. Christian

Whitworth's essay "Catastrophe in a Bottle" uses a close reading of the work of Ellie Ga to think through issues to do with the inscription and transmission of messages, along with Karen Barad's formulation of 'intra-action' and 'diffraction' to provide a new perspective on what he calls the ethics of exclusion. Similarly, using the set of material relations assembled in art practice as a tool for thought, David Barry's essay in this special issue explores how new German theater has responded to the refugee crisis and racism emergency.

In this special issue there is also an emphasis on media temporalities and the ecological crisis. The media arts practice of Gloria Lopez-Cleries and Sive Hamilton Helle explores the both metaphoric and literal entanglements of digital representation and the natural world, through metaphors like the cloud but also through the very real extraction of rare earth materials associated with the production of computers. Dominik Schrey writes about the glaciers of the Europe Alps, around 1850, arguing that they should be understood as a 'becoming media.' Schrey considers the various ways that glaciers have been represented, as aesthetic objects, as rationalized thermometers of the planet, and as storage media, exploring the various temporalities entangled in these material objects.

What these essays and media art projects show us, as we leap from emergency to emergency, is the way that these emergencies aren't easily or simply resolved but instead pile up in the present. To illustrate this, the philosopher Michel Serres lists the catastrophes of the 20th century—the century that he sees being the worst of all. In *Hominescence* he writes:

> Europe's cyclical suicide in 1914; the globalization of war; the eradication of peasants in the Western countries, a doing away with that began with their useless sacrifice during the first world conflict; the devastation of colonial countries; the twin totalitarianism of the Soviet Union and of fascism in its three versions, Francoist,

> Mussolinian and Nazi, which dominated Europe and the century from 1917 to 1989; the Final Solution and the extermination camps; the atomic bombs of Hiroshima and Nagasaki; the birth and putting to death of the third and fourth worlds; the gigantic farce of subcultures issuing from totalitarian ideologies first and from the capitalism of the United States next, this latter all the more saturated with dollars for starving humanity while watering it with gobs of ugliness. (255)

These catastrophes have not ended. The events continue, they accumulate, we continue in their aftermath; it is, as Serres tells us, an illusion if we think that they are over. The events are regressions, disorders, and turbulences that stand against our ongoing hominization and that we must push against in processes of transformation (*Hominescence* 255-6). We might say that these emergencies are what make us struggle, suffer, and in short become excruciatingly human. They ask us to invent new sites of hospitality and new ways of dealing with a crisis. As the emergencies (all of them, not just the most recent) continue, the role for media theory and art practice can only be to ask about the material conditions for living amongst this turbulence and to begin to start to chart these new possibilities for hospitality and community (as well as immunity).

Material

In the field of philosophy, the term materiality brings to mind a number of recent shifts in thinking about the human and humanism in general amongst non-human actants. One of these theoretical shifts is represented by the term 'new materialism,' first appearing in the 1990s. Another is represented by the work in speculative realism and Object-Oriented Ontology, which became popular around the mid-2000s. Both of these shifts seem to speak to a larger attempt in philosophy (and of course in other fields, too) to think beyond the human and to

include other material entities in our deliberations about the world (see, for instance, Latour; Serres, *The Natural Contract*; Haraway; DeLanda). Anthropocentrism is replaced by thinking through human and non-human assemblages. For the speculative realists, agency was to be found in both human and non-human objects, with all things seemingly placed on the same ontological level (see, for instance, Harman; Morton). In terms of new materialism, a key question is about the formation of subjectivity amidst not only linguistic structures (à la the linguistic turn) or social structures (à la social constructionism), but also through and in combination with material entities in the world. For the new materialists, the plateau on which one stands in order to see themselves as a subject is not just produced linguistically nor by social structures alone, but also materially; by thinking through the intersection between biological bodies, non-biological objects, and social structures, the new materialist thinkers offered philosophy a way to reconsider the subject as co-constructed within these assemblages. In developing new materialism as an approach that touches the fields of philosophy, media studies, feminist theory, art history, and art practice, theorists such as Karen Barad, Rosi Braidotti, Elizabeth Grosz, and Jane Bennett have been vital.

While recent media art and media theory indeed draws upon approaches found in post-humanism and new materialism, the focus in the field of media studies on the materiality of things also goes back a good deal further. The field after all is based on the careful study of either the devices themselves that embody, transmit, and store information, or their social, political, economic, and epistemological effects. As John Durham Peters puts it, "media are our infrastructures for being, the habitats and materials through which we act and are" (15). Or as Sean Cubitt states, "mediation is the ground of relationship, the relationship that precedes and constructs subjects and objects" (*The Practice* 2). Media matter precisely because their

"mattering constitutes the knowable, experienceable world, making possible all sensing and being sensed, knowing and being known" (Cubitt, *The Practice* 2). At least since Marshall McLuhan, there has been a tendency of thought in the field that explores not the signals, signs, or images that circulate in media culture, but rather the material conditions for that circulation. The hardware of storage, transmission, transduction, and the material processes of data processing for many was at the center of analysis.

McLuhan famously claimed that the human senses were extended by technology. Just as the use of sticks could extend a person's reach and the use of knives could stand in for the teeth, so too could media technology, according to McLuhan, allow bodily capacities to be enhanced (*Understanding* 4). For McLuhan technologies of seeing and hearing meant that humans could have eyes and ears in distant locations. The possibility of a networked electronic environment meant nothing less the extension of the human central nervous systems. Later Kittler would pick up McLuhan's thought on the relation between human senses and technical media and suggest that media actually limit, rather than extend the human, offering a revision to this approach based on his research into the genealogical roots of media apparatuses and his study of the relationship between technical media and the military. Kittler argued that media limit the scope of what can be seen, heard, or felt based on their technical capacities and the range of experiences that they are able to include in discourse (*Optical* 29). Although Kittler and McLuhan reach different conclusions, both of these thinkers established a set of methods for media scholars and artists that are intent on, as mentioned above, exploring the intersection between material bodies, both human and non-human.

A similar approach to materiality has been taken with regard to studies of contemporary digital media, perhaps as a reaction and opposition to the supposed immateriality of the

medium that circulated in the prominent discussions of the 1990s and 2000s. Anna Munster and N. Katherine Hayles have been important in giving digital media scholars the tools needed to think about the relationship between the human and the digital. Both have written about the enfolding of the materiality of bodies within digital systems, arguing for a new approach to consider the folded, complex, non-oppositional relationships between the two. This approach is similar to what Serres describes as 'hominescence,' as a way to describe the transformation of humans in concert with the development of technology since around the middle of the last century. In addition, Matthew Fuller's reappropriation of the term 'media ecology' has been instrumental in rethinking the human condition as an assemblage of both technological and natural elements (25-31). In Fuller we have a thoroughgoing consideration of information and the organic, cultural, technical, and political systems that produce it. Likewise, Don Ihde has written about the way technology 'textures' human existence and, as such, phenomenology cannot be practiced without decentering its emphasis from the human to a shared experience between human and technology (what he calls post-phenomenology). More recently Stacey O'Neal Irwin has shown how this plays out in microperceptual and macroperceptual ways. In addition to work that re-thinks the relationship of bodies and digital media, the materialities of digital media have been investigated in order to study the way they store and transmit cultural texts. Matthew Kirschenbaum's work was ground-breaking in the English-speaking world, introducing technically informed forensic studies of digital storage and inscription to the analysis of cultural texts. Equally ground-breaking in this area is Lisa Gitelman's work, which has explored the histories of recording and storage, uncovering the ways that the material processes are implicated in the writing of history, showing how new media acts as the context for differentiation, both implicated in processes of globalization but also in perceptions of

difference. Wolfgang Ernst, in a German speaking context, has also been instrumental in the way that he has explored digital memory and developed an entirely unique way to talk about 'time-critical media' and the 'micro-temporalities' produced by computer processing.

Extending work on the technical processes of storage and transmission, scholars including John Durham Peters and Nicole Starosielski ("The Elements"), as well as Jussi Parikka (*A Geology*), as will be discussed in the following section, have recently focused their attention on the 'elemental' qualities of media in order to think ecologically about media and to in turn think politically about the material substances that make up media. Lisa Parks has also done a great deal of work to open up new approaches in the field, particularly in the area of infrastructure studies, exploring the material objects and sites for communication, what she calls the 'stuff you can kick.' In *Cultures in Orbit*, Parks shows how necessary it is to think about satellites, including their historical development and geopolitics, when conceptualizing the way media situate citizens as subjects in the world. Parks's work in studying infrastructures has further shown how things like electricity grids, cables, mobile phone towers, and other arrangements of material resources need to be addressed by the humanities.

It should go without saying that the above list is by no means exhaustive and it clearly does not do adequate justice to the richness and diversity of the field. The task of including all references to the work going on in this extraordinarily fertile area of study is simply too great for me in this introduction (and I can only apologize to those that I've left off my very short list). Suffice it to say that the study of the material 'stuff' of digital media has itself grown into a subfield of media studies, and there are a number of useful references that readers can consult if they are looking to get a more definitive overview of the digital materialism 'turn' (see, for instance, Bollmer; Casemajor; Herzogenerath; Reichert and Richterich).

Emergency

As sketched out above, those looking to explore the materiality of media have a great deal of theoretical texts at their disposal. *How then, against this background, can we start to think about the questions of materiality and emergency? How can we start to use what we know about the material conditions of media to start thinking about both contemporary crises and the crisis of contemporaneity, as a historical condition? How do media contribute to this condition?* Parikka has started to show us how to do this, using the methodological base of media archaeology to chart not only media's history as a device for the transmission or storage of information, but as a material object that has a much deeper relation to time. This is exemplified by his descriptions of the way minerals are mined to produce computer hardware and the way electronic waste impacts the planet. If we take this approach, as Parikka states, "one could consider media studies to include objects such as plastics, wood, plywood, copper, aluminium, silver, gold, palladium, lead, mercury, arsenic, cadmium, selenium, hexavalent chromium, and flame retardant" ("Green Media" 75), along with the geopolitics, illegal business, and ecological impact of rare earth mining. In this, as he puts it, "we encounter not only an alternative materiality but also an alternative temporality of media" ("Green Media" 75). Electronic waste and the pollution associated with global flows of information is a manifold concern for media theorists, philosophers, and garbologists alike (see, for instance, Gabrys; Serres, *Malfeasance*; Cubitt, *EcoMedia*). Dealing with these same kinds of concerns, Lisa Parks and Janet Walker have recently established a media disasters stream in the *Media + Environment* journal, to explore how "media in various modalities proliferate, transform, translate, and inevitably sculpt the environment. Through these processes, media give shape and meaning to disasters themselves, and become integral to the ways disasters are imagined,

experienced, and felt" (Parks and Walker). This special issue adds to the work that Parks and Walker have collected in their recently established stream through a focus on the materiality of the emergency and how media is implicated in and entangled with its emergence, its proliferation, and the afterlives of events. Sean Cubitt has also addressed the relationship between materiality and the environmental crisis, exploring the ways that communication, media, colonialism, and capitalism are implicated in the current crisis. He argues that an environment and its inhabitants coevolve. "A species does not discover an environment waiting for it. It cocreates that environment by acting in it, eating, excreting, building, reproducing, dying. Ecology is a science of relations and mediations, in which innumerable interactions must constantly re- create the end points 'environment' and 'inhabitant' (Cubitt, *Finite* 9). Because media are so intertwined with the emergencies of the now—because they cannot be separated from the contemporary moment—this is also the reason, as Cubitt puts it, that they can act as tools in creating new futures and imagining alternatives to the "dark now" (*Finite* 9).

Process and Emergence(y)

I am going to now end this introduction with a few remarks based on my reading of the process philosopher Alfred North Whitehead, with an indication of how his ideas can be thought in relation to some of what has been mentioned above. I am, of course, well aware that it is not received wisdom to introduce new ideas at the conclusion of an essay. But I bring up these ideas now so that they could be kept in the back of your mind while reading the essays in this collection, as a type of invitation to think through some of Whitehead's metaphysical claims using the concrete materialism of objects and artworks discussed in this issue of *MAST*. As Isabelle Stengers puts it, this is an invitation to think *with* Whitehead.

In his major work, *Process and Reality,* Whitehead gives an example of the world as a process, as made up of relationships based on the transmission of data from entity to entity. To do this he invents a number of new terms. One of these neologisms is 'actual entity' or 'actual occasion,' which is meant to designate the smallest level of existence in the universe. However, these entities are paradoxical: an actual entity never exists. It is either always becoming or always perishing. It is not a stable and permanent 'thing.' Another term that Whitehead invents in order to understand the becoming of actual entities is 'prehension,' which designates the grasping of data by the entity; it is the movement of datum from one entity to another that creates a series. The illusion of progress or permanence is achieved as datum moves from one actual occasion to another, which becomes and perishes, then passing its information on to the next occasion. The reason that change is possible is because each actual occasion possesses what Whitehead calls its own 'subjective form.' The actual entities that Whitehead gives us are useful for thinking about catastrophes and emergencies because he precisely describes an unstable and non-determinant world that is simultaneously perishing and simultaneously becoming. Because Whitehead's is a world where permanence is always an illusion, there is a constant threat of extinction but always at the same time a hope of a new becoming. Like Deleuze, Whitehead offers us in his philosophy the strange possibility to form a relationship with the world that is not one of despair, even when this world threatens to crush or kill you (Stengers 316).

For Whitehead, an actual occasion prehends datum; it grasps it and takes it into itself. The actual occasion then becomes in a non-deterministic way, based on the information it prehends and its own set of internal properties. It is in this, the notion that our situation is not completely determined, that Whitehead can offer a world of novelty. The rolling set of

catastrophes that seems to make up the historical present—the climate crisis, the threat of the mass extinctions of almost countless species, the global pandemic—threaten an end to the established ways of being-in-the-world and being-with-others. But we might also ask, following Whitehead, what new becomings will follow this perishing of occasions? What are the new conditions for repair? What new beginnings and new ways of living ecologically do we want to initiate with the flux of the world?

A major theme that occupies Whitehead in *Process and Reality* is the seemingly contradictory notions of the transitoriness of existence and the idea of permanence within the flux of nature. Perhaps this stems from Whitehead's own personal emergency; perhaps Whitehead's turn to a philosophy of a non-mechanistic world was in part based on the loss of his son, Eric, in World War I, a few years before he began to develop his mode of thinking and abandoned mathematics and logic. "Process entails loss," he writes in *Process and Reality,* and this is "the ultimate evil in the temporal world" (340). Whitehead finds hope and the notion of permanence in a bipolar God that *conditions* rather than determining our situation. Even now though, from a largely secular position, it may be possible instead to think of the conditions alone, without God (although this is not what Whitehead would have intended). We could think of these conditions without God as the material set of circumstances for emergencies, that give emergencies their character and that may, we hope, offer some kind of openness for something new. In this special issue all of the essays look to these conditions and start to ask questions about how we, as citizens, scholars, and artists, can start to prehend the conditions for states of emergencies and begin to develop a vision of how new, more ecological and hospitable conditions could take their place.

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Contagions, Sleepwalkers, and the Nonconscious of Social Media: An Interview with Tony D. Sampson

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The concept of contagion has marked 2020 as we have witnessed the emergence of the Covid-19 pandemic. Yet, this concept, situated as the 'in-between' of bodies, as that which breaks down their boundaries and compromises their supposed unity, has been also used to explain phenomena outside the domain of biology and viral microbes. The diffusion of fear, panic buying, or conspiracy theories, for example, which have accompanied the corona-virus outbreak, can be equally understood with reference to the logic of virality. While the marketing machine has been, with various degrees of success, frantically trying to get a handle on this logic, a number of attempts to conceptualize it have been made within cultural and media theory. In opposition to theories that take the domain of consciousness as its starting point, Tony D. Sampson has been, since the early 2000s, developing his own materialist brand of contagion theory. Contesting grasping contagion through analogies with biological diseases or seeing it as a contamination of an autonomous subject by false ideas, his approach has been focused on the bodily domain of affects, habits, and pre-personal inclinations. Sampson's relational and process-oriented theory of virality has been most significantly advanced in his trilogy of books, which includes *Virality: Contagion Theory in the Age of Networks* (University of Minnesota Press, 2012), *The Assemblage Brain: Sense Making in Neuroculture*

(University of Minnesota Press, 2017), and the just published *A Sleepwalker's Guide to Social Media* (Polity Press). To discuss his inventive new book and other issues related to contagion theory, I have emailed Dr. Sampson a few questions.

JM: In your new book, *A Sleepwalker's Guide to Social Media*, you examine what you refer to as the establishment of a dark refrain, which corresponds to the rise of xenophobic tendencies and patterns that repeatedly spread throughout the digital networks. How can this concept help us understand the emergence and proliferation of xenophobic subjectivities?

TDS: The dark refrain, or dystopic refrain, begins its life in my work with what is considered to be one of Guattari's important contributions to *A Thousand Plateaus*. At least, according to François Dosse's biographical account, it is Guattari, the pianist, who probably conjures up the ritornello as a kind of organizing eternal recurrence. This is a refrain that pulls together the flightier notes of Sylvano Bussoti's rhizomatic musical score. It's a fanciful concept, a musicological analysis of politics, but I think it captures the cadence of these far-right populisms, which as we see, give rise to multiple xenophobic subjectivities. Not everyone is captured, clearly. However, we can see how the repetition of affective contagions, from the likes of Trump *et al*, can fix the habits and routines of a large enough swathe of a population to swing elections. It's a very similar political affect to the kind John Protevi writes about to help us understand how the Nazis orchestrated and performed the Nuremberg rallies in such a way as to entrain crowds in the 1930s.

It's important not to see the refrain as simply in opposition to the lines of flight that escape it. The relation between refrains and lines of flight are developed through consistencies, captures, seepages, speeds, velocities, and rhythms. Any line of flight has the capacity to become deadly, to become aligned with, entrained to other lines, rigid, unbending. The refrain

is not necessarily a calculated evil either. What makes Trump and Hitler similar is not just their racism, but also a lazy disdain for the democratic process. This is, for me, the overriding characteristic of far-right populisms today; their fake disdain for an establishment of which they are themselves a part. Uber capitalists, neo-cons, nationalists, overprivileged education, property tycoons, city traders, nepotists… all hidden behind their claim to be a "man of the people" or someone "who says it like it is."

I introduced this refrain in an earlier book, *The Assemblage Brain.* It is central to what I call experience capitalism, a mode of capitalism increasingly focused on intensifying experiences in order to rhythmically entrain brainwaves and bodies. The refrain of the so-called user experience concretizes associations and influences the brain-body relation. It forces the brain-body to reminiscence by way of alignment and assimilation. The refrain works on experience. It puts brains and bodies to work.

In *A Sleepwalker's Guide*, I've expanded on this idea by noting a coincidence between experience capitalism, social media, and the rise of Trump and Bolsonaro. I'm not claiming anything new here in terms of drawing attention to a historical relation established between capital and the far right, but point instead to new coincidences like those established between the virality/growth business model used by social media platforms and the immunopolitics of neo-Nazis hate.

JM: The main points of reference for your analysis in *A Sleepwalker's Guide* are Gabriel Tarde and A. N. Whitehead, who both see the order of conscious ideas and judgments as secondary to that of affective relations. How do they figure in the dark refrain?

TDS: *A Sleepwalker's Guide* is a development of Tardean media theory given renewed impetus by Whitehead's philosophy of experience. Ultimately, what these two characters (Tarde and Whitehead) help me to do is grasp how the refrain works on subjectivities—cultivating resentment, race hate, and rendering people vulnerable to a repetitive cadence, aligning and assimilating experience. Indeed, Tarde and Whitehead come together to produce the conceptual persona of a new sleepwalker—an understanding of the collective nonconscious of social media. Along these lines, there's a great quote from Whitehead in *Process and Reality*, which I think encapsulates the sleepwalker caught in the event or the actual occasion. I included it in the book and it informed a series of somnambulist performances we did in the US last year with the artist Mikey Georgeson.

> We sleep; we are half-awake; we are aware of our perceptions, but are devoid of generalities in thought; we are vividly absorbed within a small region of abstract thought while oblivious to the world around; we are attending to our emotions – some torrent of passion – to them and to nothing else; we are morbidly discursive in the width of our attention; and finally we sink back into temporary obliviousness, sleeping or stunned. (161)

JM: The concept of a dark refrain implies a certain repetition, which can be understood in terms of behavioral patterns, or habits, a conceptual emphasis that is also present in your previous books. According to Wendy Chun, the focus on habit formation should take precedence over that of viral spread when studying digital media. At the same time, it is clear that Chun does not want to completely dispense with the concept of contagion. "Whether or not a virus spreads," she suggests, "depends on habits, from the regular washing of hands to practicing safe sex" (1) and perhaps the same can be said for the transmission of affect. What

is in your view the significance of the emphasis on habit? Can the production of subjectivity through habituation be squared with that through affective contagion?

TDS: Yes, I agree, I think the patterning of habit is very significant to my work. There's already some great work on habit too; Chun of course. I also engaged recently with Carolyn Pedwell's excellent work on habit. But I'm not sure if it's a simple matter of one (habit) taking precedence over the other (virality). In the Tardean frame such things as habits, customs, and imitation are not at all distinct from each other. For Tarde, they are part of a continuum, without beginning or end, an *imitation of imitation*. Take for instance your point about the washing of hands. There's a far more indistinct relation going on here between habit and contagion. Following Tarde's microsociology, handwashing would be *the example* that is imitated. So, a government official says everyone must wash their hand for 20 seconds while humming the national anthem—as the loonies in the UK wanted it. The aim is to get a population to imitate the habit, but this is not a new habit that needs to be learnt, of course. Early on, caregivers will have already tried to instill this habit in very young children, so that they repeat it throughout the day. "Wash your hands after going to the bathroom." It's the imitated action itself that get repeated, not simply the words. The habit the government wants imitated has already been imitated to the point at which it becomes a habit. This is the infinitude of the imitation of imitation.

One of the problems with making a distinction between virality and habit is that contagion is often regarded as *like* the viral mechanism of the biological equivalent. My point has always been that we must not limit virality to being like a virus. I'm more interested in the spreading of social phenomena independent of specific mechanisms. So, I would say that habits can spread. Indeed, habits are evidently contagious. And just to add that while it's true

that Tarde reduces all social phenomena to imitation, he does not exclude counter-imitation in his microsociology. So, there's room for saying that people can refuse habits, but that refusal is in itself a contagious potential. In a nutshell, it is the refusal that gets imitated. It's a bit like Trump saying he wouldn't wear a mask. How many Trump-like supporters will follow? How many will feel the same way? How often do the same reasons for not wearing one crop up? For Tarde, it is these oppositions between the micro-flows of imitation that produces social adaption. To be clear, in Tarde there is no social without imitation, otherwise total non-imitation would lead to the breakdown of social relations. Perhaps if non-imitation existed then it would manifest itself as some aging recluse living a hut in the wilderness—the absolute antisocial act.

JM: Imitation or *mimesis* is indeed the central concept for many theories of social contagion (e.g., René Girard's theory of mimetic desire). Yet, the theory of contagion that you develop in your trilogy of books is presented through the lens of Deleuze and Guattari, who suggest that "becoming is never imitating" (305). For them, more or less deliberate mimicking of behavior has nothing to do with affects that constitute different forms of becoming (the becoming-woman of Daniel Schreber, the famous Freud's paranoiac, for example, does not consist of him identifying as a woman, but of his embodied feelings of having breasts). Deleuze and Guattari add that "[i]mitation enters in only as an adjustment of the block [of becoming], like a finishing touch, a wink, a signature" (305). What is the import of Deleuze and Guattari's critique of imitation, and how do Tarde's micro-imitations manage to sidestep it?

TDS: I've already set out some of Tarde's imitation theory above, but I think it's probably fair to say that from the outset my work has been equally informed by Deleuze and Guattari's machinic assemblages or desiring machines. Assemblages clearly work through contagion rather than mimicry. This is a point repeated over and over again in Deleuze and Guattari's two

schizoid books. I think the specific beef they had with imitation of this kind is based on Platonic mimesis and the tradition of representational modes of mimesis. So we can say that while becoming is not (mimetic) imitation, becoming is still a contagion. A becoming contagion might be experienced as a feeling or pre-personal affect that becomes a felt experience. For me the term affective contagion better captures a contemporary reading of Tarde than imitation.

In the new book, the problem of becoming-the-same and becoming-other is very important. In simple terms the former is where the refrain works more effectively, through alignment, assimilation, and entrainment. The enemy here is what Massumi calls the *Empire of Like* (97). Throughout *A Sleepwalker's Guide*, I try to come up with ways by which the refrain can be confronted by becoming-other. For example, I've argued for modes of contagion that smash the representational mirror of mimesis. One of my targets in this context is the influence of Lacan's mirror stage on people like Judith Williamson, whose significant work on advertising in the 60s and 70s posited a self-image that was 'created' by exposure to ideological infused ads. I describe this created self as a contagion theory of sorts, but one that erroneously draws on representational orders and a mostly self-contained, yet porous false consciousness. There are a least three theories that I use to counter these ideological mirroring processes. The first is R. D. Laing's psychological theory of experience, which goes someway to explain how shared experiences can be used to align, entrain and assimilate a population into a collective mimesis—producing like-mined consumers and cannon fodder. Then, later on, I expand on Roger Caillois's dangerous experiments with collective mimesis and Roberto Esposito's work on immunitas, communitas, and contagion. The latter of these influences leads to a proposal for an inoculation program for Nazis!

JM: As you mentioned, the central figure of your new book is Tarde's conceptual persona of a sleepwalker, which suggests that human beings are inevitably immersed in a network of affective relations that sway our thoughts and actions, and that insofar as we think our intentions and judgments are formed autonomously we are, in Spinoza's words, "dreaming with our eyes open" (282). Somnambulism is therefore not something that emerges due to the rise of digital networks but is rather seen as an inherent human condition. How does the contemporary somnambulism, which you see as incited by social media, distinguishes from that of previous eras?

TDS: That's a nice quote from Spinoza. So, yes what makes Tardean subjects vulnerable to contagion is simply being part of the social. For Tarde, the social is imitation. The sleepwalker is not therefore an extraordinary condition. The reason why sleepwalkers dream with their eyes wide open or are neither fully awake nor asleep is that somnambulism is the default social position. But this connectedness is fairly opaque. I think it was Nigel Thrift who noted that after Tarde we need to think of a self as always etched with others. But most of us are seemingly unaware of the extent of this etching.

In *A Sleepwalker's Guide*, I've tried to develop on this idea by exploring a nonphenomenological experience. Which is to say, I do not reject a phenomenal sense of self as felt by a person, that sense of personality. But the relation to others is by and large outside of this tiny experiential bandwidth. There is this vast impersonal nonconscious, which experiences nothing more than itself. We could think of the nonconscious as a dark phenomenological experience or a hidden, repressed unconsciousness, but I don't think it's anything quite so theatrical or dreamlike. As a further development on *The Assemblage Brain*, I wanted to better explicate nonconscious experience and particularly collective nonconsciousness. Clearly a difficult nut to crack, but there are some authors, like Matthew

Fuller's work on sleep or Patricia Clough's user unconscious, who have attempted to describe experiences outside of the tiny bandwidth of consciousness.

Of course, to think nonthought experiences poses all kinds of problems, and I have debated elsewhere with Kate Hayles on this (Hayles and Sampson). In short, Hayles poses the problem that those of us who want to decenter human cognitive experience have to do so by channeling our theories through concentrated high-level cognitive thoughts. Therefore, all the abstract thinking necessary to thinking the unthinkable just proves how important the cognitive center is. But if we return to Tarde's conceptual personae, and launch it into the world of nonphenomenological experience, like a tool or probe, then, we can yield some interesting returns. Tarde's psychological self is just a component part of this much bigger etching.

This all sounds quite far-fetched, until that is, we start to read Whitehead on experience. I mentioned above Whitehead's somnambulist notion of a stunned subjectivity in *Process and Reality*, but I'm more interested in the way he wants to free experience from its subject predicate. It's not that experience only came into being (for want of a better term) when humans started to experience the world. If anything, human experience has distorted experience by fixing it to phenomenal subjective experiences. I wanted a concept of experience that was not solely attached to human experience. Like Clough's work on autoaffection, I see the collective nonconscious as a mode of experience that is kind of outside of experience based only on the subject predicate. The collective nonconscious is experience experiencing itself. This why it is important not make conceptual sleepwalkers into real persons. They must remain larval subjects.

To answer your point about social media inciting somnambulism, it is again Whitehead who provides some really interesting answers. To begin with, he discusses the aesthetic

registers of experience, which, in effect, influence decisions more so than the limited bandwidth of cognitive logic. For Whitehead, although humans seem to feel that they occupy their own experiences, think logically, critically etc., they do so through an aesthetic ontology. It is this ontological worldview that I think best describes social media. It's kind of ironic, since these platforms are the invention of cognitive logic. They are the outcome of brains that are supposed to think like computers. But on the contrary, the experiences that are shared on these networks, the collective experiences that are processed, churned, cultivated, passed on, turned into data; they are extra-logical.

JM: Your book also engages with an impasse related to the idea of post-truth, one that arises between positivist approaches, characterized by the insistence on objective reality, which they see as readily accessible, and s.c. postmodern approaches, which stress the difficulties linked to the idea of objectivity. For positivists, like Daniel Dennett, our post-truth condition is in fact something that can be traced back to the proliferation of 'postmodern' ideas. You suggest that tactics such as the undermining of evidence-based claims and creating false equivalencies can be already found with fascist strategies that predate the postmodernists by several decades. What were in your view the conditions of possibility for the explosion of post-factual discourse that we are witnessing? How did the rise of internet manage to so effectively crumble the consensus system of reality description and destabilize the epistemological authorities?

TDS: I owe a debt to William Connolly for drawing attention to this impasse and his suggestion that speculative philosophy might help us route round it ("Fake News and 'Postmodernism'"). On one hand, I think the whole postmodern analysis has run out of road. I see little point in writing off reality because it has been lost in some massive simulacrum. It's not that this approach is without merit. It partially describes an imploded mediatized society, and draws attention to the importance of sign values in a marketing-obsessed world, but I don't

think it provides the tools to grasp what has happened to truth or indeed to understand Trump. Sure, Trump is a kind of simulacrum. He is this revolting TV reality show host who became president. We didn't need postmodernist theory to predict this though. We just had to watch *The Simpsons*! The problem is, however, and following Connolly again, we have been exposed to post-truth, or rather Big Lies, as a fascistic strategy long before Baudrillard. Trump uses an old tactic of the far-right, like the Big Lies about the Reichstag fire, which were used to stoke fear about a communist plot and curtail democracy. Trump's nasty, racist Big Lies are just more of the same.

On the other hand, the positivists have also had their moment pass them by. Their claim to have access to objective, brutal fact is easily collapsed through a speculative approach. The problem isn't that facts have been corrupted by postmodernism, as they bemoan. Simply put, fact now and fact then is likely to be something very different to fact tomorrow. Fact can be more than itself. Facts can oscillate between softness and brutality, between actuality and virtuality.

With regard to the internet, there were those positivists, like Dennett, who saw the computer as the ultimate truth machine. With all this information to hand, they argued, it would be easy to expose and dispel propaganda, fakery, and lies. But in spite of these claims, the opposite has happened. Logic machines are vulnerable to lairs. Facebook's immune system, for example, allows anomalies to creep in. Certainly, the logic machines of social media cannot stop all fakes, viruses, and contagions, partly because much of this stuff emerges from a deficit or void of data, and also because the cost of weeding everything out doesn't fit with the social media business model.

Whitehead also comes in useful here too. He notes how facts derived at through logic pale in comparison to what he calls aesthetic fact. In his analysis, aesthetic facts are something that logicians cannot cope with. How can logic decipher art, for example? Affecting art isn't logically experienced. Art is felt. Indeed, Whitehead's broader concept of experience is similarly a felt experience. The problem now is that Big Lies are similarly experienced viscerally through social media. Tactically, if you want to spread a lie, start your own Reichstag Fire! This kind of shock event is not a postmodern rabbit hole, down which brutal facts disappear. It's not a fact hidden by ideology either. Shock events create data voids. They allow Big Lies to route round cognitive vetting (machine and human) because they function on these visceral registers as aesthetic facts. They are subcritical not because they are illogical, but because they are extra-logical.

JM: Another element that feeds into the dark refrain of social media are the commercial interests of platforms like Facebook. You analyze how these platforms seek to algorithmically engineer the experience of their users so as to induce profitable behavior. One of Facebook's most effective tools is *Lookalike Audiences*, which uses big data to not only identify but also actively cultivate communities that react to stimuli in the same way. This allows their advertisers to more effectively manipulate these communities and accelerate the virality of their content. The regularization of experience by media technologies has been theorized by a long line of thinkers (from Frankfurt School to Bernard Stiegler), who see it as the cause of political passivity or extremism, cultural decline and disaffection. What do you consider to be the main threats of such affective standardization?

TDS: To answer this one, I need to introduce an important business term that was first introduced to me by a marketing person at Snapchat. They'd contacted me about a possible meeting with some executives to discuss how my work on contagion theory might inform their

strategy for *virality/growth*. I recount what—or what didn't—happen next in the book, but I ended up adopting it throughout the text as a general term for the ways in which user experiences are steered. I was not at all surprised to hear that virality was part of the business lexicon of social media. I was nonetheless intrigued to explore the extent to which the concept had become widely integrated into platform infrastructures as a way to stir up user engagement. Indeed, while a lot of critical attention is often focused on the gathering and processing of big data and subsequent surveillance techniques, I contend that there is no data business without the stirring up of collective user experiences and the cultivation of contagious environments. This is the primary purpose of these platforms.

There are some parallels here with Enzensberger and Smythe's work on the consciousness industries and audience commodities. The difference is that it's not simply the user, but the user experience that becomes the product in virality/growth. Or more precisely, the relational aspects of shared felt experiences. The capture and cultivation of user experience does not produce consciousness or for that matter the unconscious. On the contrary, these platforms stir up and steer the contagions of a collective nonconscious—or the sleepwalker, as I call it.

To understand how virality/growth works, we only need to look at the kind of people employed in the user experience and data teams working for these platforms. You'd expect to find a lot of computer science geeks, however, these 'experience' industries also widely recruit postgrads from areas like social psychology and behavioral science. You can trace these people back to their PhDs which are generally focused on studies of spreading phenomena on social networks, for example, the dispersion of social influence or prosocial and emotional contagion. I make the point in the book that there's been a further shift away from a research interest in

individual behavior (the cognitive user) toward social relations (the sharing of experience) and collective dynamics.

Virality/growth also functions differently to the old consciousness industries insofar as it is experience and not ideology that is the main spreader. In the book, I contrast virality/growth to the old media theories of a created self, like those established by Judith Williamson through Barthes and Lacan. There's no need to uncover the mythologies that are supposed to be hidden in media content anymore or decode the production of an alienated commoditized self. Power is not solely ideological. Virality/growth operates through the sharing of felt experiences spread via an array of technologies, including emojis and other experiments with collective dynamics. What is produced is *the Lookalike*. This is not a digital doppelganger though. It is not a digital representation. It is instead a scalable and temporal collective dynamic that shares the same experiences. So, yes, the problems are still about standardization, passivity, extremism, and disaffection. These platforms are certainly the worst place to do democracy. But this is not the creation of a false self or an ideological false consciousness. The Lookalikes are a nonconscious entrainment of collective experience, reproducing the kind of predictable user habits we were discussing earlier.

JM: You discuss the operations of the dark refrain in terms of immunopolitics, divisive maneuvers that seek to enforce boarders between the self and the non-self, us and them, and thus protect the self-identity from the supposedly intruding other. Drawing on Roger Caillois's theory of collective mimesis, you speculate about the ways of overcoming the fear related to the loss of self-identity, which grounds the contagion of the dark refrain and its xenophobia. How can Caillois help us rethink the dangers and potentials of becoming-imperceptible?

TDS: In chapter four, I start to speculate on various ways through which we might confront or move through and past the problems brought about by virality/growth. I refer to experiments with immunology, community, and contagion. Caillois's work is perfect for such an experiment since, as you say, he draws our attention to the perils and possibilities of all out contagion or collective mimesis. There are a series of complex propositions to go through here. To begin with, we need to acknowledge that social media platforms are not at all interested in addressing the immunity problem in computing since it is (a), almost impossible to halt all adversarial incursions, and (b), too costly to even attempt. Indeed, with regard to point (b), immunity is antagonistic to the virality/growth business model.

Secondly, the self-evident and well-publicized outcome of this immunity failure is that these platforms help to spread far-right race hate and violence far and wide. In the book, I look at specific examples like Facebook's role in Myanmar and WhatsApp in Brazil, as well as Trump's tweets.

Caillois's theory of collective mimesis helps to think through a third proposition that which is a fallout from the first two. It asks: what happens if collective mimesis does break out? How can we think of ways to tackle all our contagion and imagine new forms of community that might emerge once this disaster has been played out? This is probably the most speculative the book gets. In short, I use Caillois to continue to argue against approaches in media theory that put the person at the center of their study. In the throes of virality/growth we have to deal with what Caillois observed as the loss of personality following the breakdown of immunity. This is not mass mimicry experienced through mirrors or representational doubling either. The Lookalike is not the same as the so-called data double. The person is missing because what was once foregrounded (the feeling of personality) has, through mass

mimicry, merged with the background. As we discussed earlier, this is not mimicry established through representational mirrors. It is a mimicry of indistinction or what I call speculative mimesis.

So, on one hand, Caillois's perils are grasped in this painful loss of personality, as experienced in, for example, masochistic collective imitation. Caillois looks at insects imitating their surroundings, controlled by a strange spatial lure, we can similarly see how in Nazi immunopolitics, for example, bodily movements and feelings become aligned to an entraining experience. This entrainment of experience is how we end up with Laing's cannon fodder.

On the other hand, and following Roberto Esposito as much as Caillois, we can see how mass mimesis can function as a kind of inoculation. All Nazis need a virus in order to break them out their perpetual desire to become-the-same. This is not a viral metaphor. Nazis death *is* very real. Esposito compares it to autoimmunity. It's final aim, to maintain and perpetuate the mimicry of the same, will ultimately destroy it. What emerges after this mass inoculation is what's interesting to me.

JM: Since the circulation of almost any kind of content is profitable for social networks, the contagion of immunopolitics is supported and enhanced by algorithmic operations. You draw attention to the reluctance of Facebook to regulate this lucrative xenophobia, but also speculate on how to redesign the platform in a way that would not diminish their profits. What do you see as the main elements of a platform that is not structured to spread hate speech and fear, but instead supports the contagion of more enabling contents and affects?

TDS: After all the theorizing in the book, I do try to set out a number of practical proposals. In short, I ask how these platforms can be rewired to encourage speculative mimesis? What

would a radical redesign of the user experience look like? The simple answer would be to introduce media regulation of some kind – top down or bottom up. But with the kind of governments we have, and the deference they pay to people like Zuckerberg, I'm cynical about how that will work. It's not a case of disconnection either. The proposals forwarded to deal with Bolsonaro's contagions of fake news on WhatsApp in 2018 involved curtailing virality by limiting group sizes, etc. In the end, Facebook shut down the app and continues to do so when the Bolsominions get out of hand. But it's like a game of *Whack-a-mole*!

Following the third proposition I mentioned earlier, I speculate on something quite different. In short, we need a serious revival and stirring up of the kind of revolutionary contagions of the last decade, but this time learning from the mistakes and misfortunes of the Arab Spring. This design might also include inoculation as way to deal with race hate or incentives for users who avoid homologic behavior. We could also borrow from the first wave of computer viruses in the 1980s and explore the concept of benevolent contagion again as an alternative to the exemptions of immunology. In the final chapter, I also move on to look at a post-social media landscape and the challenges herein of entanglements with increasingly immersive technologies. Virality/growth is a moving target!

JM: In your book you trace the turn from a more optimistic outlook on our digital futures, perhaps most notably marked by the Arab Spring, to that of the dark refrain with its proliferation of racism, misogyny, and misinformation. In addition to the weaponization of search engine optimization and exploitation of various affordances of social networks that you analyze, the far-right has been also dominating the domain of internet memes. Why do you think the far-right was able to so effectively gain the upper hand over the left leaning politics? Do you maybe see any potentials for assembling of the leftist fictioning machines? Can the

left, in the spirit of Ernesto Laclau's exploration of the positive potentials of populism, somehow take advantage of the digital domain and its post-factual character?

TDS: I think a lot of people on the political left have been left reeling about what's happened since 2008. Who'd have thought that after the catastrophic failure of the banks we'd end up with characters like Trump and Bolsonaro, and Johnson's populist Brexit party. So yes, how can this terrible situation be turned around. The best analysis I've read in recent years is Connolly's small book on aspirational fascism in the US. In a nutshell, the Trump problem is linked to the blue-collar working classes who have been deeply affected by the fallout from the banking collapse. They have felt this recession on a very raw, visceral level. This brutal form of capitalism has suited the likes of Trump who can only really operate on that level himself. There are stark parallels here with the success of the Brexit campaign and its appeals to a fake sense of nationalism opposed to elites and liberals. The left needs to empathize with these outcomes more – to share in the raw feelings and experiences of dislocation from hope. Connolly reasons that the left needs to learn to communicate on these visceral registers. This is because their tendency to intellectualize is lost in the raw sense of resentment felt in these communities. This bitter disposition is better suited to joyful encounters with empty slogans and angry rallies.

So, maybe, as you mention, the left needs some of its own fiction machines to combat this toxic culture. I think these machines could work on an aesthetic level if they can lure a mass audience. No point launching these machines inward. Comedy or music is probably the best way forward as they both operate on this visceral level. Let's face it, part of the appeal of Trump is that his idiocy is very funny. Perhaps an old example to bring up, but the British TV comedy series, Alf Garnet, served a similar purpose in the 1960s and 70s. It was written by a

lifelong socialist. Jonny Speight invented this odious racist character whom most people laughed at. Unfortunately, some people laughed with him, but on the whole, the fiction perfectly ridiculed racist, bigoted opinions and rendered them more passive and laughable. Today, Alf Garnet most probably wouldn't make it onto television, but something along these lines, memes, viral videos maybe, dotted throughout digital media cultures, may. I'm not sure how successful such a campaign would be though.

JM: Contagion and virality are concepts that are central to the time of COVID-19. Can theories of social contagion help us understand the response to, and the cultural effects of, the corona-virus pandemic? Can this biological contagion, conversely, in any way allow us to rethink our understanding of social contagion?

TDS: There's been a steady stream of theorists trying to come up with something hasty yet profound, concerning this moment we are all caught up in. It was difficult not to get caught up in this rush to publish. I wrote a very short piece with Jussi Parikka around March at the height of the lockdown. Obviously, our previous work on digital contagion and virality had prompted a few enquiries. The piece we wrote for the French journal AOC is purposefully cautious, I think. We had a discussion about the problems that might arise from getting caught up in the rush. Simply put, we all need time to critically digest these huge events rather than just make hasty responses in the moment.

I read one comment on this piece that mentioned the problem of applying the viral metaphor to everything that's going on. I've always been very wary of reverting back to viral metaphors. From the outset, my position has always been to disentangle social contagion from the metaphors of biological viruses. Virality was never supposed to be *like* a virus. What's

changed now, for all those commentators who saw viral culture as metaphorical, is that Covid-19 is no metaphor. Along these lines, in the AOC article we started to think through the contagious looping that seems to have occurred through Covid-19. In this initial context, we meant how panic buying and the spreading of crazy conspiracy theories get caught up in the spreading of the biological virus. This does not mean that panic and conspiracy obey the same laws or mechanisms as the virus, but they do appear to follow a co-patterning or looping function. We have now expanded on this idea of contagion loops, so hopefully something a bit more substantial and reflective will come out in the near future on viral cultures.

We also need to challenge a fictional account of Covid-19 that contends that the virus does not discern between class and race. We have heard the mantra in the mainstream media that it's just as easy for Boris Johnson, Jair Bolsonaro, or the British and Saudi Royal Families to catch the virus as it is anyone else. The reality is that the virus affects the underprivileged, and particularly underprivileged BAME communities in a far harsher and deadlier way. There was no access to testing or PPE. No protection of care workers or indeed those in care.

A final point to make is that the pandemic has led to some obvious questioning of fairly dominant biopolitical theories. We simply can't describe what's happening now as just another example of biopolitics in action. Some of these loops we are following are co-determined by the virus. The tens of thousands of epidemiological simulations that produce the curves that determine population movement are biopolitical, of course, but we are also seeing how political decision-making can be blown off course by the virus. To some extent, then, we might say that viruses and the ensuing shutdowns are antagonistic to capitalism. Nevertheless, what is more concerning perhaps is a new kind of corporate response emerging after lockdown, which is using the realities of the virus to restructure systems of work and lay off millions of workers.

The IT corporations are all over this reconfiguring of work. Companies like Amazon will continue to expand into every corner of life after lockdown.

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Tony D. Sampson is a critical theorist with an interest in philosophies of media technology and neurocultures. In addition to the above-mentioned trilogy, he has also co-edited (with Jussi Parikka) *The Spam Book* (Hampton Press, 2009), and (with Darren Ellis and Stephen Maddison) *Affect and Social Media: Emotion, Mediation, Anxiety and Contagion* (Rowman and Littlefield, 2018). Tony is the host and organizer of the Affect and Social Media conferences in east London and a co-founder of the public engagement initiative the Cultural Engine Research Group. He currently works as a reader in digital media cultures and communication at the University of East London in the UK where he also leads the MA Media and Communication Industries and supervises PhDs and Prof Docs in Fine Art.

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The Unreal: Imaginaries of Techno-colonialism

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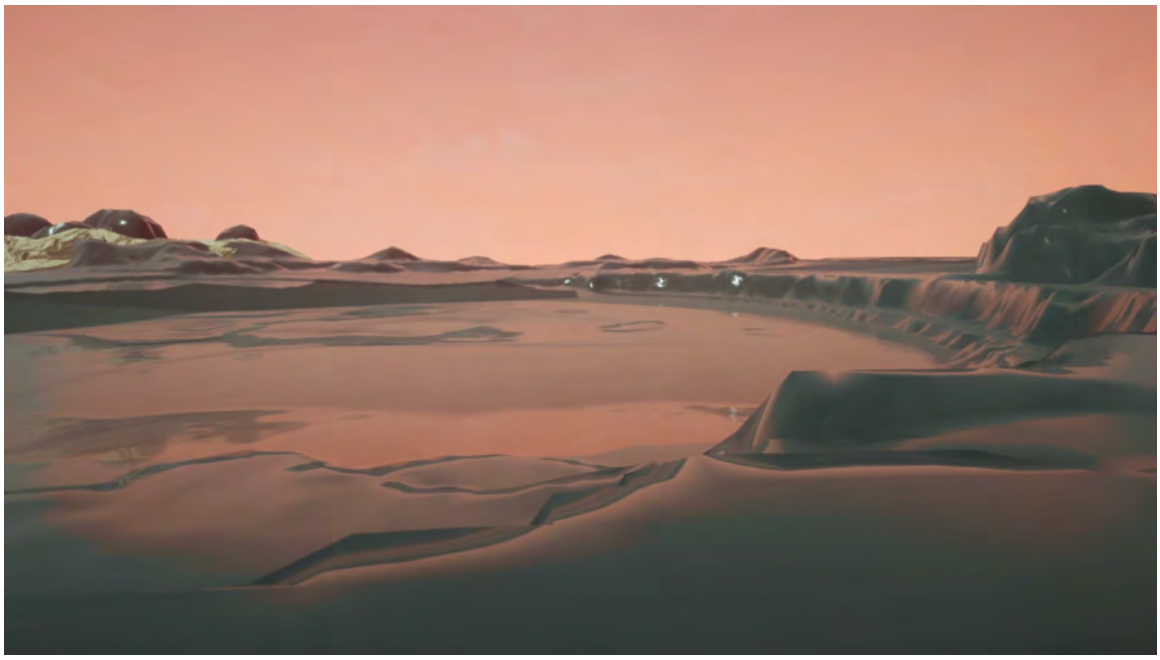

Fig. 1. Still from *The Unreal* (2019).

Keeping your body far from this landscape,
hold your mind in spatial awareness.
Let your consciousness float in this dimension and notice the infinitude of space.
Bring awareness to the scale, the expanded surface.
Just bring attention to it.
(Opening voice-over from *The Unreal*)

The Unreal is a machinima film (videogame recorded in real-time) set in a utopian mine landscape. The viewer is led in a first-person point-of-view across a glossy surface between icebergs and sand dunes (see fig. 1). Ambient music accompanied by a soft voice-over creates a relaxing atmosphere and seduces you into meditation while simultaneously highlighting technology's mineral origins. Our project aims to raise questions related to the contradictions of media. In a practice-based approach we have used videogame software to create an artificial world and to play with the appropriation of visual and narrative codes of techno-colonialism.

1. The Concepts Behind

This practice-based study looks at the links between the materiality of the digital and techno-colonialism through the perspective of critical studies that deal with concepts such as immateriality and digital waste (Parikka; Fuller and Goffey; Gabrys; Hogan), extractivism (Crowford and Joler) and the capitalist world-ecology (Moore). Our intention here is to briefly introduce the complexities of colonialism through two different layers: the colonization of the earth and the colonization of the imaginaries and narratives created around technology.

In the film, which was launched in 2019 on Internetmoongallery.com, the viewer is guided through various resources. Thus, *The Unreal* is a virtual promised land encircled by an infinite shoreline and a transcendental pink sunset. We may draw lines to settler colonialism in what resembles an expedition towards the sublime. In this sense, *The Unreal* has been created as a representation of the techno-romantic discourses that permeates everything related to technological and media development today. We may even go as far as to say that the technology industry has colonized our minds.

Deep time resources, as the raw materials of the earth, are fundamental to the development of computer technology. With this acknowledgement, one could argue that

media-technological culture is based on the development of mining techniques and the emergence of geology as a discipline in the 18th and 19th centuries (Parikka vii-viii). However, the discourses of *immaterialization* and *deterritorialization* of the digital reside through natural metaphors associated with the infinite: the cloud, the sky, the sea, and the space. These metaphors are part of the rhetoric of Silicon Valley's digital emancipation and cultural hegemony, and especially of its ideological propaganda inspired by their physical presence to the Pacific. A certain "oceanic" and "peaceful" sentiment has been stimulated by the technologies of the exponential and the virtually "unlimited powers" of artificial intelligence that are as endless as the horizon (Sadin 208). In *The Unreal*, the voice-over reveals how technology industries appropriate the natural world through aesthetics. On average the consumer is distracted from the actual implications behind services such as 'the Cloud' which are data warehouses in disguise, storing our not so private data, taking up more and more land with the increase of data mining on an industrial level.

Under slogans of innovation and infinity the digital market strategies have consciously ignored the physical, material and residual condition of technology. The philosopher Eric Sadin links Silicon Valley's historical roots of the "creative spirit" with digital liberalism. For Sadin, "the spirit of Silicon Valley breeds a [new?] Colonization—a silicolonization" (31). This colonization does not respond to aggressive dynamics of domination but is endowed with the universal value of progress that infiltrate our imaginaries. This type of rhetoric serves us the inevitable triumph of large tech-corporations and their ideology, coined as the "Californian Ideology." Individual freedom seemed no longer achievable through rebellion "but by abiding by their natural laws of technological progress and free market" (Barbrook and Cameron).

For media theorist Marshall McLuhan, the "translation of our entire lives into the spiritual form of information" may transform "the entire globe, and of the human family, [into] a single consciousness" (73). This vision represented the basis of techno-liberalism when Apple's slogan proclaimed individual freedom through its marketing campaigns. In addition, the idea of 'freedom' and 'technological optimism' was expanded with the publication of *Wired* magazine and emphasized by the so-called *visionary* founders of start-ups and the large corporations that control cyberspace today: Facebook, Amazon, and Google.

As a result, Silicon Valley, with their "patron saint" and their "prophets," have created a disembodied cyberspace, where spirituality—influenced by the Californian New Age ideology—is united with techno-liberal politics (Sadin 106). Thus, through the dogma and the imaginaries of techno-romanticism, it is possible to ignore the materiality of technology and the manufacturing and production of the Silicon spirit. For this reason, it is urgent to highlight the words of the cultural critic T. J. Demos: "If environmental matter has historically been treated as an external thing to be used, exploited, commercialized, fetishized and colonized by humans, then what we need is a new conceptualization of our relationship with material objects and forms of life non-human" (14).

2. The Construction and Narration of *The Unreal*

The film was developed through two different approaches: first, through the construction of the mine, and second, through the narratives that guide the viewer through that space. First, we reflect on the material through Unreal Engine, which is the game development software we used to create the visuals. The software contains a selection of default game assets, some of which are made to match a variety of objects, such as a chair or a gun. We mainly recycled materials from this selection of assets, such as the glossy surface of our mine, which copies the

metal cover of the standard gun in Unreal Engine. In fact, when choosing a first-person point-of-view in the project settings, the software's default character is a man with a gun, as if the intention with game design was to create war scenarios. We wanted to play with conventions of game design that fetishize war through default gun-carriers and glossy materials by dressing our landscape in the same suit and thus associate the viewer with another form of violence—namely, the mineral extraction executed upon natural landscapes (see fig. 2 and 3).

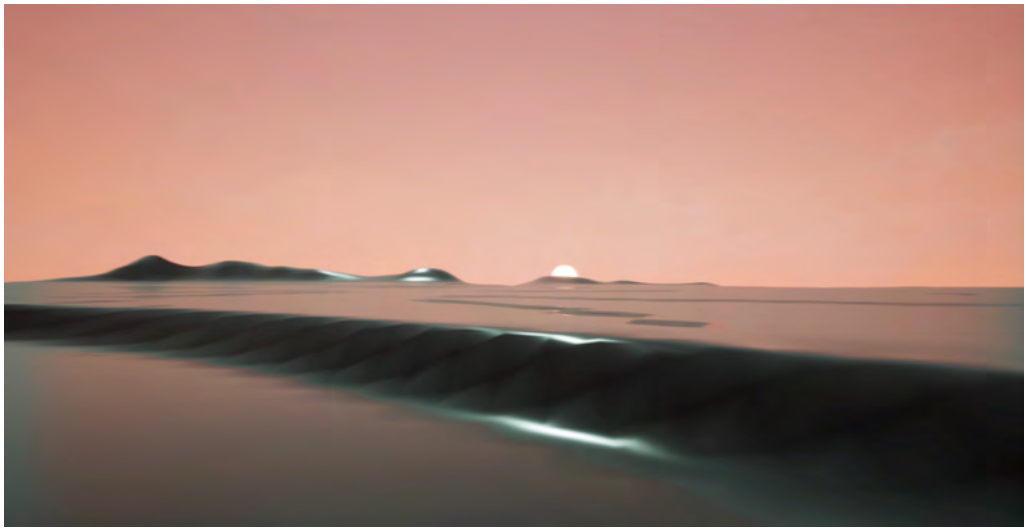

Fig. 2. Still from *The Unreal* (2019).

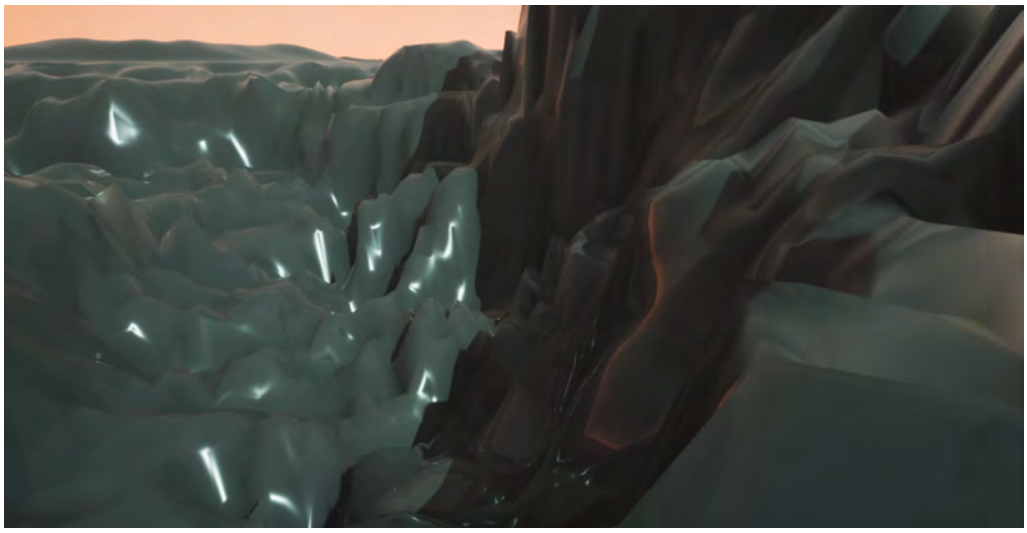

Fig. 3. Still from *The Unreal* (2019).

In other words, *The Unreal* offers a comment back onto itself as a medium embedded within a tradition of war games by recycling visual codes associated with the violence inherent in the software. The world created for our film does not host any apparent weapons, and the glossy surface instead triggers the desire of the aesthetically pleasing. Here, we may draw the line to the artist Harun Farocki's video-installation series *Serious Games I–IV* (2009–10), which reveals the paradoxical role of videogames used for training soldiers before combat and upon their return as exposure therapy for war-veterans suffering from Posttraumatic Stress Disorder. While Farocki highlights the danger of videogame's distancing-effect that enables killing with a click, he also problematizes how immersive media can blur the distinction between fiction and reality. When does the fiction become dangerous, and how can we reveal the reality behind the fiction?

The fiction of our landscape has been exaggerated through the illusory surface and the mixed minerals of ice, sand, and magma in an impossible rendering of any physical constellation on earth. As an aestheticized landscape this imaginary represents the dream of extractivism, and in the film they remain static as if these minerals could be photographically stored and continuously absorbed. While the viewer is given the impression of the limitless, the actual body of the mine reveals its limitations as the edges are visible. Limitations of the software command a confined space with borders and 'blocking volume boxes' to stop the player from falling off the edge (see fig. 5), while the possibility, for us as the creators, to expand the landscape remains. Through the contradictory landscape and the impression of a walkable experience, we have emphasized this gap between real and fictional spaces, by magnifying the desirable and deliberately masking material origins of the technology used. We

have, however, left clues of errors to this masking, such as the squared images covering the figures of supposed sand dunes (see fig. 4).

Fig. 4. Still from *The Unreal* (2019).

Fig. 5. Still from *The Unreal* (2019).

The second approach of *The Unreal* is inspired by guided meditation videos and videogames as 'walking simulators' or 'relaxing simulators,' which aim to get the viewer/player to relax through meditative entertainment or to unfold a concept through environmental design. Examples such as *Proteus* (2013) by Ed Key and David Kanaga or *The Night Journey* (2007-2018) by Bill Viola focus respectively on changes in nature along with the exploration of a space in first-person and an "individual's journey towards enlightenment." In these cases, likewise to *The Unreal*, the gradual discovery happens mainly through observation with little room for interaction. Our strategy, using the meditative experience to guide the viewer through the paradoxes of techno-colonialism, can be understood as a speculative journey. This intention has been used by the artist Fabien Léaustic in *The Skin of Ruins* (2014-2020) to simulate a continuously changing environment imitating phytoplankton and concerns how the player can alter the ecosystem.

With *The Unreal,* rather than offering practical involvement such as in a videogame, we have created a film that asks you to think twice about what you are witnessing through the emphasis on the experiential. We may argue that our methodology of creating a computer-generated landscape and a paradoxical narrative has served the purpose of over-romanticizing the audiovisual imaginaries that we are critiquing.

Summary

Creating a virtual landscape with a game software has implied critically sourcing images for materials and textures and deciding on limitations of the surface. It has also involved the question of language and representation whereas the environmental atmosphere marks the experience, enhanced by the first-person point-of-view and the lack of a human body. In the denial of a human reference nor any other living presence, our landscape is situated within the

context of the post-Anthropocene of not only speculative futures but also the ongoing colonialism of both nature and minds executed by the techno-liberal rise to power.

The Unreal is a utopia in disguise, containing errors that put into question how to fully engage and what's left to conquer. If anything, the place is the purpose, but it remains static and silenced, similar to the colonized landscapes it depicts that have been operating under the radar of waste-logics *out of sight, out of mind*. In mediating a site, *The Unreal* has set out to appeal to capitalist strategies of desire that may seduce or reveal its layers to those awake.

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Autoimmune: Media, Computation, and the AIDS Crisis

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Characterized by distortions of fact and truth, the AIDS crisis points to the existence of a necropolitical engine supported by media and technology, which continues to kill underrepresented populations despite the latest achievements of LGBTI+ politics. The historical mishandling of the AIDS crisis in the United States influences our existing experience of it worldwide; revisiting the broad range of images that helped generate conflicts of meaning in the American response to the crisis can shed light on the formation of historical, exported misconceptions, and put into question hegemonical media and history-making technologies. Including news and commercial media, public statements by politicians in charge, and the entertainment industry, American images helped shape this crisis around the world through acts of misrepresentation and fact distortion. Distorted knowledge is essential to the existence of current power structures; control over information lies in the hands of those with access to computing technology that can shape it. This same technology enables a massive manipulation of affects that deploys misrepresentation, distortion, and corruption as principal tools. Thus, technological misuse and illiteracy are structural elements in this necropolitical scenario, helping reproduce settler colonialism at an infrastructural level.

Autoimmune explores the legacy of the initial, pre-ART (antiretroviral therapy) crisis by focusing on the truth of its disorder. It presents a speculative, non-linear narrative in which the replicating virus is a character, a non-human intelligence, delivering rogue proteins with little protection and no antibodies provided. It speaks to the viewer, manipulating the archives and complicating already distorted understandings. With agency over data, it alters appropriated images and animates archival figures to speak. Photorealistic lies and abstract compositions are created from archeological media objects including commercials, war imagery, and other AIDS-related materials found on the internet (see fig. 1). As abstraction intensifies, the video assimilates the machine-virus' complexity and becomes the truth of its opacity.

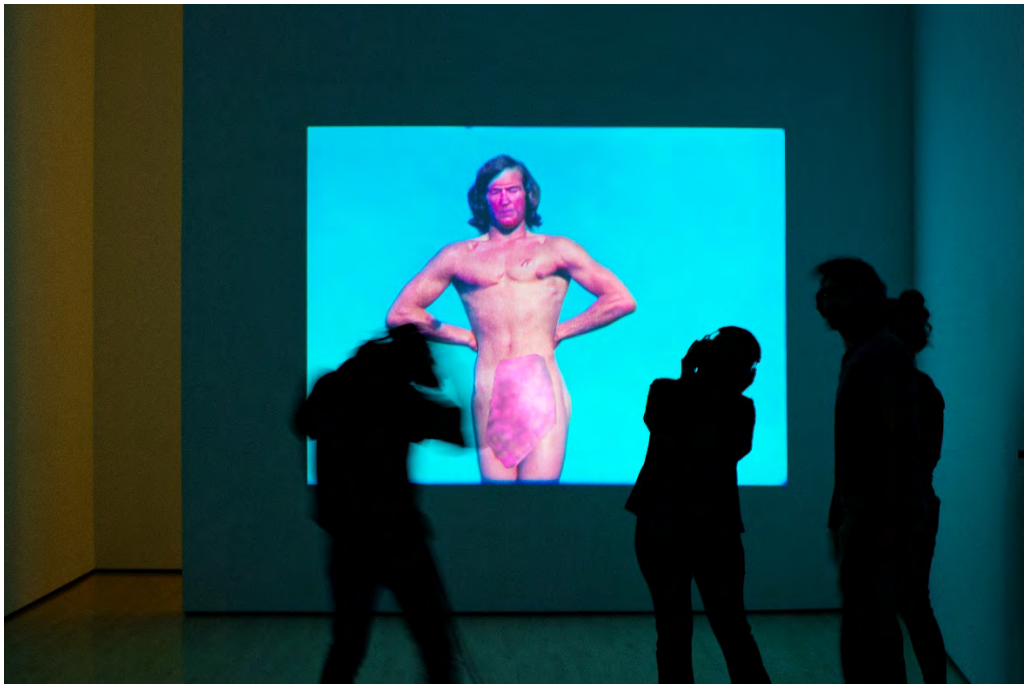

Fig. 1. *Autoimmune* (2020). Installation view, Broad Art Museum at MSU, East Lansing-MI.

Both image and audio are created with generative processes that utilize artificial intelligence—more specifically, machine learning, a computational approach to solving

problems that provides systems the ability to automatically learn and improve from experience based on sample/training data. The archive is utilized in two distinct ways: first, archival imagery is upscaled with AI techniques and assembled in a flow of random associations; second, archival images are utilized in datasets for machine training, serving as the basis of the information utilized by the machine to generate new content. In the edit, these strategies are not easily distinguished, as they are woven into a flow of discontinuity. This confusion contributes to the work's narrative, which privileges sensory blending, affectionate strategies, and a sense of ineffability.

Historically, there has been an effort to put a face to the disease and to blame the victim. In the video, Ronald Reagan's, George H. W. Bush's, Rock Hudson's, Magic Johnson's and Essex Hemphill's faces are recreated in imperfect deepfakes. The term merges the concepts of fakery and deep learning, a machine learning method based on artificial neural networks. The machine is trained on video from speeches, movies, anything that documents the targeted person's face entirely and without obstructions to its identification, to recreate their faces and apply them to the performers, generating new, synthetic data that can pass for real data. The ideal result is a perfect illusion, but *Autoimmune*'s photorealistic lies are never complete. Although our deepfakes seem to stay within the human realm in terms of figuration, pixel quality, texture, and facial features work in another form of indexicality, one that points to the characteristics of the generative, computational process and its non-human vision. The computer-generated faces are never clean or fully merged with the performers' bodies.

We created obstacles for the machine learning process, training the machine on datasets with imperfect conditions for computer visibility such as non-conventional camera angles and obfuscating lighting. This strategy created abstract compositions and glitches, all of which

index the technology and its process in its artificial reality. The process is also directly referenced with the utilization of the FaceSwap interface as a structural, narrative tool. FaceSwap is the current, most accessible application for the creation of deepfakes available in online coding libraries. Its interface shows the machine learning process as it is visible to us, hiding beneath the surface the non-human process of identifying how photorealistic image data is written and recreated. The flatness, opaqueness, and inaccessibility of the process are the truths *Autoimmune* wants to make sensible, contributing to a realism of the ontological fakeness of contemporary digital photographic processes.

Powerful tools for digital imaging are each time more present in our daily lives. Paradoxically, their political utilization and implications are not, and neither is literacy. For artist and researcher James Bridle, as the world around us increases in technological complexity, our understanding of it diminishes. In Bridle's metaphor, we are lost in a sea of information, each time more segregated by fundamentalism, simplistic narratives, and conspiracy theories, despite the apparent accessibility to information provided by the internet and other technologies. Bridle asserts that there is one single idea underlying this trend: the belief that our existence is understandable through computation and more data is enough to help us build a better world. Alongside an enormous body of literature on the bias and oppressive structures of algorithmic technologies, Bridle reminds us of the fact that we are building expert systems based on our knowledge and history, which is massively unequal, racist, and prejudiced. Rather than being built by technologists with particular expert skills, but not social and historical knowledge, technologies should be opened up to wider access so they are more representative of diverse populations and interests (Bridle).

Autoimmune explores the naming of the AIDS crisis as *genocide* and misunderstandings of sexuality that derived from the crisis, both of which have been exploited and reduced by media with unquestionably material implications in the lives of people living with AIDS (PLWA). With intense fragmentation and manipulation of image, sound, and fact, this assemblage proposes a sensorial experience suited for post-factual times. The distortion of signals, both digital signals and signs of representation, stands for a historical and material problem. The non-fixity of video elides the constructs of "virus," "disease," and "computation" as established categories, puzzling them instead through technical features as an aesthetic strategy. The main intention is to explore this mediatized public health crisis not only as a crisis of representation but as a crisis of colonial capital, which is tied to distorted representations and vilifications of the "other."

War and military metaphors are present throughout mediatic, cultural, and artistic production during the pre-ART days of the AIDS epidemic in the United States. As media tropes, they helped establish terror and potentially contributed to a turn from the status of a patient to that of a criminal for those living with HIV. Still, the framing of the AIDS epidemic as a form of genocide helped activists and artists to productively organize their emotions. In "Revisiting AIDS and Its Metaphors," Ryan Conrad demonstrates how common the analogies between warfare, genocide, the Holocaust, and the AIDS epidemic were amongst queer cultural producers at the time. Conrad considers how the word *genocide* acts as a generative naming and performative framing of the crisis. In *Autoimmune*, the metaphorization of war is directly touched upon by the words of American poet and activist Essex Hemphill (16 April 1957 - 4 November 1995). The piece presents a deepfake of Hemphill (see fig. 2), in which a fragment from his poem "Vital Signs" is recited. In the poem, he provides visceral images of

the AIDS crisis' immanent intersections of class, race, sexuality, death, and politics: "My erections are SCUD Missiles / aimed at the suburbs, the pulpits, / the shopping malls …" (31). Hemphill's presence in the piece is representative of many other artists and activists who radically pointed out the gravity of the situation while unveiling structural and societal wars that were already in place at the time.

Fig. 2. Still from *Autoimmune* (2020). Jadrian Tarver as Essex Hemphill in deepfake.

Ideals of sexual liberation have also been largely abandoned by present-day gay and lesbian politics and visual representations. Douglas Crimp warned about this movement in 1987 in his text "How to Have Promiscuity in an Epidemic." What once promised a collective turn toward a freer, more comprehensive, and radical understanding of our bodies and desires is now restricted to the individualistic and commodified experience of algorithm mediated matchmaking, sex apps, bots, and virtual reality, amidst others. Powerful images of pleasure and experimentation that celebrate queer bodies in the 1970s, such as the work of queer

experimental filmmaker Fred Halsted, help us remember that gay sex was political and a source of political debate.

Classically, the purpose of images, narratives, metaphors, etc., has been to make sense out of sensibility by selecting among the chaos of lived experience a simplification that can be understood and communicated. This process always involves abstracting some essence out of a multitude of possible inputs, which is where aesthetic choice comes into play. This is even true of artificial intelligence systems in which the data must be cleaned before it will yield anything comprehensible to the human mind. What *Autoimmune* does is to reverse the usual logic. Instead of trying to clean up experience by finding narrative threads, metaphors, and iconic images, we tried to recreate a lived chaotic experience by feeding an AI system with not just unselected images but more importantly an entire range of images that bombarded a pre-ART person with AIDS and that can still be found on the internet. The identity of a PLWA is here configured through discontinuous fluctuations of digital information, underscored by glitches and uncanny digital textures made of unquiet pixels, visibly vulnerable to a machine and programmer's neglect or amplification (see fig. 3). By refusing to select a narrative line, one type of metaphor, a cleaned set of images—indeed by reversing the process to mix metaphors, take out the narrative line, and dirty the images—the work recaptures the confusion, distress, fear, anger, and incomprehensibility of lived experience. This messy, contradictory, insane, problematic, dirty experience yields a completely different aesthetic that is illustrated in the project's most abstract results. This aesthetic is much more difficult to comprehend, unfamiliar, disconcerting, and thus much more real than photorealism. How can we try to make sense of what the mind (and body) are doing when it is impossible to comprehend what is happening to it? Should one feel "dirty" for living with HIV? If our knowledge is designed by

corporate machines while politics of death are enabled by misinformation, how can we "clean" the data and shape information for ourselves?

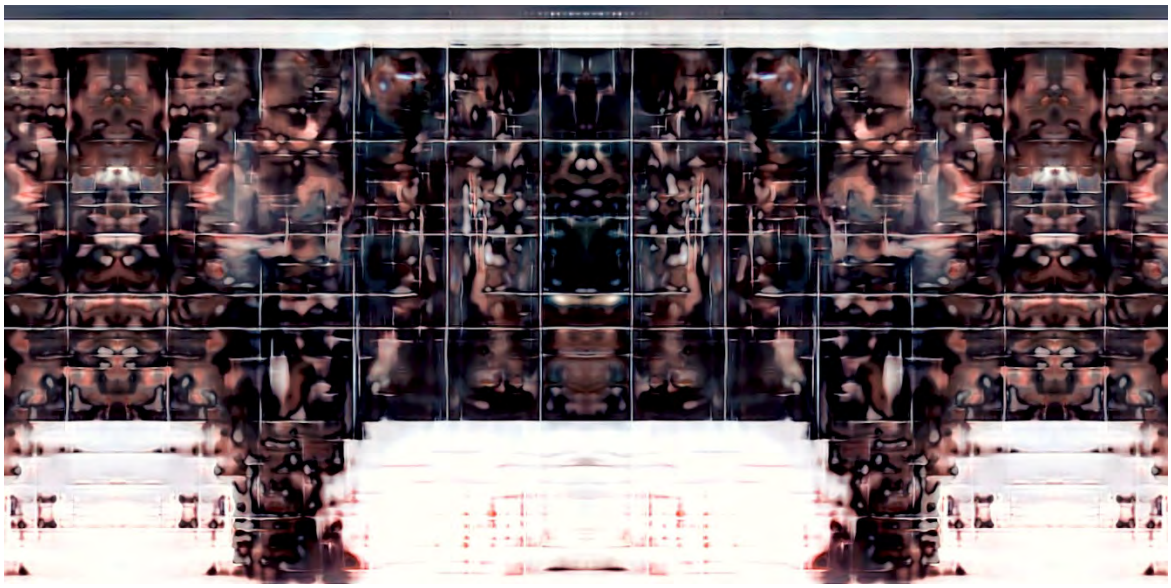

Fig. 3. Still from *Autoimmune* (2020). FaceSwap interface abstracted by a GAN.

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Descending Parnassus: The State of Material is in Play

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1. The Crisis

To paraphrase the Buddha, the nature of suffering is media.

Crises arise when the materials we believed to be concrete, extant, or otherwise situated within reality begin to exhibit flux: when what we take as given wavers in and out of focus, exhibiting exquisite impermanence. For the Buddha, suffering is a direct consequence of clinging to impermanent materials and events, objects which once instantiated exist for a finite time and then simply cease. In contrast, the primary function of media has been to attempt a stabilization of this natural cycle, to manage impermanence by distilling a continuity from disparate chunks of time and space, resulting in rarified constructions which formalize our expectations and identities. Certainly, such stability can be a boon for civilization, which relies upon standards and systems such as mathematics, language, and law to modulate and reproduce society. But media systems are not inherently concrete; rather they are flexible, ad hoc techniques and procedures for navigating reality, or as Kittler suggests, determining the situation.

When media are in alignment with lived experience, there can be benefit. However, when these abstract sense-making systems are mismatched with the situation, we are presented

with a choice: either cling to known methods of material production, which grow increasingly ineffective at discerning the current state, or seek open processes which can offer alternatives and, perhaps, a way forward. The dilemma we face at beginning of the 21st century is whether to remain beholden to established systems of reproducibility, linearity, and predictability which are currently failing us, or seek more complementary solutions in the arbitrary, unpredictable, and somewhat playful behaviors of experimentation. If we are to counter the myriad social, political, economic, and ecological issues before us, we must be willing to engage unconventional ways of mediating reality, otherwise we may remain powerless to change our current trajectory.

2. The Cognitive and the Exemplative

Fluxus co-founder Dick Higgins offers two models for material production, two ways of envisioning reality, the *cognitive* and the *exemplative*. Cognitive materials arise out of a need to create fixities, a desire for permanence and security. Pre-authorized and pre-ossified, cognitive media may only quote other cognitive media, effectively entering a self-referential dialectic which, though mimetic of forward motion, may actually impede development. These materials, ends in and of themselves, seem to spring forth from the cleaved heads of geniuses like Athena, fully formed and fully armored.

A recollection from my early musical studies was the presentation of the artifacts: a set of Norton study scores, 16 phonographic recordings, and a copy of Johann Fux's *Gradus ad Parnassum*, which roughly translates to *The Steps to Parnassus*. Handed down from the master himself, this seminal text of Palestrinian counterpoint set the rules for the game, which when questioned always elucidates assurances that one must 'learn' the rules in order 'to know' how to break them. Cognitive praxis places a premium upon the material, the end product. All

knowledge (the rules) emanates from examination of the object (the score, recording, or text). Hermetically sealed, the cognitive media system is opaque, offering only a finite set of alternatives which must be reverse engineered from the artifact. To elucidate knowledge from outside of such a system requires another approach.

The exemplative effort focuses entirely upon process, from which any material derived is not a foreseen conclusion but rather one of many possible future alternatives. To turn *Parnassus* on its head, one must create the rules (the learning) in order to materialize the knowing (an object). Ambiguous and somewhat alchemical, exemplative works are in transition, a state of continually becoming. As indeterminate materials emanate from the implementation of exemplative procedures, any residual object is both ephemeral and unique, an embodiment of the originating actions from which it was conceived. Successive iterations of the process establish a dialectic between any one instantiation and all others. The exemplative work is not merely an end in itself, but a means for exploring multiple possibilities generated from a single set of instantiative procedures. The *Twittage Project* (2016 to present) is representative of this type of practice.

3. Twittage

Twittage is an automatic technique for generating images from visual assets encountered in the open Twitter stream. A portmanteau of Twitter (the target) and frottage (the technique), Twittage culls images from Twitter in real time, layering them one upon the other, effectively creating a digital rubbing of the ephemeral social event. The process is executed by a Java program which searches the text of individual tweets (known as statuses) for key words as they arise in real time. These key words, the sole deterministic aspect of the process, have varied over time, though the majority of the work prior to March 2020 resulted from statuses

containing *fake* and/or *news*, after which statuses including *lonely* and/or *isolated* where flagged.

If a key word is encountered, the status is additionally queried to determine if there are any media entities associated with the tweet, specifically those of type *photo*. If true, the URL pointing to the image is retrieved and the asset loaded into the Java canvas. Further successful queries layer images upon one another, blended using a difference algorithm which subtracts values from the underlying image on a pixel by pixel basis. The program exits after a random number of iterations have been completed, a value chosen at run time. This technique has generated a variety of materials from digital images, to large-scale gallery prints, video artifacts, and high-resolution gifs (see fig. 1-6). Titles are indicative of the date and time the objects were generated.

Fig. 1. twittage-2018-6-18-17-44.png

Fig. 2. twittage-2019-8-22-6-56.png

Fig. 3. twittage-2018-8-17-11-8.png

Fig. 4. twittage-2019-9-8-18-56.png

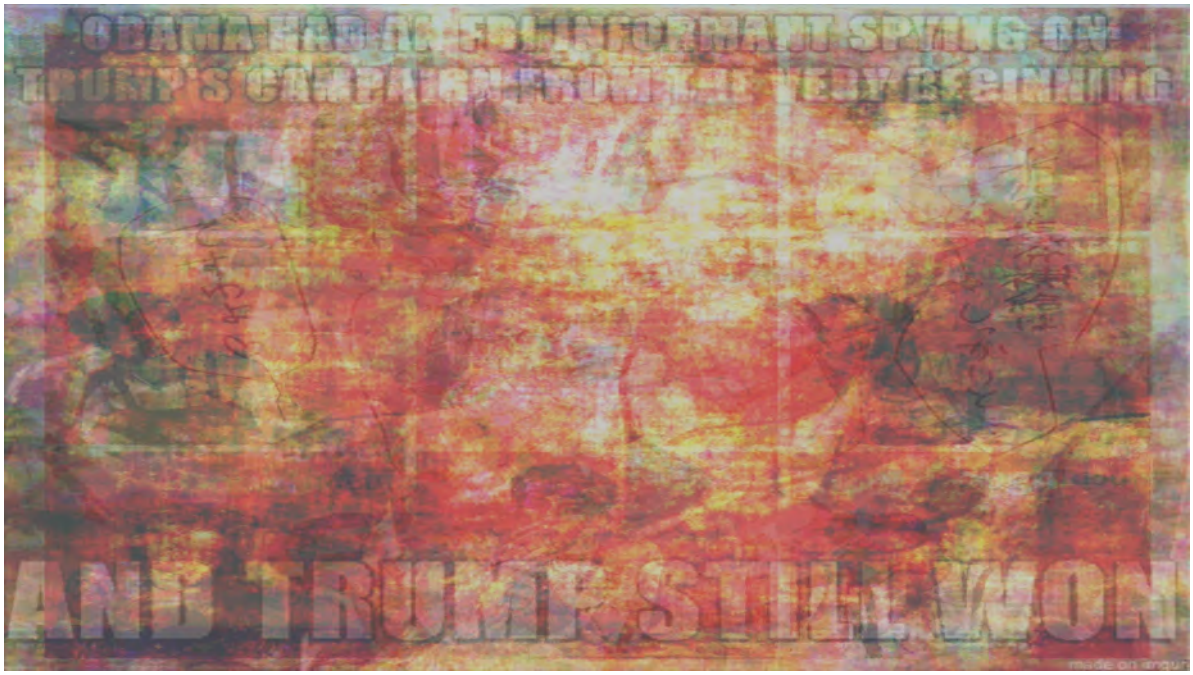

Fig. 5. Still from twitterVideo-2018-8-14-15-55.mp4.

Fig. 6. twittageLoop-2020-4-24-20-28.mp4.

In 2017, the process was extended to post generated images back to Twitter via the @guydebordbot account (see fig. 7), accompanied by a quote derived from the corpus of Guy Debord's *Society of Spectacle* using Markov procedures. Now fully automated, the process emits a stream of daily content without the intervention of the artist.

Fig. 7. @guydebordbot, Twitter.

As an exemplative work, the Twittage process can be revelatory, presenting the viewer with a singular object comprised of materials randomly chosen from unknown sources at irregular intervals. As this hot process, ripe with possibility, begins to cool, exemplative

procedures give way to concrete material in the form of a snapshot: a media object determined by its distinctive situation in space and time. For the viewer, stumbling upon this new found artifact, the amalgamation may present as illogical or haphazard, challenging one's expectations and understanding. Here, as George Brecht suggests, the unconscious mind takes over, attempting to reconcile a media object which, by design, does not arise out of any preconceived, cognitive notion.

Twittage, as with other exemplative works, effectively triggers our sense-making behaviors, which are perhaps the basis of our evolutionary advantage. Further, sense-making is key to knowledge creation, a process not merely the assembly of static truths (artifacts), but an ongoing act of remediating a world which is continually in a state of becoming. I opened this discussion by suggesting that human suffering was based in our desire to cling to media systems and ways of knowing—*fixities,* to borrow Higgins' term—that are no longer germane to the situation undergoing rapid, systemic change.

Managing the social, political, economic, and ecological issues before us by doubling down on outmoded ways of knowing have not been effective at mitigating the crisis. If ways of sense-making are to realign with a world in flux, those methods must be equally flexible. Artist and theorist Roy Ascott suggests art objects (and by extension media) should be considered as dynamic systems and not as static entities impervious to change. As he explains, such objects should be historically *behaviorable*, structurally *futurible*, and capable of triggering an effective response.

4. Toward a Behaviorable Media

Behaviorable media embrace change by designing rituals and performances which provide spectators the opportunity to engage physically, emotionally, and conceptually in the process

of knowledge creation. The process is entirely collaborative and individuals are invited to engage in open-ended activities encouraging a diversity of responses. Participants are not set up to win or lose, as in the cognitive model; there are no rewards or punishments, as the situation and the materials are in a state of play. The process is entirely experimental, creating a diversity of practice around which a community may coalesce: a unity of diversity.

Behavior-based practices manifest as futurible, alternative renderings which are perhaps the closest analog the exemplative has to a materiality. Neither absolute nor uncertain, the futurible is in transition and ephemeral, exhibiting continuous change. Futuribles are certainly useful and enter into the dialectic, but they don't hang around for long. Once a futurible has served its structural purpose, it is happily released back into the wild, at which point one may return to the well of behaviorable practice and fetch another alternative.

The role of the futurible is to activate the observer, triggering a behavioral response in which the spectator is once again invited to engage in the physical, emotional, and conceptual work of knowledge creation. The trigger heals the process/material gap and establishes a dualism in which media exist as both object and behavior. Consequently, we need no longer cling to the sanctity of materials or the objects which they comprise. To do so risks building structures which over time calcify and lose their ability to adapt to changes in the environment.

In presenting my experimental work within the context of Higgins and Ascott, I am attempting to breach the topic of materiality, endeavoring to expand my understanding of media and personalize its position and import within my own creative practice. The crisis emerging (the emergency) we face as a species is, to my mind, the product of our inability to engage in open-ended processes of knowledge creation. We seem to be stuck in the apocryphal insanity of doing the same thing over and over again and expecting the same result. What

exemplative processes such as Twittage demonstrate is that in a complex system such as the Twitter platform, we can do the same thing over and over again and *not* arrive at the same result.

As we extricate ourselves from the current crisis we occupy here at the beginning of the 21st century, we might consider a new agility in our mediation and understanding of the situation. It is not that the universe is growing increasingly complex—it always has been—rather, what is changing is our understanding of that complexity and the precariousness of existence. Behaviorable practices, exemplative in nature, allow for flexible approaches to knowing, methods which can adjust to the ever-shifting topography of a complex dilemma. The results of such a practice, futuribles, are not sacrosanct materials to cling to, but merely intermediate elements which can be modified when need be or entirely abandoned when their use is no longer deemed necessary. If we accept that the universe is in transition, then our materials, media, and artifacts are equally insecure. Consequently, we may come to realize that true security is not to be found in avoiding change, but in embracing behaviors and processes that promote it.

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Echoes in the Desert: Digging Out the Disappeared in the Digital Age

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Abstract

This article explores the relationship between new media, memory, and materiality, through an analysis that focuses on three digital projects: Marco Williams's *The Map of the Undocumented,* Ivonne Ramírez's *Ellas tienen nombre* ("They have a name"), and John Craig Freeman's *Border Memorial: Frontera de los Muertos.* These projects were developed in response to the migration crisis at the US/Mexico border and Ciudad Juárez's feminicide. Taking advantage of the possibilities offered by "thick mapping" and augmented reality, they locate and give visibility to the migrants who have died while crossing the Arizona desert (*The Map of the Undocumented* and *Border Memorial*), and to the hundreds of girls and women who have been murdered in Ciudad Juárez since 1985 (*Ellas tienen nombre*). Drawing from the works of Gabriel Giorgi, Judith Butler, Doreen Massey, and Avery Gordon, this article argues that the three projects store, mobilize, and memorialize "digital remains" that produce a form of spatial and temporal disorientation, complicating distinctions between presence and absence, materiality and immateriality, and proximity and distance. Through operations of haunting and re-membering, these remains make users "lose their grounding" and, in the process, become affected by others who, though anonymous, physically distant, missing and/or dead, feel familiar, proximate, and urgent. They thus shed light on new cartographic practices that productively reconfigure our understanding of memory, space, and global ethics, and that invite us to consider what a "geography of care and responsibility" could look like.

Keywords

memory, digital mapping, haunting, re-membering, feminicide, migration

Introduction

In *Rupture of the Virtual*, John W. Kim argues that the emphasis on the virtual in media research has occluded insights into the status of the material, and that it is imperative that we rethink "the origin of computing interfaces with an emphasis not on their construction as a virtual window, but on enhancing knowledge of those things in one's immediate physical environment" (3). He proposes that, rather than seeing the material as subject to colonization by informational processes, what is needed instead is "an analysis that recognizes with more complexity our interaction with the material" (Kim 86). This article purports to develop such an analysis through an exploration of three digital projects where the virtual and the material engage in complex, unexpected, and subversive ways: Marco Williams's *The Map of the Undocumented* (2013), John Craig Freeman's AR project *Border Memorial: Frontera de los Muertos* (2012), and Ivonne Ramírez's digital map *Ellas tienen nombre* ("They have a name") (2015).

Williams's *The Map of the Undocumented* is part of the website theundocumented.com, which also includes Williams' documentary *The Undocumented* (2013) and the single-player simulation game *The Migrant Trail* (2014). Together, these resources draw attention to the more than two thousand corpses and skeletal remains of undocumented border crossers that, since 1998, have been found in the desert in southern Arizona. *The Map of the Undocumented* shows the location of the remains, identified by black crosses (see fig. 1) that appear on the map and that, if clicked on, reveal available information regarding the deceased and, in some cases, also images of personal effects and objects found with the remains. Using the data

collected by the grassroots organization Coalición de Derechos Humanos—which, in turn, uses data from the Tucson Medical Examiner Office[1]—the virtual cemetery "stores" remains found between 1981 and 2020, and continues to add crosses as new remains are discovered every day.

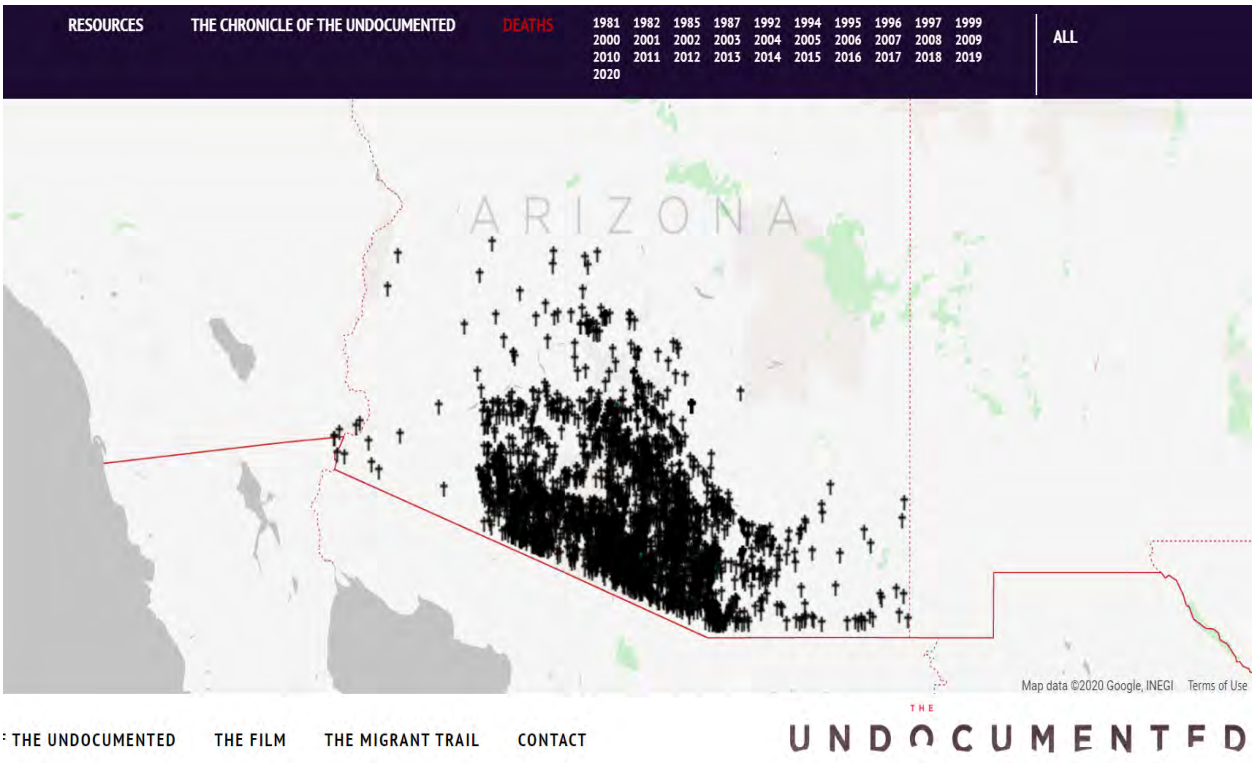

Fig. 1. *The Map of the Undocumented* by Marco Williams, http://theundocumented.com/, created by Operation CMYK, 2013. Accessed October 12, 2020. Published with permission of Marco Williams.

Similarly, Freeman's *Border Memorial: Frontera de los Muertos* is an Augmented Reality public art project and memorial dedicated to the migrant workers who have died along the US/Mexico border. The project includes an application for mobile devices that, once downloaded, uses geolocation software to allow the visualization of each place where human remains have been recovered. To mark the location, Freeman uses a virtual augmentation of a

calaca: a skeleton used in commemoration of lost loved ones during Mexico's Día de los Muertos (see fig. 2). The calacas appear on the screen of the phone "floating" above the desert: digital ghosts that, at once visible and invisible, "haunt" the users with whom they share the space.

Fig. 2. *Border Memorial: Frontera de los Muertos*, augmented reality public art, Lukeville AZ, John Craig Freeman, 2012. Courtesy of the artist.

Lastly, *Ellas tienen nombre* is a digital map created by Mexican activist Ivonne Ramírez in 2015, where red dots mark the location of women murdered in Mexico's Ciudad Juárez since 1985 (see fig. 3). On the website, the map is described as a "digital cartography of feminicide."[2] Under "Enlaces Relacionados," it provides links to similar maps created in other Mexican cities and in other countries. Unlike *The Map of the Undocumented*, clicking on the dots not only informs the users of the name, cause of death, and location details of the victim,

but it also includes the exact date and day of the week when the body was found, whether anybody has been held accountable for the crime, a photo of the location, and a "descripción." This description reads as a narrative that turns the facts provided into a story that, in some cases, includes details about the victim's life and about the perpetrator.

Fig. 3. Screenshot of digital map *Ellas tienen nombre*, 2015. https://www.ellastienennombre.org/mapa.html. Accessed October 12, 2020. Published with permission of Ivonne Ramírez.

In these three projects, material environments are mediated and complicated by the digital platforms that make it possible to perceive the lingering *presence of absences* that impinge upon us. The platforms destabilize not only our sense of space—where we are and whom we are with—but also our sense of self, and the responsibility we have towards "others" who, though long gone, we feel near and urgently present. As we perceive their presence, a question arises: what do we owe to them?

The possibility of asking this question and the burden that, once formulated, it places on the users who engage with the three projects from their computer and cellphone screens invite us to consider these projects in connection with questions of memory and, more specifically, with Andreas Huyssen's suggestion that we think of the past as "memory without borders rather than national history within borders" (4). This "memory without borders" arises partly in response to the development of new technologies that blur geographical boundaries and create a sense of proximity with others. The ubiquity of these types of interactive communication technologies, as Andrew Hoskins argues, make this generation "the most accountable generation in history" (3).

In what follows, I argue that these three projects effectively create a "memory without borders" where remembrance is not (only) connected to acts of commemoration but operates through the production of "digital remains." These digital remains dislocate time and defamiliarize space, challenging not only how we perceive and engage with the materiality of space—to go back to Kim's argument—but also how we engage with the devices such as computers and cellphones that, as Jason Farman points out, have become "so commonplace that [we] rarely take notice of them" (5), let alone of the systems of violence that enable their production. As they link remembrance to a digitally enabled form of disorientation that, I propose, creates a virtual community of the living and the dead, these projects ultimately offer us a point of departure to think of what it would mean to be part of what Doreen Massey calls a "geography of care and responsibility" (201). To begin our exploration of these projects' approach to memory, we will start by examining a more traditional memorial, and the challenges it faces when the bodies it aims to memorialize are "more or less dead."

More or Less Dead

Though sculptures and monuments have doubtlessly played a key role in the memorialization of victims of tragedies spanning centuries, it is worth asking whether an object that is presumed stable and permanent can accurately represent the reality of the Ciudad Juárez ongoing feminicide,[3] or of the ever-growing number of migrants who die trying to cross the US/Mexico border. This question in fact frames current discussions about the "Flor de arena" ("Sand Flower") memorial, created by Chilean artist Verónica Leiton and located in Ciudad Juárez's Campo Algodonero, where the bodies of eight women were found on November 6, 2001. The discovery of these bodies made international headlines and led the Inter-American Court of Human Rights to find the Mexican state guilty of denying justice to the victims and their families in November 2009. The Court ordered the Mexican government to build a memorial for the victims of feminicide in Ciudad Juárez, and for the memorial to be inaugurated as part of the ceremony where the state would publicly acknowledge its responsibility for the killings. The inauguration took place in 2011, two years after the Court's sentence; in those two years, over three hundred women were killed, and many more have continued to die since, and not just in Ciudad Juárez. In fact, it is estimated that from 2015 to June 2019, over three thousand women have been murdered in Mexico (Hernández).

The memorial—a bronze sculpture[4] of a young woman looking up at the sky and emerging from the petals of a desert rose bearing the names of fifteen hundred women—was criticized by a number of relatives of the victims, who chanted, "We don't want a monument, we want our daughters. They were taken alive, we want them back alive," a cry that revealed their outrage at the use of state funding to build a memorial rather than to open new investigations and search for the missing women. The current state of the memorial appears to validate their claim; an article published in the Mexican newspaper *La silla rota* on October

2019 argued that the memorial seemed to have failed in its efforts to preserve the memory of the victims of feminicide ("Borran memorial"). Not only does it look abandoned and unkempt, but it rarely receives any visitors. It thus serves as a distraction from the state's refusal to acknowledge and actively take responsibility for the ongoing disappearances, which, according to the article, is also evinced in the fact that the posters for the missing women that the families print and place all over the city are quickly taken down, the illusion of normality protected and preserved. There is thus an act of erasure and invisibilization that occurs in the act of remembrance staged by the memorial—and by the state that funded it—and that evokes "the politics of the corpse" (Giorgi 199).

According to Gabriel Giorgi, at the center of systems of power that claim to defend and protect life, there is a "politics of the corpse" dictating which corpses are memorialized and which are destroyed so that they lose their ties to the community and become "something" like an object or an animal. The former are thus considered "persons": lives that not only deserve protection but that also deserve to be remembered as being part of a community. The latter, the "non-persons," refer to lives whose deaths are insignificant to the community and who do not enter the realm of collective memory. Among the examples of "non-persons" that Giorgi analyzes are the women murdered in Ciudad Juárez and the representation of their deaths in Roberto Bolaño's posthumous novel *2666* (2004). Looking at "La parte de los crímenes"—a chapter that describes in detail the discovery of 109 corpses of women in the fictional town of Santa Teresa[5]—Giorgi proposes that Bolaño's narrative illuminates the abandonment in which the women find themselves, in a space "that does not offer them shelter or protection, nor inscription or location: an empty social space, stripped of institutions and symbolic belonging" (216). In that space—the desert of Santa Teresa/Ciudad Juárez—the bodies of the women are

often confused with street dogs and found in the trash, their status as "non-persons" thus confirmed by their "thingness," which ultimately prevents them from becoming the subjects of rituals of memorialization that would render their ties to the community visible, meaningful, and lasting.

Giorgi's conceptualization of "non-persons" underscores not only the gender-based precariousness that women in Mexico endure,[6] but also the particular kind of vulnerability that characterizes migrating bodies working in and moving across border areas such as Ciudad Juárez[7] and the Arizona desert. The desert is, after all, a space of debilitating exposure: an arid land of unbearable heat that offers no shelter and no sense of belonging. This is particularly the case in the context of the border, where the desert becomes the stage for a form of national "in-betweenness." In that stage, migrating bodies become "figures passing through" or, as Giorgi points out, "anonymous or semi-anonymous bodies" who have lost their connection to their families, communities, and home countries: "floating bodies, 'loose' in the border" (my trans.; 215). The death of these bodies leaves behind corpses that are often never found and/or never claimed, and that are thus "swallowed" by the desert, condemned to being, as Bolaño proposes, "más o menos muertos" ("more or less dead") (779-780).

In fact, the vastness of Arizona's border with Mexico makes it impossible to find a substantial percentage of the remains of the migrants who have attempted to illegally cross it and died in the process. Furthermore, even when remains are found, there is no guarantee that they will be identified, or that someone will claim them and give them a proper burial.[8] It is also worth noting that, unless there are relatives looking for their loved ones, the task of combing the desert to find the bodies of missing migrants falls exclusively on non-profit organizations like Águilas del Desierto and the search operations that they organize every

month in the areas of Arizona, Texas, and California. Reflecting on the experience of routinely finding bodies, Pedro Fajardo, one of the volunteers of the Águilas, describes the desert as "a gigantic cemetery" and notes that, if "[they] went looking for bodies every day, [they] would find them" (my trans.; King).

Fajardo's categorization of the desert as a cemetery is both illuminating and inaccurate. It productively transforms what, from a spatial as well as conceptual distance, appears to be an empty, homogenous surface into a layered and uneven territory that becomes uncanny both because it contains human remains in various states of decomposition and because those remains can "appear" unexpectedly. The inaccuracy of the comparison lies in the fact that, in the context of cemeteries, to be buried means to be part of a ritual of memorialization that recognizes that a life has been lost and honors it by giving it a proper place to rest. In the desert, however, being buried does not equate to being remembered; as Fajardo points out, there are hundreds of bodies that will never be found, and hundreds of rescued bodies whose identity will never be known. Similarly, in the context of the Ciudad Juárez feminicide, there are families that will never find the bodies of their loved ones, and bodies that will be found but will never be claimed. Both the immigration crisis at the US/Mexico border and the Ciudad Juárez feminicide thus produce dead without bodies, bodies without names, and bodies out of place: the "more or less dead" that are simultaneously present and absent, remembered and forgotten, and that therefore resist the stabilizing power and closure monuments and memorials offer.

The question thus becomes: how should we remember the "more or less dead"? More specifically, how do we memorialize the victims of two tragedies that are ongoing, and that are both local and global?

Haunted Spaces

In order to remember the "more or less dead" and to engage with the presence of absence, aesthetic strategies are needed that stage "an alternative form of temporality that emerges from the corpse, and that cannot be reduced to the temporality of mourning or to the biological time of the body" (my trans.; Giorgi 203-204). In this alternative temporality, human remains oscillate between organic and inorganic matter, the body and the thing, and various forms of inscription and signification.

This alternative temporality of remembering is expressed in the two digital maps and in Freeman's *Border Memorial.* In fact, we could argue that all three projects share the goal of ensuring that remains *remain*: that they stay in the place where they were found *even after* they have been taken to the morgue and delivered to their families. The crosses in *The Map of the Undocumented*, the skeletons in *Border Memorial*, and the red dots in *Ellas tienen nombre* thus transform the space of the Arizona desert and of Ciudad Juárez into a space of echoes. The body stays and creates a void with a presence that is registered in the digital maps. Yet, the body also moves, and not only across spaces—as when it is taken to the morgue or buried by its loved ones elsewhere—but also across times, thanks to the stories told in the platform of *Ellas tienen nombre*, which, whenever possible, include biographical details: who the woman was and how her death affected and will affect those around her. Many bodies also move outside both human and nonhuman times for, though suspended in the limbo of their anonymity, in these projects, unidentified remains are still given a place where they can stay and demand to be acknowledged.

The projects thus transform human remains into "digital remains" that occupy a space of temporal and spatial in-betweenness. They are there—as proven by the geographical

coordinates provided in all three projects—but they are also elsewhere; they are unforgettable but also uncontainable by rituals of burial and gravestones that would give closure to their deaths; they are corporeal but also virtual. As such, they introduce an element of chaos and disruption into the space of the desert that resonates with Doreen Massey's conceptualization of space in terms of the unexpected and unpredictable:

> [The] relationality of space together with its openness means that space also always contains a degree of the unexpected, the unpredictable. As well as loose ends then, space also always contains an element of "chaos" (of the not already prescribed by the system). It is a "chaos" which results from those happenstance juxtapositions, those accidental separations, the often paradoxical character of geographical configurations in which, precisely, a number of distinct trajectories interweave and, sometimes, interact. Space, in other words, is inherently "disrupted." (315)

This unpredictability defines the interactions that occur with the remains both in the Arizona desert and in Ciudad Juárez, where the bodies are found unexpectedly, surprising even those who are purposefully looking for them. The disruption, however, is short-lived; the quantity of the bodies and the frequency with which they appear gives an illusion of normalcy to the unpredictable that ultimately makes the bodies quietly vanish into the barely visible cracks of the status quo. Freeman's project and the digital maps, however, reactivate the unpredictable nature of space by registering not only the remains themselves but also the way they move across time and across space, which turns the latter uncanny in a way that forces us to challenge our certainty regarding what we can and cannot see, what (and who) is and is not there, and, more broadly, the value we place on visibility. In other words, the three projects re-present the Arizona desert and Ciudad Juárez as *haunted*.

Haunted places are not exceptional. In fact, Michel de Certeau argues that "[h]aunted places are the only ones people can live in …" (108). Similarly, María del Pilar Blanco and Esther Peeren remind us that "places are simultaneously living and spectral, containing the experience of the actual moment as well as the many times that have already transpired and become silent—though not necessarily imperceptible—to the present" (395). To emphasize their point, del Pilar Blanco and Peeren turn to Toni Morrison's *Beloved* (1987), quoting Sethe's insistence that "places are still there," and her warning to her daughter Denver that "if you go there and stand in the place where it was, it will happen again; it will be there for you, waiting for you" (395). In the work of these authors, the knowledge that "places are still there" is mostly affective: silent but not imperceptible, it becomes an intuition that succeeds at disorienting without having to visibly and objectively manifest itself. However, "thick mapping" initiatives take this knowledge one step further, mobilizing digital technologies to re-present space as temporally layered.

In *HyperCities: Thick Mapping in the Digital Humanities*, Todd Presner, David Shepard, and Yoh Kawano ask: "What if the many, competing pasts saturated in a single place could be mapped onto and along streets, neighborhoods, and territories? What if, following Edward Casey, culture was reconnected to place and the movement of bodies in space and through time?" (53). These questions arise in response to the spatial turn in the humanities, a turn they trace to the publication of Edward Said's *Culture and Imperialism* in 1993, when cultural criticism started to "affirm both the primacy of geography and an ideology about the control of territory" (Presner et al. 78) in order to fully appreciate and critique the intersecting forces of nationalism, imperialism, and colonialism. Though this turn has led to many approaches analyzing and mapping the imbrication of culture, power, and space, Presner,

Shepard, and Kawano point out that only recently has there been a fundamental rethinking of the *medium* used to theoretically trace and display such imbrication due to the possibilities offered by new technologies and, specifically, by "thick mapping." They define "thick mapping" as "the processes of collecting, aggregating, and visualizing ever more layers of geographic or place-specific data" (17). Thick maps embody temporal and historical dynamics "through a multiplicity of layered narratives, sources, and even representational practices" (17) and, as such, operate by temporal and spatial simultaneity and juxtaposition.

The layered interface of thick maps gives visibility to places "erased" by the passage of time and proposes a way of experiencing space through personal narratives. A similar interface is used to visibly saturate the space of the Arizona desert and Ciudad Juárez with the digital remains of bodies who have disappeared, were killed, or died as they traversed the precarious land of the border in the three digital projects that concern us. The result of this digitally enabled haunting is the transformation of the maps from "expertly produced, measured representations … conventionally taken to be stable, accurate, indisputable mirrors of reality" (Bissen) into tools that invite us to question reality and doubt what we can perceive and what we consider meaningful.

It is in this sense that the two digital maps and Freeman's *Border Memorial* may produce the uncanny: as at once an absence and a repetition and return of the same (Freud 11). The three projects assign the same figure—a skeleton, a cross, and a red spot—to each of the bodies found, thus creating an overwhelming "crowd" of the digital dead that produces a sense of disorientation where the familiar is no longer so and where repetition is not comforting (see fig. 4). Consulting the maps and using Freeman's application thus end up being less about identifying the exact location of the remains—though this is still a key function of the

projects—and more about producing a way of experiencing reality "not as cold knowledge, but as transformative recognition" (Gordon 8).

Fig. 4. *Border Memorial: Frontera de los Muertos*, data visualization, John Craig Freeman, 2010. Courtesy of the artist.

This "transformative recognition" is what Avery Gordon argues is the meaning of being haunted. In *Ghostly Matters*, she proposes haunting as resisting a certain postmodern hypervisibility that reduces individuals "to a mere sequence of instantaneous experiences which leave no trace, or rather whose trace is hated as irrational, superfluous, and 'overtaken'" (20). As a social figure, the ghost meddles with taken-for-granted realities, revealing what hides in society's blind spots. Similarly, the skeletons, red dots, and crosses in the three digital projects are not just signs indicating the loss of a dead or missing person. As digital remains, they become the shapes of an absence that point us to something that is there and not there at the same time, and that, as such, becomes a ghostly trace that enables the past to spill into the

present, destabilizing spatial and temporal boundaries. This is best exemplified in Freeman's *Border Memorial,* which makes the user who navigates the Arizona desert both see and un-see the bodies of the dead migrants.

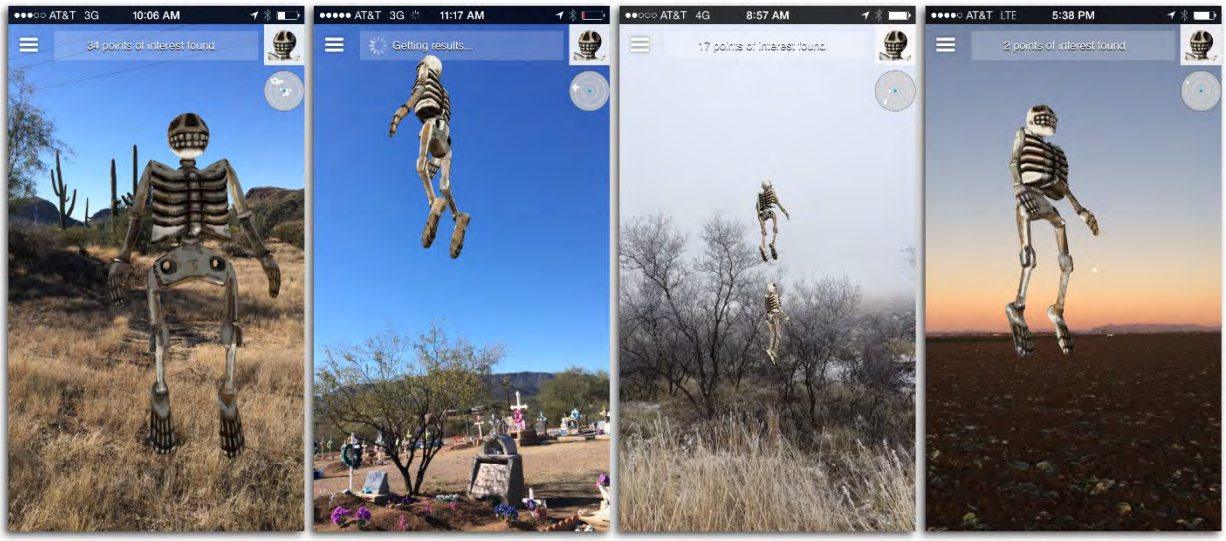

Fig. 5. *Border Memorial: Frontera de los Muertos*, screenshot series, Southern Arizona, John. Craig Freeman, 2012. Courtesy of the artist.

Holding the phone with Freeman's application at eye-level, the user finds herself surrounded by floating skeletons (see fig. 5); without the phone, the desert reappears as an empty, undisturbed space. What changes in the process of seeing and un-seeing, then, is our way of reading space: what we see is not always what is there, what is there is not always visible, and what is invisible is rarely insignificant. This leads, as Gordon points out, to a transformative recognition that ultimately invites us to ask not only where we are, but also—most importantly—where do we fit in this space, and what does this space mean to us? The possibility of asking these questions engages the users of these maps in acts of re-membrance.

Re-membering

In *The Location of Culture*, Homi Bhabha notes that remembering "is never a quiet act of introspection or retrospection. It is a painful re-membering, a putting together of the dismembered past to make sense of the trauma of the present" (63). Bhabha's conceptualization recalls the violence that tears bodies apart psychologically, emotionally, and physically. The "dismembered" past he speaks of has a bodily quality that vividly evokes the violence endured by the murdered women and girls from Ciudad Juárez—many of whom were decapitated or had other parts of their bodies torn off—and by the migrants crossing the Arizona desert, whose remains are often found incomplete. The digital maps and Freeman's memorial acknowledge this state of dismemberment and make re-membering, as Bhabha conceives it, central to their operations.

In Freeman's *Border Memorial,* the remains are transformed into life sized, three-dimensional models of a skeleton, which rotates and floats off into the sky when viewed with a mobile device. These calacas serve to both render the body "complete" in medical terms—every bone is accounted for—and to insert it in the tradition of the Mexican Day of the Dead, thus making it part of a community and of a ritual of commemoration. *The Map of the Undocumented* "buries" each body in a virtual grave represented by a black cross, which, if clicked on, informs the users of the name of the deceased—if they have been identified—and cause of death. This information constitutes an effort to give the remains back their identity, thus making it easier for families to claim their dead and honor their memory. Lastly, *Ellas tienen nombre* uses the section titled "description" to put together, whenever possible, the pieces that constitute the life that the woman had before she was killed (see fig. 6). Recovering the body and providing the basic information that would make it identifiable is not enough; the

user must not only know that a life was lost but also recognize that it was, as Judith Butler would say, a "grievable life."[9]

Fig. 6. Screenshot of digital map *Ellas tienen nombre*, 2015. https://www.ellastienennombre.org/mapa.html. Accessed October 12, 2020. Published with permission of Ivonne Ramírez.

There is, however, another way of thinking about remembering that resonates with Butler's conceptualization of precariousness as implying "living socially, that is, the fact that one's life is always in some sense in the hands of the other. It implies exposure both to those we know and to those we do not know; a dependency on people we know, or barely know, or know not at all." This dependency is reaffirmed when we think of *re-membering* in terms of *membership*, belonging, and becoming (Hedtke and Winslade). As Lorraine Hedtke and John Winsdale argue, re-membering incorporates the idea of membership, and the possibility of becoming a member of a community that is brought together by a feeling of loss and that, in encouraging imaginary interactions with the deceased, enables people "to stand against the dominant discourses" (96) that dismiss them. While they refer to these imaginary interactions

in the context of practices that help patients grieve, they nevertheless resonate with the sort of interactions the three digital projects enable.

Their goal is not only to honor the memory of the dead but also to enable interactions that include both the living and the dead, the analogue and the digital world, and that ultimately shed light on the connections that exist between seemingly disconnected bodies, spaces, and realities. Freeman does this by creating proximity between bodies (alive *and* dead) that, without the platform he developed, would never be able to stand next to each other. As the person holding the phone discovers the calacas that surround her, she wonders not *if* she is connected to them but rather what that connection that is revealed as being *already there* demands from her. *The Map of the Undocumented* re-presents the state of Arizona as a cemetery, challenging the dominant narrative that the bodies of the migrants belong "over there," on the other side of the US/Mexico border. Virtually buried in US soil (see fig. 7), the map places the burden of grief and responsibility "over here," making "their" dead our dead too[10].

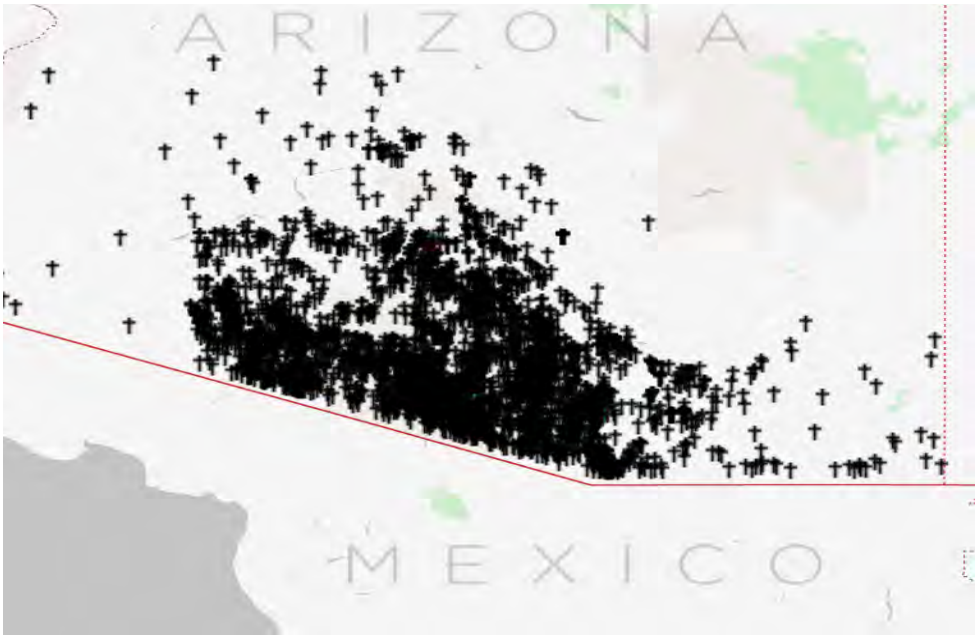

Fig. 7. *The Map of the Undocumented* by Marco Williams, http://theundocumented.com/, created by Operation CMYK, 2013. Accessed October 12, 2020. Published with permission of Marco Williams.

Lastly, *Ellas tienen nombre* has a section titled "Enlaces Relacionados" with links to maps and similar digital and interactive initiatives that register acts of feminicide all over the world. The message behind this network is simple: "we are not alone." It is also twofold: it denounces the systemic nature of the feminicide while also creating a space for an ever-growing international community that honors and fights for lives that it recognizes and re-presents as indisputably grievable, regardless of whether they are known or unknown, near or far. The three projects thus re-member: they create a virtual space where users become members of a community that is defined not in terms of culture, language, or nationality, but in terms of their shared precariousness. Put differently, the two digital maps and Freeman's project intertwine space and narrative, the virtual and the material, the living and the dead, in efforts to show that we are—that we have always been—in each other hands, or, as Butler would say, "impinged upon by the exposure and dependency of others, most of whom remain anonymous."

Conclusion

"There is a kind of accepted understanding that we care first for and have our first responsibilities towards those nearest in. Yet in an age of globalization, and in the light of the way of imagining space and place that I have been talking about, could we not open up that set of nested boxes? Could we not consider a different geography of care and responsibility?" (Massey 201). The answer Massey's question seeks is self-evident: yes, we could. How could we not? As Jeremy Rifken points out, thanks to the phenomena and sensations of living closer and closer to what once was geospatially and culturally distant, "[we are] brought together in an ever-closer embrace and are increasingly exposed to each other in ways that are without precedent" (425). Yet what remains unclear is *how*? How exactly do we begin to care for those

who are far (yet virtually near)? How do we turn the "sensation of living closer and closer" into acts that have transformative potential?

I have proposed that *Border Memorial: Frontera de los muertos, Ellas tienen nombre,* and *The Map of the Undocumented* present us with an answer that frames the act of caring for the "distant other" within an act of memory that operates through a form of productive disorientation that changes how we perceive certain spaces and our relationship to them. The digital remains that populate the maps perform this disorientation through an act of haunting that changes our perception, making us conscious of the echoes that are as part of a space as that which is comfortably visible and legible. This change in our perception is compelling because it, too, lingers; it invites us to see not just the space of the Arizona desert or the Ciudad Juárez desert differently, but also *any space*, all spaces thus becoming chaotic—to go back to Massey—because of the yet-to-be-established connections with the yet-to-be-acknowledged absent presences.

As our way of looking at a space changes, our sense of self does too. The three projects not only show the "distant other" as near, but as someone we are connected to, someone with whom we are in a community of re-membrance that continues to grow and that is grounded on the realization that we are "in each other's hands." It is thus in losing our grasp of where we are and in un-knowing who is around us that we grasp those who are not near. We begin to care not because we intimately know the person who died, but because *we are with them*, in the constructed intimacy of the spatio-temporal dislocation these three projects stage. They thus show us the contours of a possible geography of care, one that gives visibility to a virtual and dynamic community that incorporates both the living and the dead, and where memory escapes the confines of national borders.

Acknowledging our belonging to that community not only complicates our understanding of whom we must remember and how, but also our relationship with devices such as computers and cellphones that have become so familiar that we rarely take notice of them or even think of how they came to be in our hands. As we see them transform into tombstones for the faraway dead—as we "hold" the dead in our hands, as we "touch" them on our screens—we are forced to think of the fact that our fingertips are brushing against a screen or a keyboard, the manufacturing of which could have contributed to creating the conditions that framed the death of many women in Ciudad Juárez who worked in *maquiladoras*[11] where those devices could have been assembled.[12] Similarly, the projects' reliance on software that enables a technological enhancement of vision (the ability to see what or who is hidden) invites us to consider how similar programs have been and continue to be used by the United States Border Patrol and the Immigration and Customs Enforcement agents in their search for undocumented immigrants (Funk) and the dehumanizing effect they produce as they transform them—their bodies, their lives, their history—into erasable data. The devices thus become "defamiliarized," and we hold them with less ease as we realize that seeing ourselves in the geography of care that these three digital projects construct means also acknowledging the various—and often subtle—ways in which we are implicated in the violence that seeks to erase the possibility itself of caring for a distant, unknown other. After all, as Massey points out, it is not only a geography of care that we must consider and work towards but also one of *responsibility*.

Notes

[1] The Tucson Medical Examiner Office and the Tohono O'odham tribe Police Department are responsible for the collection of human remains in the Tucson Sector of the US-Mexico border.

[2] Ramirez's work joins a growing body of maps that, in recent years, have been created by activists in Latin America with the purpose of denouncing the violence of feminicide and demanding social change. See Suárez Val et al.

[3] In this article, my use of the term "feminicide" (as opposed to "femicide") follows the conceptualization developed by Rosa-Linda Fregoso and Cynthia Bejarano in their edited volume *Terrorizing Women: Feminicide in the Americas*, where they propose that "feminicide" enables an analysis of the murder of women that underscores power structures and the inequalities created by social, political, and cultural institutions. They argue that "the level and extreme nature of violence against women requires a new concept such as *feminicide*, which can work as a conceptual tool not only for antiviolence advocacy but to further a feminist analytics on gender-based violence" (7).

[4] See Fregoso, "For the Women of Ciudad Juárez."

[5] This chapter is the fictional recount of Sergio González Rodríguez's *Huesos en el desierto* (2002), a chronicle of the feminicide in Ciudad Juárez from the 1990s to the 2000s.

[6] This gender-based precariousness is tied to a culture of machismo that confines women to certain societal roles and punishes them when they deviate from them. See Driver's chapter on "Feminicide and Memory Creation."

[7] Many of the women who have been killed in Ciudad Juárez were immigrants who had moved from other Mexican cities and other countries looking for work in the maquiladora industry (see Monárrez Fragoso).

[8] According to the non-profit corporation Humane Borders, as of December 31, 2018, over 1000 decedents remained unidentified ("Migrant Death Mapping").

[9] See Butler: "In other words, 'this will be a life that will have been lived' is the presupposition of a grievable life, which means that this will be a life that can be regarded as a life, and be sustained by that regard. Without grievability, there is no life, or, rather, there is something living that is other than life."

[10] In an email exchange with Marco Williams, he proposed the following question: "Since the deaths are a result in no small part of the United States policy, should the U.S. Government be charged as a perpetrator in these migrant deaths?" While the legal aspect of this question exceeds the scope of this article, Williams's observation compellingly invites us to consider how we define "responsibility," and how the act of feeling the loss of the distant "other" might not be the

point of arrival but rather the point of departure from which political, social, and legal demands must be acknowledged and addressed.

[11] The introduction of NAFTA in 1994 allowed for multinational corporations from the United States to use maquiladoras (foreign assembly plants), which are primarily located in the Northern area of Mexico. The role the industry of the maquiladoras has played in creating conditions that have caused and/or intensified the various forms of violence against women—and the deaths resulting from them—is analyzed in detail in Sergio González Ramírez's *The Femicide Machine*.

[12] According to CorpWatch, Hewlett Packard, Motorola, Phillips, and IBM are among the companies that have maquiladoras in Mexico.

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Mourning Absence: Place, Augmented Reality (AR), and Materiality in *Border Memorial*

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Abstract

Thousands of migrants have died trying to cross the United States-Mexico border since the institution of Prevention through Deterrence in 1994. In the Sonoran Desert of Southern Arizona, migrants are intentionally exposed to dangerous environmental conditions that not only place their lives in danger but erase their deaths from public view. Many of these deaths are never publicly acknowledged or mourned, amounting to a pervasive and state-sanctioned crisis. John Craig Freeman's augmented reality piece, *Border Memorial: Frontera de los Muertos*, works to grieve for those who have been erased under the weight of American sovereignty at the border. The piece plots the places where migrant bodies were recovered and memorializes each migrant through a digital calaca. Using *Border Memorial* and its digital calacas, this article examines the overlapping anti-immigration systems that deliberately hide the deaths of thousands of migrants. Looking at *Border Memorial*, I consider the importance of place, the environment, and the materiality of digital memorials as essential to understanding how migrants are continuously unacknowledged and unmourned. Examined at the intersection of new materialism and ecocriticism, I consider how each digital calacas has an effect beyond the screen and radically shifts the desert space itself. *Border Memorial* is just one of a few digital art pieces that memorializes those lost in the desert, but the augmented reality app that hosted the piece is no longer available. While the piece has reached obsolescence, its approach to the material body, experience of place, and need for continuous mourning remain.

Keywords
borderlands, digital memorial, mourning, place, desert, materiality

Standing in the middle of the Southern Arizona desert, a cell phone pings. With the camera open, a calaca appears on the screen, floating above the ground directly in front of the cell phone; it looks like a found object in a video game—an item to collect and inventory. Lifting the phone toward the sky, the calaca follows, floating ever upward like a beacon. There's no sound, just the quiet of the desert. Or maybe there's highway nearby. The calaca remains floating from all angles, its seemingly 3D body shows the thickness of its bones—a skeletal smile (or is it a grimace?). When the phone is gone, the calaca is gone, but the surrounding space is different. The calaca was never really there, and yet it remains.

Under the strain of contemporary immigration policy, the United States-Mexico borderlands is a deadly site for migrants. Beginning with the 1994 policy, Prevention through Deterrence (PTD), thousands of people have died trying to cross the desert in Southern Arizona.[1] Marked by wildlife reserves and state parks, the desert borderlands are a remote but dangerous point of entry for many migrants moving into the U.S. Contemporary border policing, fixated on walls and other arcane solutions, works to protect major metroplexes along the border (i.e. Tijuana-San Diego, El Paso-Cuidad Juárez) and relocates the movement of migrations into increasingly isolated and dangerous areas. Since its inception, PTD has weaponized the desert environment and places hundreds of people in danger every year. However, given the remote location and political discourse, these deaths go largely unnoticed, unmourned, and silenced. Mourning in the borderlands raises questions about the visibility of grief for those who are forgotten or never found.

Created in 2012-13 by digital artist John Craig Freeman, *Border Memorial: Frontera de los Muertos* is an Augmented Reality (AR) piece created through the now obsolete app Layar that documents the places where migrant bodies were recovered in the Southern Arizona desert. *Border Memorial* identifies each site with a calaca (or a skeletal figured used to memorialize loved ones during Día de los Muertos). Each calaca is a digitized, almost cartoon-like skeleton, that hovers above the ground, serving as both a marker and representation of the person recovered at that particular site. Mediated by a cell phone, the calaca appears in the space directly in front of the user in real-time. The calacas are small, fitting on a cell phone screen, but they loom large through the technology depending on the user's distance. The calaca can appear as large as a human body or just a blip in the distance. They are both real and unreal, collapsing the expectations and experience of space, memorial, technology, and materiality.

This article considers the creation of place, the environment, and materiality in digital memorials. Looking at *Border Memorial*, I examine the shift from space to place as an essential part of mourning, particularly for a population that remains largely hidden by the desert and anti-immigration policy. I illustrate how locative technologies, specifically Augmented Reality (AR), aid in the creation of place by making visible new information, experiences, and landscapes. As such, I consider the dynamics of materiality at its intersection with place as the piece is both real and unreal, tangible and ephemeral. *Border Memorial* resists conventions of memorialization because the piece is simultaneously moveable and location dependent. The piece illustrates the continuous need for collective and communal mourning, not for specific people but in individual places. *Border Memorial* resists naming the individuals shown within the piece and instead emphasizes that human life is worthy of

remembrance regardless of specifics. Through GIS mapping, place becomes the identifier for each person as the seemingly empty desert is shifted under the continuous haunting of mass death at the hands of border policing. However, as of 2014, *Border Memorial* is no longer accessible, which raises questions about the obsolescence of digital memorials and what is lost when they no longer work in their intended form. Built to be experienced, the loss of *Border Memorial* shows the limitations of locative technology while illustrating the need for continuous mourning.

Border Memorial

John Craig Freeman, a public artist and professor based in Boston, MA, uses "emergent technologies to produce large-scale public work at sites where the forces of globalization are impacting the lives of individuals in local communities" ("About"). This approach to public viewing of global issues is present in many of his works that bring the realities of seemingly distant crises to the American public. Freeman staged an interactive viewing of *Border Memorial* at the MOMA in New York that replicated the Sonoran Desert via the Layar app. The interactive exhibit was temporary but used technology to move the desert to New York, making it visible to a removed population. However, in his accompanying statement of the piece, Freeman asserts the importance of memorial and awareness of migrants, stating that it was "designed for the citizens of the United States and intended to impact the formation of national identity by remembering the sacrifice which has been made on behalf of our shared values"(*Border Memorial: Frontera de Los Muertos*). Like the piece itself, Freeman is demanding the attention of the American public to recognize the problems of sovereignty, citizenship, and their participation in migrant death. Utilizing new technologies like VR and

AR, Freeman's work collapses the distances between the American public and global issues with the aim of inviting introspection, reflection, and action.

By making the Sonoran Desert visible in New York, Freeman emphasizes the importance of the environment within immigration policy. Prevention through Deterrence radically changed the American approach to immigration—shifting the focus from a seemingly passive form of enforcement to active policing (Andreas 5). The decision to push migrants into dangerous spaces relies upon the environment as "a tool of boundary enforcement *and* a strategic layer of border crossers" (De León 67). Navigating the desert is a harrowing experience requiring migrants to simultaneously avoid detection and survive the heat. *Border Memorial* honors those difficulties by focusing on each recovery site. The piece "uses geolocation software to superimpose individual augments at the precise GPS coordinates of each recorded death, enabling the public to see the objects integrated into the physical locations as if they existed in the real world" (Freeman). In this way, the piece "marks the landscape as haunted" and allows users to recognize and interact with "what surrounds them just beyond the edges of the visual" (Murphy 44). Using what Lev Manovich calls "augmented space," or "the physical space overlaid with dynamically changing information" (220), *Border Memorial* unearths the dangers of the landscape by memorializing both person and place. Unlike the exhibit at the MOMA, *Border Memorial*'s intended AR form was anchored in Southern Arizona and only accessible within that space. Videos of *Border Memorial* show how the phone pings when the user comes across a site where a body was recovered—the phone mediates the landscape and makes the unseen seen. Mapped on to the physical landscape, *Border Memorial* reveals what lies just out of sight, an "invisible landscape" that is only accessible through knowledge of the app, the place, and awareness of the border. Moreover,

Layar's obsolescence makes the app and the memorial within even more inaccessible. While the limitations of the piece are clear, the use of AR highlights what it means to recover deaths and how they are continuously silenced under new waves of border security. The violence of bordering often remains invisible and is only accessible to those already concerned and aware. But seeing each calaca breaks the silences that surround it and changes the landscape itself. The interaction between the real and the digital, the immaterial and the material, emphasize the power of the unseen.

Protected Spaces, Dangerous Bodies

The visualizations of *Border Memorial* bring the desert environment into sharper focus, showing the far-reaching and persistent crisis created by border policing. Visualizations show hundreds of calacas in far-off or hard to reach places in the desert—placed according to data used by Freeman, they reflect the isolated reality of migration. Many of these spots are in the middle of wildlife reserves, national parks, and other protected landscapes. The use of protected lands as a means of entry is part of how the environment "is invoked to make anti-immigration not just a national security imperative, but an ecological one. That is, immigrants are trespassing protected ecosystems, not just national boundaries" (Ray 140). Protected landscapes provide an additional barrier for border crossers as their isolation makes them largely invisible to policing and places them in constant peril. These environments doubly criminalize migrants because their movement through them is deemed illegal on top of their entry into the country. The desert is part of the attempted erasure of migrants—it is a barrier to their movement and often the cause of death.

Border Memorial does not explicitly highlight protected landscapes; there are no overt indications about the ways in which land is used against migrants, but its invitation to explore

the environment is predicated on users' legitimate access to that environment. In other words, the piece implicitly depends on the user's inclusion in the sovereign state to enter national parks and wildlife reserves. Citizens have relatively unquestioned access to these spaces, and the means to move through them safely.[2] With this, *Border Memorial* points to the many hypocrisies of who has access to the borderland's environment and the deployment of protected landscapes in the name of national security. As Sarah Jaquette Ray emphasizes in her book *The Ecological Other*, migrant movement is perceived as a threat to "a very modern view of the 'nation-as-ecosystem,'" which is reinforced through the creation of parks and protected landscapes (Ray 140). Presenting the borderlands environment as "pristine" and "untainted" makes migrants a continuous environmental and national security threat.[3] By placing the calacas in the places where they were recovered, *Border Memorial* makes visible the deaths of border crossers within the deadly landscape itself. In doing so, the screen mediates the environment, particularly that of protected landscapes, to show how they are continuously deployed against migrants and how those found in far-to-reach spaces are not often publicly mourned.

Places of Mourning

Meant as "joyous rather than mournful," each calaca is a celebration of death, but the sheer amount of them elicits far more grief than joy (Freeman and Auchter). Seen from videos on Freeman's website, the calacas overwhelm the desert—like an army of the dead. But the piece relies on the individual experience of interacting with the calacas, not necessarily seeing them en masse. The landscape shifts when each calaca appears on the screen, showing "an unseen layer of usage, memory, and significance—an invisible landscape … of imaginative landmarks—superimposed upon the geographical surface" (Ryden 40). The calacas are not

visible on conventional maps or even in the space itself without the use of the app. The space is lively with memory and haunting, bringing the user into direct interaction with the invisible landscape itself—making the user privy to the complexity of the space. Through the piece the user is invited into direct interaction not only with the migrants in the memorial but also material intra-actions that encompass place, environment, policy, and memory. *Border Memorial* uses technology to create a "web of relations" that encompasses "other humans and the more-than-human world, including the natural and built environments through which we move and to which we develop attachments" (Holmes 10). The calacas draw the user further into this web of relations, revealing the outward effects of the invisible landscape as both physical and immaterial.

Each death is not only visible but interactive and experiential. The landscape is lively with calacas, showing their materiality and bringing forth the human consequences of the border as an environment. The piece relies on the interplay between the physical environment and technology, created an "augmented space" that continuously brings forth new calacas as the user moves. This overlaying of space allows for the creation of place which "becomes vividly real through dramatization" or interaction and experience (Tuan 178). As Jason Farman writes, AR applications do the work of imbuing a "space with meaning, thus transforming a space by giving it a sense of place" (39). Locative media, specifically AR in this case, aids in the construction of place through the experience of seeing a dramatized symbol of death in the form of the calaca.

By using AR, *Border Memorial* disrupts the seemingly "abstracted, geometrical, [and] undifferentiated" space of the desert borderlands to expose the realities of violence (Ryden 37). Using a mix of real and augmented environments, each site is an experience and one that blurs

the lines between the digital and the material as the memorial is only accessible at the intersections of the physical and digital (Farman 87). The desert's seemingly desolate landscapes lends to it as a space that is a "blank surface on which areal relations, physical landforms, and social patterns are dispassionately outline" (Ryden 37). While some spaces in the Sonoran Desert are easily recognizable, *Border Memorial* undoes the presuppositions about the desert as a site of nothingness. Customs and Border Patrol benefit from the environmental space of the borderlands as blank and devoid of association as a tool of border policing. They often disguise "the impact of its current enforcement policy by mobilizing a combination of sterilized discourse, redirected blame, and 'natural' environmental processes that erase evidence of what happens in the most remote parts of southern Arizona" (De León 4). The emptiness and lack of "place" allows for the deaths of border crossers to remain largely invisible within social, cultural, and political structures.

Border Memorial's emphasis on place is possible because "mobile technologies are able to offer users new ways of visualizing information" (Farman 39). The experience of place makes it impossible for users to turn away from the heat of the day or the dryness of the air as they use *Border Memorial*—rather, it is woven into the very nature of the piece itself. By focusing on the locative aspect of AR, *Border Memorial* is built with the expectation that users will experience the environmental conditions that are deployed against migrants. As such, the desert is no longer just part of a large or abstracted space but a harsh and deadly environment simultaneously worthy of reverence. Each spot is no longer blank but part of a larger narrative of the borderlands.

The sites in *Border Memorial* are unnamed—each time the phone pings a new calaca is discoverable, but all of the calacas in the piece are the same. By focusing on the experience of

place, Freeman built *Border Memorial* based on specific locations rather than emphasizing the importance of individual names. The lack of names is a striking contrast to other memorials as identity is often anchored in the name itself—it is an essential tool for asserting the humanity of those stripped of their identity. Similar projects like Josh Begley's *Fatal Migrations* and Luz Maria Sanchez's *2487* focus on the importance of naming the dead. *Fatal Migrations* uses images aggregated from Google Earth to display the environment where migrant bodies have been recovered while *2487* is a digital sound piece that recites the names of border crossers at random intervals. Both pieces emphasize the importance of uttering and repeating a name as a continuous memorial and demand for humanity (Sánchez)(Alarcón). But the lack of names does not make the deaths in *Border Memorial* any less impactful. Rather, the piece challenges conceptions of grief and mourning by asserting that names are not the only structure through which to mourn. A central aspect of the piece is not the names of border crossers but the continuous silence that surrounds their material bodies. Each death is visible through the digital body within *Border Memorial* but, more importantly, through its connection to place. The continued focus on grieving names, dates, and other identifying information reduces border crossers to those identifiers, effectively obscuring the physical realities facing migrants. Consequently, migrants are distilled to the structures that reduce them to names in a collection, instead of an acknowledgement of the overlapping influences that resulted in the person's death.

Focusing on the importance of place upends expectations of a memorial and illustrates, as Jessica Auchter demonstrates in her analysis of *Border Memorial*, the violence of statecraft and the consequences of bordering. She experiences *Border Memorial* as way of thinking of the "impossible place of the migrant body in our own national imaginaries," arguing that the

piece "memorializes this impossibility by drawing attention not to the individual life lost, by naming it, as in traditional memorialization, but rather to the very impossibility of place itself" (Freeman and Auchter). The calacas are not about the name attached to each but the mass amounts of death that occur in a place that is essential to American sovereignty. Migrant bodies and movement are positioned as a threat to sovereignty: in terms of rights, the environment, and the consequence of porous borders. *Border Memorial* makes visible the loss of life directly attached to that American imperative that does not rely on names but the weaponization of the space itself. This awareness haunts beyond the limitations of naming by demanding interaction between the user and the calaca. This kind of interaction with each place makes the calacas felt beyond the limits of the name, drawing users into the impossible place and allowing them to interact with someone who is both there and not there. Naming is, and will always be, an essential part of mourning, but *Border Memorial*, like the deaths of border crossers, is entwined with the material realities of place and the environment.

Border Memorial invites users to mourn through the experience of place rather than the specifics of individual names. Users can move physically through the space of the borderlands, making each site where they stop to see, experience, and grieve noteworthy. In this way, the piece complicates conventions of memorial as each user is not seeing an individually identified calaca but experiencing the conditions of the real world in real time. Users are also experiencing individual places rather than one specific location identified as a memorial. By placing an invisible layer on the landscape, the piece is "fus[ing] history to location and [giving] that location significance" (Ryden 39). Of course, the border already has significance, but the piece suggests that the state should not be the only one crafting that narrative. *Border*

Memorial is not merely about seeing the calacas but the experience of standing in the same spot where a body was recovered—where someone died.

The Materiality of Mourning

By making visible the histories of the borderlands, the piece invites the user into a shared understanding of the contemporary realities of the borderlands. The piece itself does not necessarily create a "sense of place" that is based upon sustained interactions with each location but emphasizes the importance of place as a mode of memorial. Within this, *Border Memorial* challenges conceptions of memorial as many memorials, often plaques or statues, are deemed worthy of remembrance and are representations of loss that happened elsewhere or long ago (Blair 35-6). Rather, the use of locative technologies challenges what and who is grieved by making memorial moveable, interactive, and experiential. In turn, *Border Memorial* reflects the different experience of migration and the longevity of the crisis itself. The significant downside to this approach, as opposed to other memorials which are fixed in place, is the loss of the piece itself when the platform is no longer accessible. The loss of *Border Memorial* is not merely the loss of the app but the erasure of an entire memorial. Despite this, *Border Memorial* illustrates the possibilities of AR through the entwined nature of movement, technology, and the physical world. The piece's place-based approach works on the matter of the body through the senses and the experience. After the users put down their phones, leave the locations, and as the app fades into obsolescence, the places are marked and changed by mourning—visible or not.

Border Memorial localizes grief through the direct connection of the user to the site where loss occurred. AR collapses spatial and temporal distances by documenting the sites in real time, calling forth the materiality of the body through the digitized figure of a skeleton.

The calaca both betrays the technological limitations of the piece and is the point itself. Floating above the ground, the calaca is a digitally rendered object whose outline points to its imposition upon the landscape. It is both there and never there. Held within the phone, the calaca is anchored to the location and only made visible through the technology that produces it. The user's physical interaction with the phone is the link to making the calaca visible. Its materiality is "ontologically inseparab[le from] agentially intra-acting 'components'" (Barad 133). The ontology of each calaca within *Border Memorial* is contingent upon its intra-action with everything that surrounds it. The calacas are "real" because "reality is not composed of things-in-themselves or things-behind-phenomena, but of 'things'-in-phenomena" (Barad 135). The piece has real effects not because it continuously interacts with itself but because of its intra-action with the world outside the code. Put another way, as the user stands in the desert, they are interacting with the calaca who is interacting with everything around it. The calaca changes the landscape from a very human perspective, but the environment is haunted by legacies of loss. While the calacas are overlaid onto their surroundings, the users' interaction with the environment, the cell phone, and the calaca itself make it have real and material effects. The cascading effect of making the calaca appear shows not only intra-action of all things but how its effects are felt through a larger web of relations. Simply put, each calaca is relational in terms of geolocation software, the user, and the phone. But more broadly, the visibility of the calaca shifts the space and introduces the overlapping systems of statecraft as essential to placing the calaca there at all. Within this structure, mourning brings together the complexity of materiality, place, and intra-action.

Each user's interaction with a calaca leads to the digital exposure of a material body and, consequently, death. Despite the joyous intention attached to each calaca, they are

ultimately skeletons. The calacas are not people but a symbolic representation of the human form in its most basic physical parts. Not only is the skeleton both the beginning and end point of the physical human body, but it is largely reminiscent of different figures of death. Within *Border Memorial* the calacas are symbolic but also suggest a kind of voyeuristic representation of decay. To see each calaca is to see far more than memorial and creates the direct association between the bodies recovered in each spot and the realities of death. Moreover, the calacas are not accurate skeletons but skeletal figures with sharp edges, brown-white color shading, and an outline that approaches the edge of uncanniness. The calaca's materiality is felt through its visibility and notable through its intra-action that unifies the world around it. It is not flat but a 3-D object with contours and dimensions that add to its digitally rendered bones. The calacas are both real and unreal in exposing the human body and hiding the realities of death. They are seemingly physical, both in their representation and the ways in which they change and shift other bodies. Yet they are ephemeral, disappearing when the screen is gone and only reappearing when mediated by technology. The calacas clash with the real physical world on the screen behind them, drawing attention to the interplay between the real and the digital.

But the materiality of mourning is not limited to the interaction between the user and the phone; it continually manifests in the place itself. The desert is haunted regardless of the ability to see the bodies that have been recovered there. There are small and vibrant reminders of how the space is deployed and those who have died crossing it. In her book, *Vibrant Matter*, Jane Bennet writes about the political force of all matter, one that "runs alongside and inside humans" that is visible "if we gave the force of things more due" (Bennett viii). This is not to say that the people recovered in the desert are "things" but rather that their representation as calacas has far-reaching and continuous force. The vibrancy of the calacas is part of their

continuous intra-action between the user, the environment, and the technology that makes them visible. The people recovered in the desert are often reduced to dangerous matter, only made visible through their appearance in protected landscapes. However, *Border Memorial* highlights their vibrancy, or the political force of the bodies both living and dead, and makes it visible through the calacas themselves. This interweaving of real bodies with their digital representations changes the space, makes it vibrant and persistent under political pressures. The bodies are and always have been vibrant—they are "cultural forms … material assemblages with *resistant force*" that positions them as a continuous problem for the state, but more importantly lively and vibrant (Bennett 1). *Border Memorial* highlights this vibrancy, makes it continuously visible, but that vibrancy does not stop once the phone is put away. Rather, the space is changed under the vibrancy of bodies and remains that way through the need for continuous mourning. Vibrancy highlights the intra-action beyond the screen itself. Each calaca is vibrant, continuously affecting the user and those who interact with them, but more importantly this vibrancy leaves its mark on the space itself. Vibrancy is an essential part of the experience of shifting space to place; it is part of the dramatization that makes the place memorable and grievable. Moreover, each calaca is vibrant through its digitized bones because through its digitization each death has increasing political force. Through the phone, *Border Memorial* makes mourning tangible while showing the persistent violence of bordering.

Obsolescent Mourning

In enabling the work of mourning, *Border Memorial* captures the complexity of how a space is accessed, mediated, and experiential through movement and technology. Considering the place-based nature of AR, *Border Memorial* invites users to utilize the possibilities of the screen and the privileges of movement to see the realities facing migrants. A 2015 article

published in *New Media & Society* speaks to the promise of user-created AR pieces as a way for users to question "who has authority over space and to reconstruct political and historical meaning in place" (Liao and Humphreys 1420). In blurring the lines between the real and technologically mediated, AR has the potential to change human interaction with the physical world. AR allows users to complicate and add to the spaces that surround them in political, social, cultural, and historical ways. The article looks specifically at Layar, an app that "displays points of interests (POI), user-created annotations, graphics based on the Global Positioning System (GPS)" (Liao and Humphreys 1419). Launched in 2009, Layar was one of the first AR apps that allowed users to view and create their own Augmented Reality pieces (supported by both Android and Apple). However, Layar was purchased in 2014 by Blippar, a large tech corporation, and moved away from AR via phone technology to more commercialized software (augmented marketing materials, etc.). Layar hosted a wide array of projects including Museum of London's "Street Museum," which allowed users to see historical events overlaid on the streets of London, and MyBurb, created by the Australian Broadcasting Corporation (Hutchinson 38). These projects all point to the possibility of Augmented Reality as an educational and informative technology but now are all inaccessible regardless of location. There are, of course, many other apps that allow users to create AR pieces or experiences, but the loss of Layar points to the struggles of continuous mourning and technological obsolescence.

The end of Layar, like other now-defunct apps that stood on the brink of new technologies, points to the ways in which new media makes visible lingering and systemic issues. *Border Memorial* mediated and complicated the space of the borderlands through the experiential process of shifting space to place and simultaneously making visible the

continuous violence of a weaponized environment. The crisis in the borderlands is unfolding slowly and consistently while migrants disappear under the pressures of border policy, the environment, and anti-immigration rhetoric. The violence enacted on migrants is persistent and invisible, often not understood as violence at all but rather the natural consequence of using a hostile terrain as a part of border policing. *Border Memorial* not only made this violence visible, but its use of technology made it tangible and continuously felt. Users had the opportunity to grieve for the hundreds of migrants who died through the experience of place and the continuous intra-action with the human and non-human world. Layar's technological obsolescence erases this experience, but each calaca's possibility shifts the space through the continuous unfolding and becoming of the surrounding world. The deaths in the desert are not always visible, but their presence is continually felt and an integral part of the landscape itself.

Conclusion

All along the fences that line the United States-Mexico border are maps warning migrants about the dangers of entering the desert. The maps are dotted with the places where bodies have been recovered—there are thousands of dots. Like *Border Memorial*, the maps make visible the harsh realities facing border crossers and the weaponization of the environment in a search for stronger borders. In some ways the maps are analog versions of digital art pieces that mourn border crossers, but these will fade under the desert sun and decay as quickly as the bodies marked on the maps. Unlike the digital footprint of *Border Memorial*, the decaying paper leaves small remnants of what was once there—only to be replaced by another map. Taken together, maps provide a new way of seeing the lived reality of politics enacted upon the space itself. However, what the maps can't do and what *Border Memorial* makes visible is the matter of mourning. The use of AR shows how the real world and the landscape are as

essential as identifying information when it comes to understanding what is actually grieved. Matter is at the center of *Border Memorial* through the connection of the user-to-the-phone-to-the-place, but more specifically through the ability to materialize someone who is no longer there. *Border Memorial* works on the bodies in the piece and those interacting with the piece through a vibrancy that moves through the digitized bodies and is experienced repeatedly (now that the app is gone, this is still somewhat possible through digital maps and videos of the piece). Each calaca calls forth the material body, despite not ever materializing outside the confines of the screen. Moreover, when the piece no longer works, the matter of those bodies is preserved elsewhere while what remains continues to haunt the places in the desert. The effects of matter, especially in a crisis that is largely invisible, do not stop at the ability to see it but move through our ways of understanding the weaponization of certain spaces and the persistent effects of bordering. While *Border Memorial* is no longer in its initial and intended form, the digital interactions with the piece still highlight the complications of grief for a population that remains largely unmourned and unrecognized. Despite the realities of obsolescence, digital memorials provide a more encompassing picture of grief that push against exclusionary memorials which are often sanctioned by the state. Instead, digital memorials and mourning offer more interactive and dynamic narratives about who is publicly grieved and who is silenced. They provide different points of access than fixed memorials by focusing on overlapping systems that resulted in the deaths, rather than merely focusing on the names of victims. Consequently, the matter of *Border Memorial* remains because the desert is impacted by human interference, including the deaths of hundreds of migrants and their integration into the landscape itself. The material effects of *Border Memorial* don't end with

the piece but continue to press for a broader understanding of whose matter matters and whose grief is visible.

Notes

[1] Implemented in 1994, Prevention through Deterrence pushed migrants away from city centers an into harsher and more deadly terrain. The policy worked to keep migration invisible while simultaneously making it more difficult for migrants to cross into the United States. Enforced through Operations Gatekeeper and Hold the Line, ports of entry are militarized, making areas like the Sonora Desert more desirable for crossing despite environmental dangers. For more information, see De León; Nevins; and Andreas.

[2] Non-profit migrant aid groups have been criminalized for entering wildlife reserves and leaving supplies for migrants. These charges are typically on the grounds of littering and illegal entry into natural areas. As of the construction of this article, all volunteers have been acquitted.

[3] As Ray and others have pointed out, the imperative to create pristine landscapes often occurs by removing indigenous peoples from their land. Organ Pipe National Monument in Southern Arizona was created by removing the Tohono O'odham people.

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Searching for a Remnant in Pixels and Static: The Fleeting Materiality of Plane Crashes

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Abstract

Following the disappearance of flight MH370 in 2014, citizens, national governments, and agencies searched for acoustic and visual remnants of the plane in order to make sense of the tragic crisis. By turning to the physical and discursive remnants left in the absence of a plane, I argue that planes offer an insight into the role that materiality plays in a crisis, mitigating uncontrollable relationships between humans and their environment. This paper draws upon mass media coverage of the crisis in conjunction with recordings to recreate a visual assemblage of the impact of a missing plane in a globalized world. Extending existing studies of MH370 to conceptualize what a missing plane can mean for mediated materiality, I consider the relations between movement, the ocean, sound, and pixels in order to demonstrate how the material losses of a plane crash make material the networks and methods that connect us across the globe in their failure and absence.

Keywords

plane crash, disaster, broadcast, media technologies, news media

Introduction

As COVID-19 gained traction across the globe, plane travel was framed as one of the primary means of infection and spread between individuals and nation states alike (Nunes). Following

border closures of some countries and a decrease in passenger flying, planes were largely grounded. Planes not only came to symbolize potential infection but the very global mobility that facilitated widespread infection of the virus. Their grounding in socio- and geopolitical spaces of trade, migration, and tourism is such an anomaly that any airport which is typically categorized by a cacophony of industrial sounds is now eerily quiet. The enormity of both planes and of the airline industries has come to a halt at the time of writing, particularly in the author's part of the world—an island with its borders closed to its mainland country and continent, which also has its international borders closed to the rest of the world.

In this article I turn to a different plane—one that, for all we know, now only exists in material remnants and global imaginaries. By turning to the various traces of a missing plane, I seek to interrogate the material role that planes play in crisis, and how materiality functions in crises more broadly. If planes and the airports that disperse them symbolize the material international flows of people and finance, how have missing planes been understood? And, what does the emergency of an international plane's disappearance teach us about the role of materiality in the search for the resolve to a crisis that transcends geopolitical borders and occupies complex temporalities? This paper explores multiple aspects of the disappearance of one plane, Malaysian Airlines flight MH370, to reflect on how planes reflect understandings of data and disappearance, of mapping and search techniques, and the conceptualization of loss amongst geopolitical and social contouring of a landscape—both temporal and spatial. This paper uses the coverage and popular discourse surrounding MH370 to explore the relationship between technology and the natural world through the material iterations of a crisis, particularly in relation to sound and broadcast.

Malaysian Airlines MH370

On the 8th of March, 2014, Malaysian Airlines flight MH370 disappeared. In the process of travelling between Kuala Lumpur International Airport and Beijing Capital International Airport, the Boeing 777 carrying 239 passengers and crew vanished from sight and surveillance and has not been found since. Contact was lost with the plane less than an hour into the flight. There was no distress signal or message sent, and the plane's transponder was turned off as it crossed between the border of Malaysian air traffic control and Vietnam's airspace. A horrific and mysterious international incident captivating the attention of people globally, the disappearance of MH370 and other aircraft like it offer a rich entry point into the study of materiality in crisis. Following the disappearance, mainstream media and citizens across the globe turned to a myriad of tools and discursive structures to try and locate the plane and motives for its disappearance. How the disappearance and subsequent search was represented and understood offers a unique insight into the role that materiality plays in a crisis, and in navigating the relationship between technology and environment.

As the investigation developed, the broader public was informed of the relationship between planes, towers, and pings. We learned of automated information and manual communication and what the difference between the two means for understanding how the plane went missing and where it might be. The media coverage fixated as much on explanatory diagrams as it did on documenting the extraordinary grief and uncertainty experienced by the families of those missing. In the background sat the incessant speculation, buoyed by the joy of being a sudden expert, a sleuth (Robinson). Because of the rhetorical nature of much of the official announcements to the media, the ordinary viewer appeared to be being briefed as well. The nationalities of those on board, the mental health of the pilots, and numerous conspiracy

theories around terrorist plots to down the plane all gained traction with each data point shared with the public held up as evidence.

A geographic picture emerged over the days following the disappearance that extended between multiple countries, oceans, and flight trajectories. It's based on the last known traceable data from the plane from both manual and automated interactions, the weather conditions, and capabilities of the plane. In this time who can claim to be an expert is also slippery and contested. Who deserves the right to speculate on what happened to the people on board, and what work or education background is relevant in making these claims? No answers emerge, other than a series of 'most likely events,' pieced together from fragmented evidence and logic—and, at times, conspiracy (Richardson).

International flights are incredibly ordered and planned movements (Knorr Cetina), "where all transactions take place with a future goal in mind—safe landing at a projected destination" (Bremner 10). From the process of a passenger booking a ticket through to the disembarking and cleaning of the aircraft at the end of a journey, planes are highly regulated objects of movement. People on them who are either travelling or operating elements of the plane's features are subject to international mapping of data and the policies of the institutions that collect that data. That knowledge is not shared with everyone who partakes in travel, as that is seen as being a threat to security—but everything is recorded and, we are led to presume, cross-referenced.

What MH370 came to expose in part is the patchwork nature of these systems, which do not overlap seamlessly between national borders, and the time-sensitiveness to their relevancy. A plane crash or disappearance is a break down in the effectiveness of those systems to protect. As part of an unspoken contract, the privacy of individuals seeking to enter

a plane is mitigated in exchange for safety—the argument goes that the more is known about those on the plane, the safer all people will be. A plane crash is a material crisis of the ineffectiveness of those systems and a tragic evocation of the failure to meet that contract. A plane's disappearance has a slipperiness to its materiality, and an extended period of searching for an entire plane and later fragments further heightens the intensity of this breakdown as the search continues but nothing is found.

Despite being the most expensive search in aviation history (Bier et al. 159; "Considerations on Defining a Search Area"), MH370 is significant for more discursive reasons. As Bier et al. contend:

> … the mystery presents a unique inquiry into media coverage of a crisis because multiple nations are involved and there is no clarity about what happened to the flight: This is a crisis without a known cause and, thus, without an individual, organization, or nation to attribute blame. (159)

Thus, the crisis while being material in its impact, was immaterial in terms of its blame, or at least resisted that logic with no concrete evidence. Maximilian Mayer and Michele Acuto speculate that the search for MH370 is "one of the, if not *the*, largest search and rescue mission[s] ever recorded" (661). It involved "14 countries, 43 ships, 58 aircrafts" which resulted in a search that "mobilized coordinated analysis by states, private deep-sea exploration companies, the datasets of communications and satellites giant Inmarsat, all to identify the still-uncertain location of the wreckage" (661). At times during the search, the area was broadened to cover 1.5% of the earth's surface (BBC) before being narrowed again in the crucial time where a flight recorder would still be transmitting pings. Temporality and spatiality are entirely enmeshed in the material evocations of the crisis.

As Mayer and Acuto recognize, the search for MH370 brought into the public discourse a continuing and evolving conversation about the role and function of multiple niche technologies, typically contained to the realm of experts. This technology was also drawn upon in details of the traumatic impact the event had on families of the passengers.

> The search for MH370 assembled discussions of radar communications, aircraft-satellite 'hand-shakes,' deep-sea exploration thresholds, with those of international maritime borders, international rescue collaborations and even terrorism, with regional tensions between, for instance, China and Malaysia. Highly technical data, a plethora of 3D, GIS and geolocation maps, as much as scores of scientists and engineers, all took center stage besides the more familiar (to IR scholars at least) presence of ambassadors, spokespersons, CEOs and military personnel involved in the search efforts. Yet this is not a matter of sheer discursive presence. (662-663)

Anyone paying close attention to the disappearance through mainstream media outlets was exposed to any combination of these ideas and people. The governing apparatuses and informational networks that enable a plane to fly through the sky also can rapidly ground our untethered belief in their ability to function at all times. The failure of these networks, institutions, and objects makes material the relations between them, even though the plane itself remained immaterial until portions of it later washed up on the shores of remote islands.

Turning to more explicitly material concerns, Sophie Day and Celia Lury deploy "surfacing" in the visualization of MH370 as a way to reference how "relations of observation are constantly shifting, implying and sometimes precluding points of view, and providing ever-changing conditions for visibility and invisibility across situations" (53). Visualizing or searching often produces new objects while making something visible. The various ways in

which the plane was searched for and represented offer perspective into how the crisis was visualized or brought into being. The availability of satellite imagery to people in their homes—which didn't even necessarily represent any area that the plane had actually been in—created new compositions framed through their relation to the crisis, changing the nature of the pixels encountered to be the potential resting place of a few hundred people and the answer to a mystery.

For Day and Lury, the disappearance itself is the result of a *double blind*—the 'blind spots' that we cannot see, enigmatically described by the authors as "gaps, corridors, or out-of-focus patches" (57). That is, between the various maps and systems of surveillance, a plane was able to wind in and out of sight. They write:

> The disappearance revealed that there are edges … in today's apparently boundless surface of visualization, even if we do not always know where they are or how they operate, where or when we might fall into a crevice or over an edge. (57-58)

How are these edges or corridors visualized or understood, and what practices and objects emerge from our exploration into them? Is this where the crisis exists, a material object shrouded in both visibility and invisibility? While the search continued for MH370, the plane was highly visible in our imagination and in the constant searching for material traces, but absent in the physical sense and entirely unlocatable for years. The fragments that we can piece together of the plane and the journey make visible all of the methods and systems of communication that enable flight in the first place, and therefore, materialize the ways individuals and states are connected through mobility, and how that mobility can break down into sheets of metal.

Static: Searching for Sound

The sonic materiality of planes and their disappearances is a crucial, and underdeveloped, element to understanding the relationship between technology and environment in moments of crisis. Planes are equipped with multiple methods of sonic communication that are both automated and manual, designed to avert or lessen crisis. The flight recorder, or black box, is popularly understood to be the key to answers about air crisis, and in the case of MH370, it became clear that the window to find a black box is quite small—around thirty days or when the battery runs out, whichever comes first. If a black box was to hold the answers for how the plane went down, this potential was negatively mitigated by the realization that unlike many other things in contemporary society, access to a black box and the information it holds depends on *physical access*. Without knowing where the plane was, the black box was a concept—ethereal and unlocatable, knowledge without transmission. The black box for MH370 presumably remains on the ocean floor somewhere, rendered useless by time and the expiry of its beacon, a material remnant of a past answer to a question that remains open. Closure is now inaccessible both temporally and spatially.

While the role of unanswered broadcasts from the black box has been addressed by Lindsay Bremner in relation to the materiality of the ocean specifically, I want to extend this discussion to use this example to think about mediated representations of loss and obsolescence, and the limitations of the materiality of objects such as planes to adequately represent the past. Just as the depths of the most remote parts of the ocean are unlived by humans but are imaginable, so too are the horrific last moments of people on board a plane aimed toward the ocean. While the mass media turned to whatever traces of human interaction people who were onboard MH370 had, the audience is left to imagine and calculate the toll of

this loss not only on those left behind but those who experienced the descent of the plane. The fragments of information that help to pinpoint the plane also offer the last broadcast from those who lost their lives in this crisis; the broadcast handshakes and pings offer embodiments of last breaths and goodbyes. Without drawing upon any specific person on the plane or minimizing the extraordinary grief and unimaginable horror felt by those who have lost loved ones on this flight, I want to turn to the broader impact of automated or failed broadcasts from crises, and use these broadcasts to frame further explorations of the materiality of the plane, from satellite imagery to fragments.

In a time where traditional broadcast media is evolving in its reach and uses, the idea of a flight recorder capturing conversations or knowledge is captivating. It is captivating not only for its content as it answers many pleas for explanation but also because of its conditional materiality. The increasing ubiquity of media on demand is not applicable here. Instead, the broadcasting black box losing its battery is reminiscent of older affects and practices such as a telephone call ringing out in a public space, utilized as a trope for loss or mystery in films and television shows. Not only that, but it brings to bear the role the ocean plays in the delivery and failure of our communication systems. Underwater cabling unites states and countries in communication networks—invisible until their failure.

Using liquid metaphors to describe communication technologies as oceanic is something that came about with the invention of wireless telecommunications (Sconce 14). The airwaves that connected disembodied voices between telephones or radios seemed to counterbalance the dominant narrative that media connects, with some characterizing the wireless as "hovering in the ether, not as a community, but as a lonely realm of distant and estranged consciousness, a vast ocean where the very act of communication reminded the

operator of his or her profound isolation" (Sconce 14). Once the handshakes of MH370 became partial and then stopped altogether, a black box and flight recorder presumably lay at the bottom of the ocean releasing unheard pings for thirty days. This lonely journey contained the voices and data of those hideously taken from their planned utterances, unable to make it beyond the vast density and distance of the ocean to share what really happened aboard MH370. Instead, the sonic materiality of MH370 is one of silence, of static. In the absence of sonic materiality—which would provide answers and closure as it can truly encapsulate and communicate the past—the search expands in its scope and interest, all with the intent of locating noise in amongst silence.

An Ocean of Noise: The Sonic Materialities of the Ocean

Planes carry two types of recorders, both of which are typically referred to collectively as a 'black box': the cockpit voice recorder and the flight data recorder. Neither of these is distinctively black—in fact, the flight data recorder is typically more brightly colored to allow a greater chance of it being found—but both emit pings for thirty days after they have been part of a crash, including from the bottom of the ocean.

Crucial to the search for sound and physical aspects of the plane was the ocean. The ocean's currents not only acted as an agent in the dispersal of parts of the plane, but it concealed the likely end point of its journey. Following analysis of acoustic pings, the surface area of the arc through the Indian Ocean was explored extensively before the parameter of the search changed. The Australian Government, in collaboration with Malaysia and China, coordinated the widespread search of an incomprehensibly large area of the Indian Ocean—approximately 120,000 square kilometers (Pattiaratchi and Wikeratne).

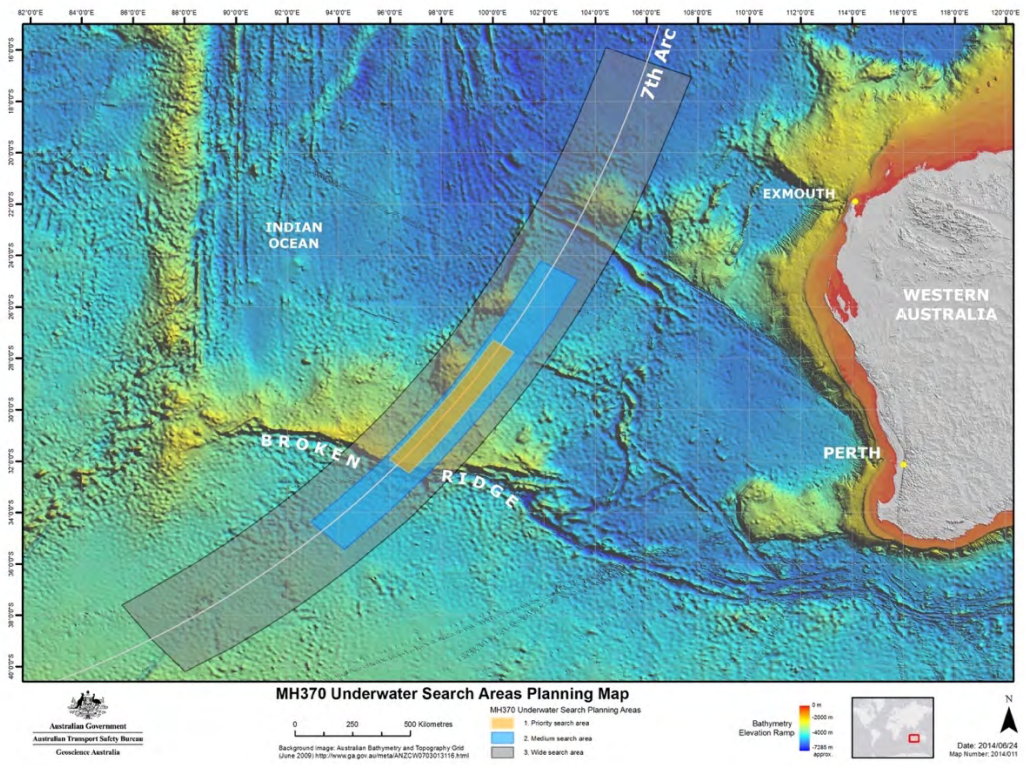

Fig. 1. MH370 Underwater Search Areas Planning Map ("MH370 – Definition of Underwater Search Areas").

It was not only the vastness of the ocean in terms of width that was being imagined in popular media but also the barely evoked ocean depth—which for much of the search area varied between 2000 and 4000 meters. The topography of the seafloor became part of the media narrative and a rich if unseen site for speculation. Mirroring the landscape above the surface, the floor of the ocean is replete with valleys and peaks; we learnt a new topography through the experts on television, one that is only made available through crisis and loss. The search for MH370 revealed new information about the ocean floor, which prior to this expensive and time sensitive expedition was limited (BBC). During the initial deep-sea search period, the search was routinely narrowed and then broadened following new analysis from organizations involved in the search, including the Australian Government, following

particular “acoustic signals” that it was hoped belonged either to the flight recorder or some part of the plane’s remainder. Later in 2014, a Dutch owned ship and a Chinese survey ship both undertook mapping of another portion of the sea floor in order to see if submersible vehicles would be able to be sent safely down.

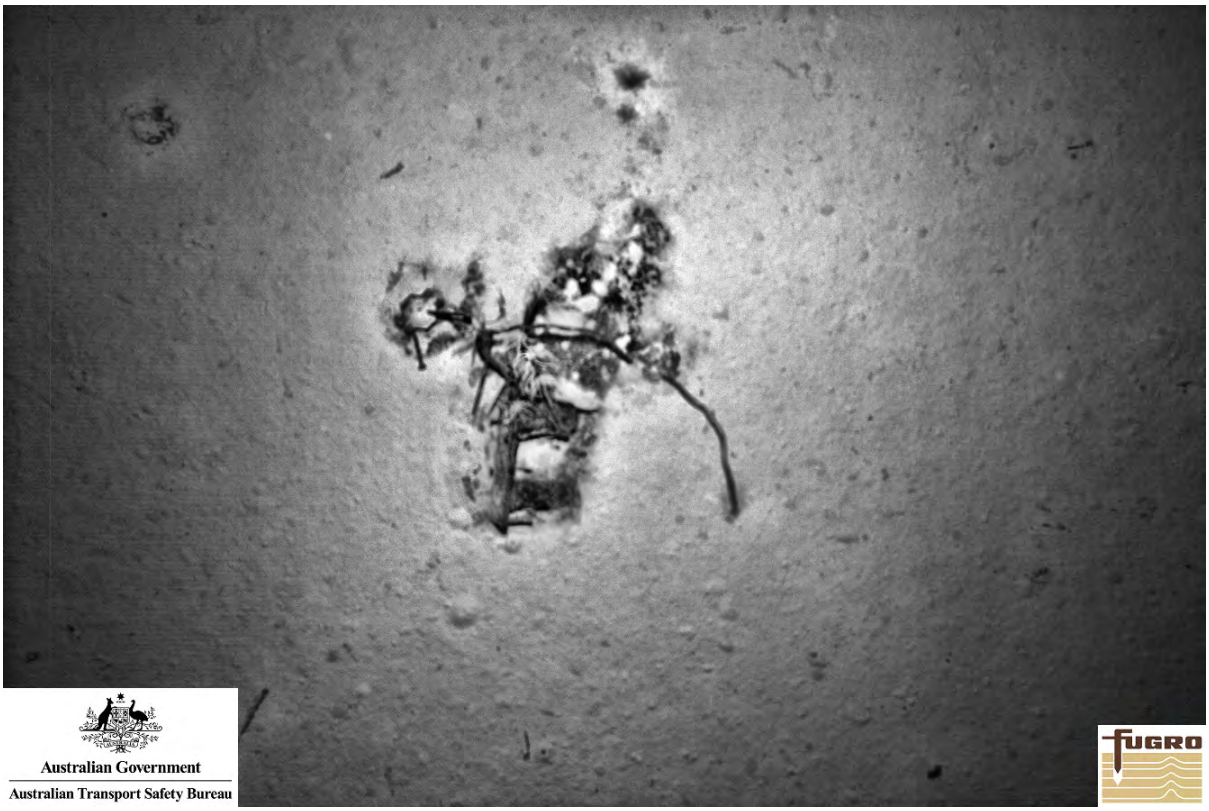

Fig. 2. Unrelated Debris Mapped on the Ocean Floor. (“MH370 Dataset: Shipwreck Photos”)

The unanswered pings that are broadcast by the black box on the ocean floor are not made for human ears. These pings are emitted at a frequency made for other technologies to find them, under dense water, kilometers from the surface. In 2014, when searching for the black box was a matter of urgency, six recordings were made of ultrasonic pulses similar to a black box. The Australian Defence Force released videos to accompany those recordings, as

Bremner explores, visually translating the sounds into wavelengths that were reminiscent of heartbeats (17). It later became apparent that these sounds did not belong to the black box but were likely either an echo of the search ship itself caught in a feedback loop or other parts of the ocean including marine life or debris, which Bremner argues is part of the "increasingly urbanizing marine environment":

> Not only had the ocean been shown capable of lying and the instruments used to listen to it proved faulty and prone to error, but the screen-based media that filtered and translated their data had been shown to be cruelly deceptive. Its effect was not a reduction of uncertainty in the face of disaster, but its magnification, increasing the feelings of anger and helplessness in families of the crash victims and affirming, more generally, the 'dangerous threshold of existence' in a contemporary world where survival is increasingly dependent on such remote sensing technologies. (Bremner 17)

This devastating blow meant that those heartbeats were silenced. In the following weeks as many claimed to be cornering in on the location of the black box, major media outlets started to explore the depth of the ocean in greater detail, trying to create a visuality and materiality to an impossibly large, invisible mass of ocean. As Bremner explores, this took the form of comparing the ocean's depth to the World Trade Center towers, the Washington Monument, and other buildings. This infamous diagram in the *Washington Post Online* was replicated across other media outlets—an attempt to reorder the ocean into life inhabited by humans, where human logic can impact the outcome of a crisis.

The ocean was also responsible for the distribution of the material elements of the plane that had become untethered to the bulk of the aircraft. Over the years following the disappearance, materials that have either been directly attributed as belonging to MH370 or

another unidentifiable plane have been found on multiple shorelines. For those living in coastal areas, foraging metal could have led to a material discovery of the plane. Mapping the potential movements of debris, before the confirmed discovery of part of a wing in 2016 on the West Indian island of Reunion, involved tracking the past through the ocean's currents as well as speculating on the past's wind in largely unchartered waters (Green).

Bremner's rich and poetic work analyzes how the search for MH370 uncovers the "unassailable materiality and opacity of the ocean" (8). Through a study of the "apertures into ocean space"—seven satellite pings, debris, and six underwater sonic recordings—Bremner thoughtfully includes the temporality of the material qualities of the ocean and the plane's entry into and out of it.

> The clues took the search into a remote part of the ocean where land and land-based material, experiential and legal frames of reference receded together. The power and agency of a vast, little known, intensely mobile ocean come into play, stretching to the limit and ultimately confounding all attempts to call it to account for the aeroplane's disappearance. The aeroplane's ongoing invisibility provided a privileged, if tragic, moment to see beyond a world constructed by humans and to get a little closer to understanding the properties of the ocean itself… (Bremner 9)

Like a puzzle of pixels that came to represent an opaque cover on an entire world below, those searching satellite images were not able to materially *see* the ocean, but instead were called to look for debris or shadows of objects belonging to human life outside of the water. The surface of the water was instead more akin to a field, broken up into grids and then pixels, not dissimilar to the methods used in archaeology to dig up relics from the past.

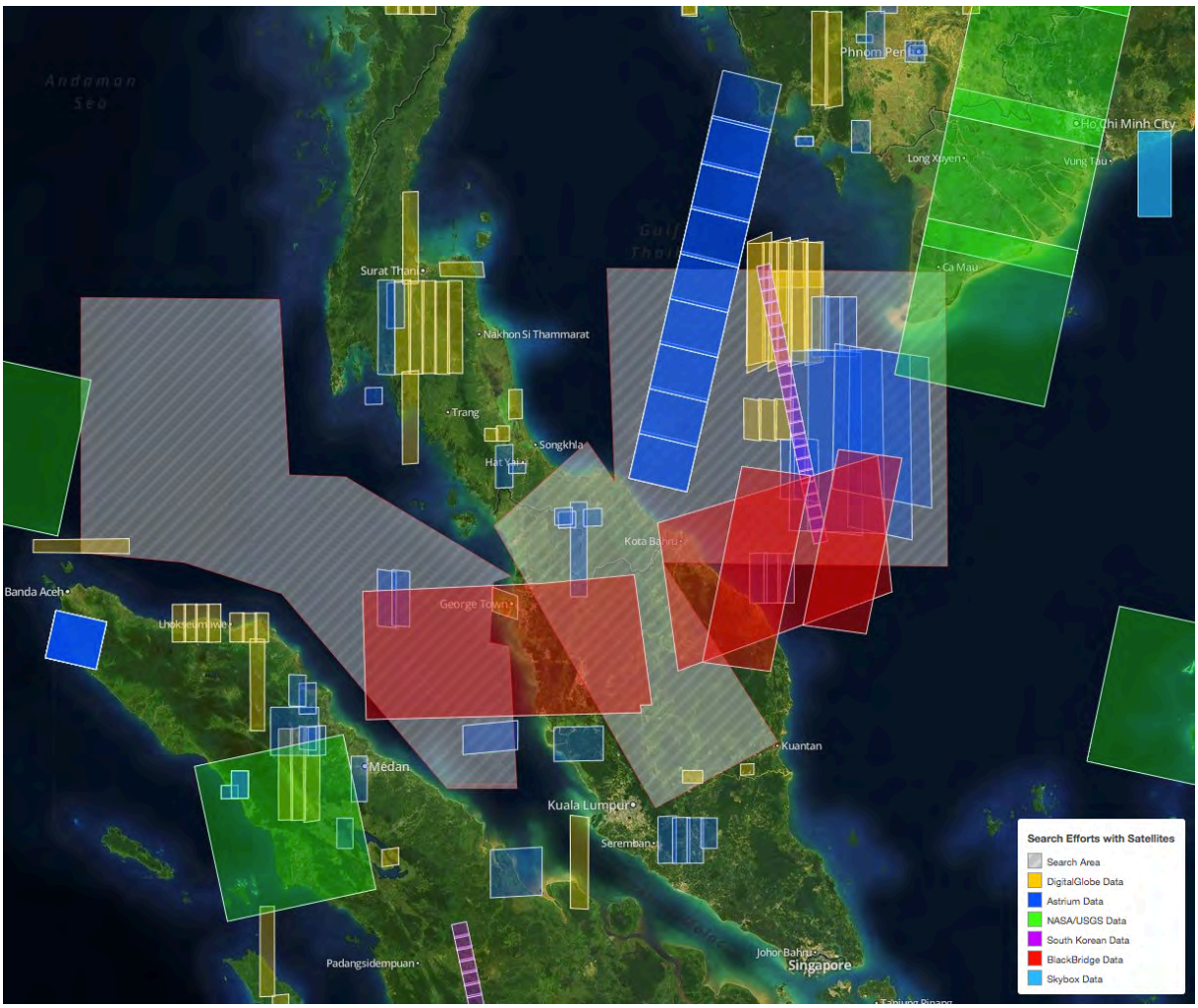

Fig. 3. Search Efforts from Satellites from Space, Mapbox 2014, Creative Commons 2.0.

Similar to archaeological digs, the process of searching for the plane uncovered many other objects that are found in the ocean due to human interference: namely trash from fishing expeditions. As Bremner argues, "MH370's ongoing invisibility … made visible … the sheer volume of trash in the ocean and how geo-physical materialities, forces and rhythms have been appropriated and transformed by globalization and consumerist culture" (15); part of the lifecycle of an object could now be included in the search for a missing plane, relics of consumption alongside something so tragic and unrepresentable. The trash created by and

discarded by humans was a visible presence in the media coverage of the search operation. If, as Brian Thill argues, waste is "every object plus time" (8), the "more than human" materiality of the ocean imprints itself on objects it comes across, weathering them and changing their value. Without the knowledge that a piece of metal is from a potential plane crash, without the logic of a nearby border or search team, crucial parts of a plane crash become potential fossicked bits and pieces for a beachcomber—placed inside a different order of value.

Pixels, Satellite Imagery, and Discursive Landscapes

The MH370 search turned attention to all spots of the globe but specifically those highlighted as the most likely end points for the plane: areas based on vectors stemming from analysis of a combination of space and time, and in some cases, areas chosen based on politics or conspiracy. Beyond the searching by military and scientific teams, there was a fractured crew of people searching via Tomnod, a crowd-sourced project run by a US-based satellite company that is no longer in use. Tomnod provided satellite imagery to be searched by people in their homes, and the service gained notoriety for its use in the citizen-fueled speculation of where MH370 landed. It was also used in the mapping of refugee camps in conjunction with UNHCR, where before and after images became central to mapping humanitarian crises. In this case, the satellite image not only frames the material remnants of a crisis, but it becomes a material aspect of the search and its affect.

Brooke Belisle discusses the role of materiality in Google Earth, a similar but more user-friendly, explorable mapping service, as being part of a long history of attempts to represent a coherent version of the earth, that "render[s] the whole Earth visible" (114). As Belisle identifies, the approach to the Earth as a searchable or scalable model has also been a part of photographic and cinematic history that can be seen in the "cosmic zoom" of films such

as the Charles and Ray Eames' *Powers of Ten* that "integrate a planetary overview with a close-up on the ground" (114). These aesthetic and narrative strategies are at play in Google Earth, which not only utilizes the 'cosmic zoom' but places the user as an interactive navigator of the Earth—available in its entirety to a user, and navigable according to their whims or desires.

The cosmic zoom is arguably at play even in the more institutional search techniques deployed by relevant agencies. The search for debris in the ocean first began in space (Bremner 13), where satellite technologies, as well as buoys in the ocean, were drawn upon as data gathering resources to piece together where the plane might have ended up. In this case, a commercial US-based satellite operator

> … expanded Tomnod its digital crowdsourcing platform … to engage the public in the search for the missing plane. Satellite imagery of the ocean's surface was uploaded to the Tomnod site; alerted on Facebook when new imagery was available, amateur data analysts were able to view it and tag potential signs of wreckage by dropping a pin into a satellite map. A crowd-rank algorithm then identified overlaps in tagged locations before they were investigated by DigitalGlobe analysis. (Bremner 13)

One of those amateur data analysts included the musician Courtney Love, who posted an image of the ocean near Pulau Perak with annotated diagrams pointing to potential oil and the plane with her initials (Newman). Posted with the caveat, 'I'm no expert,' Love was met with ridicule and derision over the post.

For someone searching for a plane in the ocean, the cosmic zoom might be a little different than the Eames' envisaged in their film. Choosing a search area was the first task for a potential plane finder. As mentioned earlier, the zone of pixels coming into focus while the

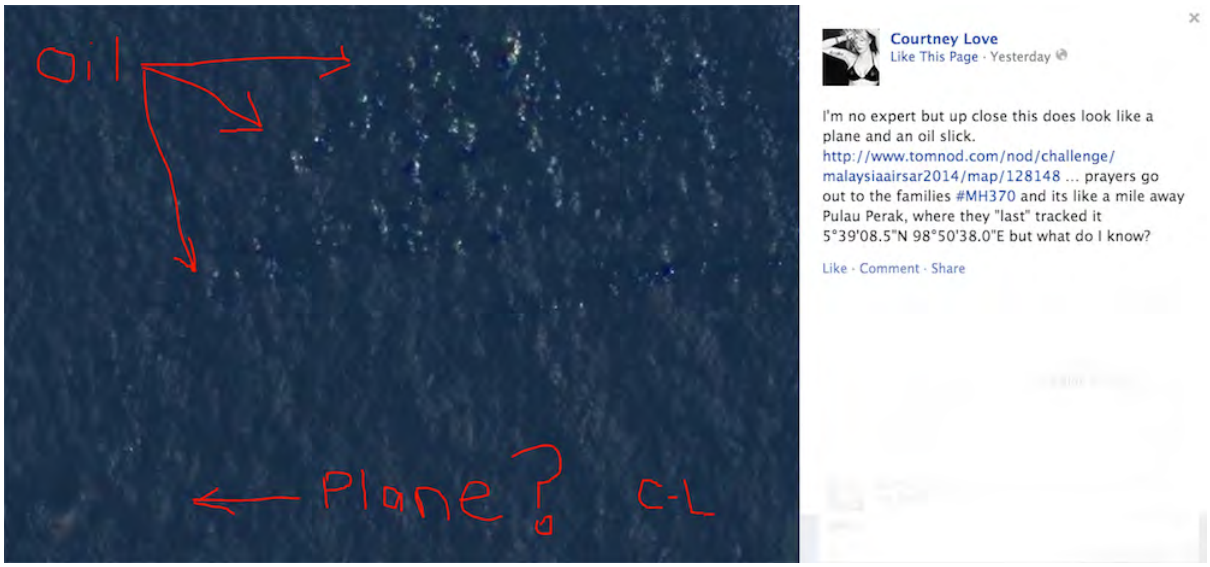

Fig. 4. Courtney Love's Facebook Post (Newman).

navigator clicks in the direction of their choice, searching for anything reminiscent of a plane, involves looking down onto landscapes. Users scour the online representative earth searching for fragments of the plane, of oil slicks in the ocean, or of any sign of what could be or belong to an aircraft. The pixels of the vast ocean, the sand stretches of politicized deserts and sand banks, and suspect forest canopies all seem to become the one place with each zoom into abstraction. Planes are sought out within squares, not places. The immediate differences in hue are visual guides to what political or social ordering has been mapped over the pixels by its searcher—green squares are perhaps aligned with Rupert Murdoch's theory that the plane has been intercepted by terrorists and is being hidden (Malik); blue pixels might be annotated by Courtney Love. While the squares may be abstracted by the limits of satellite technology at that point in time as to their clarity, they are not free from geopolitical maps and terrains.

Fig. 5. Still from *Powers of Ten*, Charles and Ray Eames, Santa Monica, CA: Pyramid Films, 1978.

Julia Sonnevend found that discussions of technology and data featured heavily in media coverage of the crisis—collectively, more than many other topics, including information about passengers or the pilot or of global collaboration to find the plane. Explanations of the technology used on board and to locate the plane became central to the popular reporting of the tragedy. Despite the fact that locative or communication technologies did not offer an explanation as to how or why the plane disappeared, explanations of the power and precision of locative technologies were seen as crucial to understanding how the plane would be found. It also offered an entry point into familial grief, with family members of the missing exclaiming their disbelief (with us all) that despite existing in an era of surveillance, a giant plane could go missing.

> "I don't understand," Mr. Zhang said over the sobs of relatives. "We have all the technology in the world these days, and how is it that we can't locate them? GPS, phones, everything is so developed, and yet we can't find our families." (Burkitt et al. A10).

MH370 was the first major missing plane since the widespread inclusion of internet-enabled mobile phones, tablets, and laptops. Making the safe assumption that most if not all on board had at least one of those devices, none of these technologies offered a trace as to the whereabouts of the plane. Between what limited data existed of the last known movements of the plane and those aboard it and the knowledge of the *extent* of the technology available to all passengers and crew, there was a palpable disjuncture concerning the promises of technological advancement and its reality. Arguably, the fact that surveillance technologies make us findable is one of the counter points to constant tracking and tracing of our movements. What other corridors can we go missing in?

Sonnevend offers a useful depiction of the temporal layers of speculation at play in the mainstream media coverage of the event, and of institutions, punters, and journalists seeking answers to a mystery that wasn't able to be clearly defined. But what of its material layers? Returning to the notion of before and after images, materiality in satellite images becomes a form of evidence. Before and after images—which have a long history that predates air emergencies—are designed to show the material changes for a political or discursive purpose.

> The contemporary prevalence of before-and-after images shapes our perception of the world. It certainly opens up a new dimension in shifting our attention from the representation of the human agent to representations of territories and architecture, which also turns spatial analysis into an essential political tool. However, the crucial

> thing in before-and-after images is the gap between them, and these gaps resist easy interpretation. (Weizman and Weizman 11)

Eyal Weizman and Ines Weizman refer to this as a type of archaeology, but an archaeology of "the present," that builds a past "based on an analysis of images and the way those images are composed in the pixels" (24). For those searching satellite images looking for evidence of a plane, a recent past is one made up of material elements as evidence of action and relation. This materiality is not only made up of parts of the plane, but in the ocean that distributed its remnants, and the sonic layers of the crisis—which include silence.

Conclusion

As COVID-19 made its way across the globe, corridors were closed off to travel, cruise liners were left out at sea with passengers aboard, and planes were reimagined as potential sources of outbreak. COVID-19 and MH370 alike demonstrate how movement and travel can morph from mobility and access to emergency and crisis. Searching for widespread remnants of an emergency not only involves traversing geographic and social borders but also temporal, sonic and material ones. By reading a combination of fragments, sound, space, and time—in a mediated archaeological dig—it was hoped that the mystery of MH370 could be solved. Each element of the potential mediated remainders of a crisis event also serve as a reminder of the obsolescence of our technologies entrusted with the largest of tasks in ensuring that human life is safe. The loss of sound and objects demonstrates a broader loss in our safety and the faith that we put in our own material creations to mitigate emergencies. Central to understanding both the role of plane crashes in discussions of emergency, and in understanding materiality in emergency, is broadcast. Not only is broadcast representative of the various technologies that intersect in our very global mobility, but its unanswered pings and unanswered transmissions

help make the vastness and depth of spaces we find difficult to materialize as knowable. Crises such as plane crashes also provide a critical understanding of how we conceptualize the furthest points of the globe and the networks and communications that connect those points together. In their loss, obsolescence, and disappearance, remnants and static become material evocations of failure—a failure we are forced to piece together from possible objects and sounds in temporal and spatial imaginaries.

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Alpine Topographies of Loss: On the Media Temporality of Glaciers

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Abstract

Arguing that the materiality of Alpine glaciers was linked to notions of emergency and greed long before discussions of anthropogenic climate change, this article focuses, on the one hand, on complex tempor(e)alities of glaciers, and, on the other hand, on the question of how they and the fact of their disappearance become aesthetic. Of particular interest are thus not only the historical bodies of knowledge trying to make sense of glaciers in various ways but also artistic projects that reflect upon their vanishing during what has come to be known as the Anthropocene. To that end, the article first looks at the local knowledge about Alpine glaciers at the time around 1850, now considered the tipping point of global glacier mass balance. Based on three case studies, the article then discusses the different ways and dimensions in which glaciers of the European Alps are *becoming media* and how techniques of surveying and mapping transformed them into rationalized objects of scientific interest, increasingly devoid of agency. Countering the hegemonic view of glaciers as pervasive yet remote icons of climate change and symbolic thermometers of a planet in crisis, a more complex perspective is presented, building on recent discussions in media studies.

Keywords

glaciers, Alps, climate change, deep time, geology of media, topography, Anthropocene

In the face of climate emergency and other ecological crises, media and cultural studies have increasingly opened up to ecological questions, discussing the dimension of deep time as one

of the major categories of an aesthetics of the Anthropocene. In his book, *A Geology of Media*, which was pioneering for the media studies variant of a broader *geological turn*, Jussi Parikka pleaded to draw attention to how, on the one hand, media technology places us in a cognitive, practical, and affective relationship to the earth and thus enables us to observe, measure, and control its processes. On the other hand, he reminds us to take the geophysical materialities of mediation into account. Building on this approach, this paper examines the complex materialities and temporalities of glaciers in their function as "natural 'media' of historical topographies" (Elsaesser). Like the media technologies in the narrower sense that Wolfgang Ernst discusses, glaciers have their own "tempor(e)ality" that also leads to "almost traumatic irritations of the human sense of time" ("Tempor(e)alities" 144). Thus, this article asks how glaciers and the fact of their disappearance become aesthetic in a double sense, or, put differently, how glaciers are *becoming media* (Vogl).

Of particular interest in this context are not only the historical bodies of knowledge trying to make sense of glaciers in various ways (be it Western scientific or local indigenous knowledge) but also artistic projects that reflect upon their vanishing during what has come to be known as the Anthropocene. Such artistic reflections are particularly insightful when they transcend the traditional stories of modern adventurers in a threatened and menacing wilderness (as shown, for example, in the film *Chasing Ice*) or the simplistic staging of the melting glaciers as symbolic thermometers of a planet in crisis (Carey et al.). There is a rich body of research in media studies and environmental humanities to draw from for this article. Recent studies have dealt, for example, with the cryopolitics of a melting world (Radin and Kowal), with ice as a medium of materialized weather (Randerson) or as an arctic archive (Frank and Jakobsen), and, of course, with representations of vanishing glaciers in the visual

culture of the Anthropocene (Schneider, "Zeit im Bild"; Garrard and Carey). The performative dimension of melting ice has been studied (Reiss) as well as its specific soundscapes and the way these are employed by artists like Katie Paterson to bring climate change closer to our quotidian experience (Parikka 70).

While most of this research focuses on the Polar Regions, this article will restrict its perspective to the European Alps. Although more than 99% of the earth's ice is stored in the ice sheets of Greenland and Antarctica, and the melting of Central European glaciers does not immediately threaten to raise sea levels, the Alps were the region where glaciology as a scientific sub-discipline of geology was established and where scientists first conceived of glaciers as materialized "streams of time" (Forbes 22). Thus, I will first look at the situated knowledge about Alpine glaciers at the time around 1850, now considered the tipping point of global glacier mass balance. Then, I will discuss various ways and dimensions in which glaciers are *becoming media* and how techniques of surveying and mapping transformed them into rationalized objects of scientific interest. After being regarded as efficacious geomorphological actors for a long time, glaciers are discussed more recently as devoid of agency and as simple gauges for global warming. Concluding, I will look at British photographer and media artist Dan Holdsworth's project *Continuous Topography* that, as I will argue, provides an alternative perspective.

Once Upon a Time, the Legend Goes, There Were No Glaciers Anywhere

For his *Naturansichten aus den Alpen* (*Nature Views from the Alps*, 1851), German travel writer Johann Georg Kohl collected the accumulated knowledge of his time about the Alps, including local legends and myths. As the most widespread of these myths, he describes the tale of a 'golden age' when there were no glaciers, and even the highest mountain slopes were

lined with fertile green meadows (317). The publication of Kohl's book coincides with the first photographic evidence of the Alpine glaciers and the beginning of another golden age: in the 1850s, Alpinism recasts the mountain peaks as a fashionable sporting destination. Most importantly, however, the period around 1850 marks the last peak of the expansion of the Alpine glaciers and the end of the so-called Little Ice Age. During this relatively cold period, the advance of the region's glaciers repeatedly threatened higher-lying settlements and pastures and sometimes resulted in dramatic flooding.

Despite their crucial role in regional water supply, the European glaciers were considered eerie and inhospitable places for many centuries. Before they became the object first of scientific and then touristic interest in the 18th and 19th century, respectively, people avoided them whenever they could. Local Christian belief once equated them with Purgatory: trapped in the eternal ice, the densely packed souls of dead sinners wait in agony for their redemption while the stream of their freezing tears lets the ice masses grow steadily. Local knowledge thus linked the materiality of glaciers to emergency and crisis even when the idea of global warming might have seemed more than welcome. In the tales collected by Kohl, the ice masses' unstoppable growth represents a heavenly punishment for greed and hubris of the Alps' inhabitants. In 1678, the Fiescher Valley residents made a vow to Pope Innocent XI to hold an annual procession and pray for the retreat of the Great Aletsch Glacier. In 2010, after an urgent petition, Pope Benedict XVI finally gave them official permission to rededicate their ritual and instead ask for rapid regrowth of the now acutely endangered ice formation. By 2000, the Alpine glaciers had lost more than half of their 1850 size, and the decline has been accelerating for most of the remaining glaciers ever since. Depending on the calculation model, we can expect the Alps to be mostly ice-free by the end of this century—a notion that no

longer evokes any associations of a golden age but represents the worst-case scenario of unabated global warming.

Today, scientists explain the decline of the Alpine glaciers beginning in the 1850s with anthropogenic influences: the enormous amounts of coal burned during Europe's rapid industrialization resulted in a thin layer of black carbon on the ice and snow. This dark layer reduced the surface reflectivity, causing an accelerated melting. The end of the cold period of the Little Ice Age would, therefore, have been noticeable as a loss of ice mass only much later (Painter et al.). Even in the supposedly absolute "remoteness from life" that Georg Simmel still found in the high Alpine "landscape of the glacier" around 1900 (181), nature is thus materially so intimately entangled with culture that the binary separation has lost its usefulness.

Today, endangered Alpine glaciers are often wrapped in white geotextiles to protect them from the sun during the summer. This way, the ice formations are literally clothed with another anthropogenic layer, an artificial thick skin to foster resilience. The once sublime appearance of the majestic glaciers that painters like John Ruskin and William Turner tried to capture has given way to the Alpine ecosystem's emblematic vulnerability. In the last few years, the glacier canvas has become a popular motif in artistic practices addressing global warming. Douglas Mandry's *Monuments*, probably the most interesting of these projects, employs the used geotextile itself as a canvas (see fig. 1) onto which he lithographs found photographs of Alpine glaciers from the late 19th century when the idealized Alps became a destination for mass tourism. The images thus date from precisely the time when the glaciers became a spectacle photographed countless times, which contributed to the decline that is not yet visible in the photographs but whose progress the material on which they are printed shall

prevent. Hence, Mandry's *Monuments* are fetish objects *par excellence*, simultaneously indicating a loss that has already happened and promising protection against that very loss (Metz).

Fig. 1. Douglas Mandry, *Eismeer (Monuments)*, 2019, lithography on glacier canvas.
Courtesy of the Artist/Douglas Mandry, douglasmandry.com

This process of disappearance plays a central role in the discussions surrounding the Anthropocene for several reasons. Glaciers are considered the most crucial early warning system for climate change. The thawing ice masses provide global warming with the 'sensual-visible evidence' that the diagrammatic visualizations of statistical models of probable long-

term developments and complex global dynamics mostly lack (Schneider, *Klimabilder* 40-41). As Jennifer Gabrys and Kathrin Yusoff state, images of melting ice have "accumulated in the collective imagination, where receding glaciers and torrents of water are propelled onto some unpredictable course" (2). Climate change communication employs these images as "icons of the present climatic regime" (Latour 14), as they are emblematic of a series of closely interwoven, but, for the most part, invisible processes. They show the already visible effects of global warming. However, they say little about its causes and the unequal distribution of its consequences (Garrard and Carey).

Becoming Media

As the remarks on the soot deposits from the 1850s onward demonstrate, more than just frozen water disappears when glaciers melt. Such observations on climate history and the consequences of human influences are only possible through the study of glacial ice in its capacity as a "medium of time which, through its materiality, is directly related to temperature" (my trans.; Schneider, "Zeit im Bild" 138). In this perspective, the cryosphere's ice is a planetary geochronological discourse network that records and preserves indexical traces: it consists of numerous layers of frozen and compressed snow, resembling the annual rings of a tree. This "charismatic mega-terra of geo-archives" (Mattern) contains evidence of long-term temperature development, shifts in the atmosphere's chemical composition, traces of volcanic activity and industrialization, and the occurrence of microorganisms and pollen (Frank and Jakobsen). In order to make the information sedimented in the glacier's "sentient materiality" (Weizman 52) *readable,* samples must be taken from the (metaphorical)[1] natural archive and then stored in actual archives to be sliced up, analyzed, and finally translated into

climate diagrams (Mattern). This process is one of the ways in which glaciers are *becoming media*.

Since the 1960s, ice core drillings are systematically carried out, initially in Cold War military research that redefined the cryosphere as a geopolitical battlefield. This sampling process generates extremely bulky cylindrical storage media, which require enormous amounts of energy to ensure their long-term preservation. In most cases, they allow a one-time only read access: the extraction of the contained data leads to the destruction of the ice core in most analysis procedures (Mattern). The Alpine glaciers of Central Europe play only a minor role in ice core research compared to the Polar Regions, where the ice sheet has accumulated over considerably more extended periods. Nevertheless, they have the advantage of covering a period of 'only' a maximum of a thousand years (compared to several hundred thousand for the Polar caps) in 'higher resolution.' Moreover, they are much closer to the emission sources of industrialized Europe (Bohleber). As average temperatures rise, however, this archive is increasingly recording its own disappearance, making future scientific investigation of climate history increasingly difficult. The loss is, therefore, a double one.

Glaciers are not only archives of their climatic conditions, though. Thomas Elsaesser also regards them as "natural 'media' of historical topographies" (147). According to him, glaciers (as well as permafrost, amber, or bogs) are the more plausible genealogical precursors to analog recording media that, in his media historiographical model, no longer have to be located within the framework of the evolution of symbolic notation systems. Glaciers may preserve objects and even entire creatures in a kind of snapshot, but they usually rerelease them later. They do not store—at least in this respect—an imprint, but the thing itself, albeit only temporarily. Already the first proto-glaciological studies describe this underlying

mechanism of arbitrary conservation. Since glaciers eventually expel all foreign matter they ingest, glaciologists often described them as capable of self-purification (Agassiz 4). In the 19th century, this capacity was often metonymically transferred to the entire Alpine region, which in the Romantic imagination was lastingly stylized as the Other of urbanized and industrialized civilization.

However, the notion of glaciers as archives ignores the fact that they are anything but static: "Flow is what glaciers are all about," as Lutz Koepnick notes (86). Naturalists like Johann Jacob Scheuchzer described this extremely slow movement in the early 18th century and presented first speculations about its causes. At the beginning of the 19th century, glaciologists laid boulders on the glaciers to measure their slowly shifting position, sometimes waiting patiently for years (Evans 31). By doing so, they recognized the slow but relentless glacial movement as a cause for several phenomena, of which the so-called "erratic blocks" were the most important. These huge boulders occurring far away from the mountains were long considered the epitome of scientific mystery because of their mineralogical composition, which does not match the site of discovery, and their enormous weight, which precludes transport by humans (Evans 119).

The consequences of this finding were quite far-reaching, as they indicated that large parts of Europe must once have been covered by an "immense sea of ice" (my trans.; Agassiz 241). The slow grinding movement of the glaciers had left distinct traces in the landscape. However, "only those who know the matter know how to decipher its meaning," writes Louis Agassiz (my trans.; 221), whose name is associated with the popularization of the so-called Ice Age theory, although this revolutionary concept originated in the local knowledge of Alpine

peasants (Rudwick 142). Today, Agassiz is discussed mainly for his nefarious role as a white supremacist and racial theorist after relocating to the United States in 1846 (Mirzoeff).

In his *Études sur les glaciers*, published in 1840 in French and 1841 in German, he compares the geomorphological legacies of vanished glaciers with the barely visible traces on a frequently used lithographic stone (221-222). Thus, Agassiz, too, equates glaciers with a reproduction technique and describes them as a natural medium of topography, albeit in a completely different sense. Unlike Elsaesser, for whom the glaciers are a storage medium that preserves objects in a frozen state and so fixates them—at least for a certain time—, Agassiz emphasizes the opposite process, which can be understood as one of imprinting or inscription. In this perspective, the object of interest is not what is 'stored' in the glacier and thereby transported from one moment in time to another. Instead, it is the indexical trace that the glaciers have left behind precisely where they have vanished; the imprint of their erosive movement proves their former presence, comparable to the grooves on a phonograph cylinder.[2] The landscape thus becomes, as it were, an inscription of its changeable history: it is the medium that is repeatedly reshaped over thousands of years in countless writing processes, with the glaciers appearing as pivotal geomorphological actors.

An atlas in folio format with lithographs "drawn after nature" supplements Agassiz's book. On 14 of the 16 double pages, he juxtaposes matching pairs of images (see fig. 2). The right image is always a lithographic landscape image by Joseph Bettanier showing the glaciers and the mountain ranges surrounding them. These pictures are committed to a realistic paradigm but intended to evoke the "wonderful beauty" (Agassiz 72) of the ice masses. The left image depicts the same view in a strictly abstracted schematic form, a landscape reduced to outlines. The admiring view of the landscape is thus contrasted with the scientist's measuring

gaze—art picture with utility picture. Instead of surfaces, only outlines emphasize the fissures and other geological characteristics of the glacier formations in relief. It seems as if Agassiz had tried to strip the ice landscape of its aesthetic surface in order to be able to study it unhindered by its sublime impression and exclusively as the result and scene of deep temporal processes.

Fig. 2. Joseph Bettanier, *Zermatt-Gletscher*, 1840, lithography (Agassiz).
Courtesy ETH-Bibliothek Zürich, Rar 5772, https://doi.org/10.3931/e-rara-22309

Inscriptions directly in the image provide the mountain peaks' names, indicate the ice layers' different provenances, and mark where the glaciers have "polished" the rocks over centuries. Individual inscriptions are typographically nestled against the contours, thereby visualizing, for example, the glacial flow direction. This way, the indexical traces that Agassiz boasts of being able to "decipher" are also made readable for those laypersons (and skeptical colleagues) who are not equipped with his scientific "hypervision" (Mirzoeff 133). According to Agassiz, the glaciologist can read the landscape and deduce the former processes that shaped it, based on his understanding of present glaciers' movements (Rudwick 138).

Deep Time

Thus, the early scientific study of glaciers and their movement is an essential factor in the epistemological turn that Stephen Gould has described as the "discovery of geological time" (1-20). In the 19th century, this scientific revolution permanently shattered the scales of historical perception by colliding incommensurable time scales. These questions of scale also play a central role in the more recent discussions about the Anthropocene, as they suggest a decentering of the *anthropos*. In this context, Friedrich Balke, Bernhard Siegert, and Joseph Vogl have raised the question of the media that make this expansion of the historical horizon beyond the extent of anthropogenic interventions conceivable in the first place.

As shown previously, glaciers themselves can be understood as geochronological media capable of such an expansion. Central to this understanding is their complex temporality and their oscillating between the paradoxical idea of an unimaginably slow but unstoppable flow that plows up entire landscapes with its sheer force, and the warning of a process of dissolution that is extremely slow from a human perspective but incredibly fast on a geological scale. The latter is the result of the anthropogenic influence accumulating over centuries, which Robert Nixon characterized as "slow violence."

Obviously, this dimension of deep time is challenging to represent in pictures. Stereoscopic photographs of relief-shaped furrowed former glacier channels sometimes evoke it intentionally (Latsis 12) but still implicitly. In 1891, Étienne-Jules Marey proposed chronophotography as the solution to this problem. He describes the method as an "invaluable tool for the study of natural phenomena" (my trans.; 701). According to Marey, chronophotography can play out its specific strengths when processes occur so quickly or slowly that the human perceptual apparatus can no longer register them adequately. However,

while photography had already penetrated deep into the micro-temporal dimension by this time, the visualization of deep time remained a desideratum: "One cannot rule out the hope that one day we will be able to follow the slow changes in the position of glaciers and the geological transformations of the surface of entire countries with the help of pictures taken in very long spaces in between" (my trans.; 701).

He was apparently unaware of the fact that Sebastian Finsterwalder and other geodesists had already begun using chronophotography for precisely that purpose two years earlier, though without using the term. Finsterwalder is best known for his contributions to the then still young methods of photogrammetry, a spatial rather than temporal surveying technique that aims to obtain reliable topographical data from photographs. Photogrammetry works best when an object or landscape has very distinct features that can be used as anchors to triangulate the perspectival measurements in several photographs taken from differing angles. With their rugged surfaces, the Alpine glaciers were the terrain where terrestrial photogrammetry proved most advantageous over traditional land surveying (Eichberg 19-26) since it was no longer the difficult-to-access terrain itself that was measured but its photographic record. Finsterwalder and his team not only began to survey Austrian glaciers photogrammetrically but also refined the method in such a way that they could precisely document changes over time as well.

From 1889 to 1928, they periodically took photographs that recorded in detail the slow retreat (and occasional advance) of the Vernagtferner Glacier. To this end, the images were always taken from precisely the same locations and not designed to meet established aesthetic criteria but with a strict view to their later scientific evaluation. Each photo was marked with a date in one of its corners. Finsterwalder's glacier photogrammetry established, so to speak, a

specific sub-genre of image comparison, which is now one of the essential means of climate change communication. Today, photographs (and, to an increasing degree, historical paintings and drawings) of glaciers are systematically collected and archived to visualize the effects of global warming through temporal comparisons (Schneider, "Zeit im Bild"), an effort that was first institutionalized in the 1890s by Finsterwalder and others who saw the need to monitor the glacier fluctuations worldwide closely.

While earlier glaciologists considered the glaciers themselves to be chroniclers of sorts, actively registering the earth's history in real-time like an "endless scroll … upon whose stainless ground is engraven the succession of events" (Forbes 22), Finsterwalder's temporal monitoring aimed at making sense of the glaciers differently. It transformed them into what Cubitt describes as "translational geomedia," establishing them as passive objects of history and mere markers of a changing climate.

A cartoon from 1911 caricatures Finsterwalder's glaciological work and presents the surveyed Tyrolean glacier as a wild and literally unpredictable animal that actively opposes any attempt at such rationalization (see fig. 3).

Fig. 3. Rudolf Reschreiter, *Vorstoß und Rücklauf des Vernagtferners beobachtet von Prof. Dr. S. Finsterwalder*, 1911.

The caricature is reminiscent of the unorthodox behavior attributed to glaciers by indigenous peoples in the Yukon Territory studied by Julie Cruikshank: "These glaciers were depicted as sentient, willful beings that responded directly and sometimes dramatically to human behavior" (239). The glacier-monster even threatens to devour one of the two researchers but finally lets go of him—as we know, the glacier ejects foreign bodies to cleanse itself. While the anthropomorphized glacier seems to move very fast, the second scientist remains completely unchanged in the first six frames, reversing the usual temporal logic of glacier observation. Completely immersed in his calculations, Cartoon-Finsterwalder does not even notice the very process of the glacier's advance and retreat that he set out to document. In the last image, the glacier-monster seems to be sleeping again; the frightened scientists abandon their attempt at surveying after this uncanny confrontation with their untamable object of investigation.

Despite the resistance to the abolishment of glacial agency that we find expressed in this caricature, the notion is largely missing in the contemporary comparative pictures of climate change communication that attempt to rationalize loss without explicitly addressing its causes. The goal of an aesthetics of nature "in times of an unnatural nature" (Horn and Bergthaller 11) could, therefore, be to deal with this rationalizing view of operational images and to counter them with a form of representation that attempts to do justice to the complex materialities and tempor(e)alities of the glaciers.

Mountains of Data

Dan Holdsworth's *Continuous Topographies* comes close to this postulated form of representation. The title of the series alludes to the New York exhibition *New Topographics: Photographs of a Man-Altered Landscape* from 1975, which stands for a paradigm shift in

landscape photography. Instead of a (supposedly) untouched nature, the exhibition's protagonists focused on landscapes formed and, above all, built by humans. Unlike these explicit paragons, Holdsworth leaves the architecturally transformed spaces behind and turns to the Alpine glacier landscape, but he also sets himself apart from those contemporary artists who address the entanglement of nature and culture through glacier-canvasses, artificial snow slopes, or avalanche fences. Holdsworth's Alpine topographies show no visible traces of human intervention. Instead of a built or untouched nature, however, he presents a nature that has been digitally scanned and remodeled. The interweaving of the two poles, so neatly separated in Western thinking of modernity, is carried out on another level, namely that of the imaging technique itself. Holdsworth's topographies systematically resist classifications within established binary categories. The images seem equally scientific and artistic, indexical and non-referential, aesthetic and anaesthetic, weightless and gravitational. With Eyal Weizman, we could describe them as image spaces that are "at once virtual and photographic" (100).

Fig. 4. Dan Holdsworth, *Continuous Topography, Argentiere Glacier no. 1–35*, 2017, c-print. Courtesy of the Artist/Dan Holdsworth, www.danholdsworth.com

The large-format images in the series display views of three-dimensional computer models of the glacier surfaces, here (see fig. 4), for example, of the Glacier d'Argentière in the French Montblanc massif. Together with a geologist, Holdsworth photogrammetrically surveyed several glaciers, using the digital successors to the methods introduced to glaciology by Finsterwalder. They took thousands of photos, both from the ground and with drones, and combined them with the help of imaging software to three-dimensional computer models with millions of individual points, each determined with a precision of just a few millimeters. In a long and complicated process, Holdsworth thus translates mountains into mountains of data: "The photograph continues to travel, as it were, through the process, … so there are still trace elements of the original photograph in the final point-cloud model" (Hardy 2018). Compared to the sampling of ice core drilling, though, this is a conservative, not an extractive sampling, completely satisfied with the surface's impression and disregarding all the information sedimented underneath. Although based on scientific imaging technologies, the image spaces created by Holdsworth are of no scientific use, at times even emphasizing the limits of the process of translating the photographs into pixel clouds by leaving glitched areas in the otherwise hyper-precise models.

The first visual impression is reminiscent of the schematic representations from Agassiz's *Études sur les glaciers* discussed above, which reduced the glaciers to outlines of their essential morphological characteristics and thus made them readable as actors of deep-time processes. Holdsworth, too, removes the landscape from the landscape image, leaving only the liminal space that separates the material from the immaterial. Instead of contour lines, he uses a fine-meshed digital grid that renders the fissures in the ice and rock formations

aesthetic as the only remaining visual element. Here, too, an imprint of sorts is created. The glacier surface is peeled off and stretched out in the empty space of mathematical abstraction.

In contrast to Agassiz, however, the comparative view that shows the landscape's totality intact is missing. Additionally, there are no captions, and the titles of the individual images in the series remain relatively vague, indicating only the depicted glacier, a consecutive number, and the year the underlying data was sampled. Often, the images' scale has to be guessed, sometimes presenting whole mountain ranges in panorama, sometimes what seems to be somewhat close details of crevasses and other characteristic glacial features. Unlike Finsterwalder's photogrammetry that can be described with Cubitt as geomedia of numerical (or, in this case, geometrical) translation addressing the imagined collective of the scientific community, Holdsworth seems to presume a different kind of subjectivity: "*Continuous Topography* presents us with what is recognizably a landscape—but one that seems as though it is from its *own* viewpoint rather than ours. There is no indexical registration of any human eye 'behind' the camera asserting their artistic subjectivity in an orthodox way," as Alistair Robinsons concisely puts it (252).

Some of the three-dimensional glacier pictures resemble ghostlike shadows of immaterial beings in greyish shrouds, pressed down by the weight of time that has created their formless formations, to paraphrase Simmel, who, in 1911, described the realm of the glacier as "the absolutely 'unhistorical' landscape, … here where not even summer and winter change the image, the associations with the human fate, which comes into being and passes away, are broken off, associations which in some way or other accompany all other landscapes" (182). Today, there might be no landscape imaginable that is more historical, more symbolically interwoven with "human fate" in the Anthropocene than the glaciers. What Holdsworth creates

is an inventory of their evanescent surfaces, cataloging them in the very moment of their vanishing.

As Gloria Meynen recently noted, at the heart of all modern inventorying projects lies a deep unease. People only start cataloging when a catastrophe is impending or has already occurred, as already the legendary catalyst for the cultural technique of mnemotechnics, the collapse of Scopas's banquet hall, reveals (39). In this sense, Holdsworth's digital glacier topographies can be thought of as a modern "mummy complex" (Bazin), snatching a bodily appearance from the "flow of time," as it were. As the title *Continuous Topography* already suggests, this project of a digital map that is larger than the territory can't be completed (at least not before the glaciers have disappeared entirely). While the formations of materialized time are precisely cataloged and inventoried here in order to preserve them virtually, they will always already have changed their shape, lost a little bit more of their substance.

Conclusion

Arguing that the materiality of Alpine glaciers was linked to notions of emergency and greed long before discussions of anthropogenic climate change, this article began by observing different ways in which glaciers are conceptualized as recording media that either 'mummify change,' or register and archive even subtle atmospheric changes, making them essential proxies for climate research. In the mid-19th century, however, they were predominantly discussed as writing media that produce indexical traces in the landscape visible only to those familiar with their geomorphological agency. Building on these notions, the second half of the article discussed three paradigmatic surveying projects that, based on different modes of visualization, make sense of the glaciers and their complex materialities and tempore(a)lities in different ways.

Agassiz's lithographs aimed at making glacial movement 'readable' for laypersons by reducing the depicted landscape to outlines and providing explanatory inscriptions directly in the image that embodies his scientific gaze. Finsterwalder employed terrestrial photogrammetry and chronophotography to survey the glaciers and their fluctuations over time, translating them into data and, thereby, ultimately recasting them as passive objects of scientific scrutiny. Holdsworth's *Continuous Topographies,* in some regards, picks up on both these traditions while dismissing their presumed subjectivities. While they *sense* the Alpine glaciers, they do not attempt to *make sense* of them in a rationalizing way. As we have seen, his image spaces refuse to offer an embodied point of view, instead suggesting a posthuman subjectivity of a glacial perspective, undermining established dichotomies.

Notes

[1] Wolfgang Ernst points out the problems and limits of the description of natural preservation processes as archiving, as there is no deliberate selection at work, and the storage is not intentional ("Archival Metahistory").

[2] Katie Paterson prominently builds on this idea of glacial erosion as a phonographic trace in her video installation *Langjökull, Snæfellsjökull, Solheimajökull* (2007), dedicated to three Icelandic glaciers whose melting sounds she recorded and consequently pressed on records made of frozen meltwater of the same glaciers (see Schrey 324-329).

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Catastrophe in a Bottle: Ellie Ga's Medial Detritus of Drift

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Abstract

Contemporary media artist Ellie Ga's video-essayistic practice documents her maritime travels, interviews, and encounters with antiquated and, at times, lost artifacts of cultural production. But at certain dramatic turns within her narratives, she is forced to confront the dire realities of the humanitarian crisis emerging just off-screen. This paper considers these shifts in perspectives—from material studies of messages in bottles and the ruins of the Pharos Lighthouse to the bodies of asylum seekers—in order to propose a vein of media studies that superimposes populations under duress with the matter of their transnational, oceanic environments. While this study, following Ga's, partakes in a media archaeological approach by delving into the operations of seemingly obsolescent processes of writing and recording, it draws upon theories of new materialism, namely Karen Barad's writings on "intra-action" and "diffraction," in order to reformulate difference within the assemblage of incommensurate ideas, bodies, theories, and matters. Ultimately, Ga's videos and performances serve to inscribe within media studies and practice an ethics of exclusion which prioritizes uncertainty and intuition.

Keywords

media, materiality, refugee, border, apparatus, object, archaeology

There is a curious moment midway through Ellie Ga's two-channel video, *Strophe, A Turning* (2017) (henceforth *Strophe*), when the camera suddenly falls to the artist's hip. Dangling precariously from her shoulder, it still records, albeit shakily, her coastal surroundings, where only moments earlier we witnessed Ga carefully combing a rocky beach along the Aegean Sea on the island of Lesbos, searching for messages in bottles washed up at the end of their long and uncertain journey. Heretofore, her video remained clear and composed; a series of interviews and voice-over narrations interjected meditative analyses of found objects and historical texts like a plastic toy ship and Theophrastus's ancient botanical classifications. But now the sturdy ground of her camera's focused engagement gives way to an erratic and haptic visualization akin to the water's turbulent motion: here some shades of cloudy skies; there some stones turning, like the waves crashing over them, within the frame of the film; and still further the hint of an orange life vest washed ashore on the body of an asylum seeker.

Her hands now free of camera equipment, Ga begins assisting refugees come ashore, marking a radical pivot within the course of the film's unfolding action. Her filmic essay henceforth studies the political and ecological forces of the European migrant crisis, which saw more than one million (mostly Syrian) refugees arrive into the European Union in 2015 alone. Yet the move was, from the project's outset, entirely unpremeditated. Like the ocean currents and means of maritime navigation that have determined the artist's career-long study, *chance* and *accident* are often welcome interventions forcing one's travel in new and unexpected directions. Earlier essayistic video performances like *Four Thousand Blocks* (2014) and *The Fortunetellers* (2011), which will prove equally informative in this essay's relaying of Ga's material concerns, anticipate *Strophe*'s sudden change in course. Related scenes in the earlier films, for example, recount her erratic travels aboard a French scientific expedition or her

happenstance dive into the remains of the Pharos Lighthouse, lost to the depths of the sea outside Alexandria, Egypt. In each instance, the impossibility of seeing beyond the horizon provides the artist with an apt metaphor for the production of more epistemological concerns, namely processes of historical remembrance and record effected by variations of new and traditional media objects like overhead projectors or nineteenth-century letterpress cases. Ga's forays, as critic Jennifer Kabat writes, "into memory, myth, language, and history, [advance] in the Montaignian sense of *essayer*—to try, to explore." Yet as *Strophe* makes clear, navigational research methods hardly ever promise smooth sailing. Deviations, diffractions, and the dire realities of global cultural flows frequent the historian's explorations.

More often than not, the material she collects at one end of the ocean's great divide seems always to mediate, through often distant and dissociated forms of communication, urgent expressions of relief and rescue. Some flotsam she finds in the Pacific Northwest, for example, she traces back to the 2011 Tōhoku earthquake and tsunami off the coast of Northeastern Japan. But now, filming from the Aegean, she must grapple with the inseparability of detritus and its human actors; artifactual encounters signal the presence of an open and evolving assemblage linking messages in bottles with refugees fleeing political and economic collapse in northern Africa and the Middle East. This linkage, to be clear, is not a false equivalence between refugee and debris, but rather, as will become clear, an approximation between subjects of humanitarian crises and their global forms of communication. In this way, Ga's falling camera embodies the misfortune of her newfound subjects, enlightening her viewers into the video's titular etymological roots: "*catastrophe* was a term used in ancient Greek drama to describe a reversal of what is expected, a turn of events. *Cata* meaning 'downward' and *strophe*, 'a turning'" (Ga 26). No longer does Ga allow herself

to be solely concerned with the seemingly esoteric details of messages in bottles and the invisible circular ocean currents that linked sender to receiver. Now, as the camera swings beside her hip, she uncovers a more pressing message—a "catastrophe," if you will—in a bottle.

One might be too quick to interpret the camera's own "downward turn" as Ga's relegation of recording mechanisms in the face of more pressing emergencies. How often, for example, are the passivity theses of contemporary journalists called into ethical question? Might Ga be but opting instead for a more active end in this opposition? But the fact that the camera continues to record, emphasizing a less focused than frenetic picture of the events around her, points to the sustained belief in the *mediality* of her moment—her being among the bodies as well as the material detritus with which they (directly or indirectly) drift. The contractual nature of the image in the reconstruction of citizenship (Azoulay, *The Civil Contract*; *Civil Imagination*) proves a fruitful route with which to develop Ga's work, but I turn my attention to the theories of Karen Barad, who provides a crucial re-reading of Judith Butler's biopolitics of precarity in order to examine the patterns of diffraction emanating from Ga's media-material reckoning of a global humanitarian crisis. Implicated within the fall of her camera is a reflexivity latent within much of Ga's work: a belief in an unstable and contingent world of media objects thought not in representationalist terms but rather through a material-discursive practice of what Barad terms a performative "intra-action" that locates human, nonhuman, and inanimate bodies within (though not reducible to) the currents of their shared phenomenal situation, often turbulent, distressing, *catastrophic* (*Meeting the Universe* 178, 214; "Quantum Entanglements" 244). Our current moment—in which those seeking livable lives find themselves in liminal and unstable spaces void of borders and citizenship—demands

such a reading. As Arjun Appadurai makes clear by drawing on the Andersonian concept of "imagined communities," the distribution of media assists in the production of elsewhere and otherwise "imaginary worlds" (33-37). But rather than privilege solely the world of the animating agent, I find in Ga's practice a dynamic world constantly in motion; inanimate detritus drifts in shared indeterminate patterns with precarious human subjects, offering a radical reformulation of the relations between matter and meaning in a wholly mediatized world that daily screens subjects in distress.

The Drift

Let us start our journey not with the falling camera's diversion but rather along the same route with which Ga begins *Strophe*: a quote from the Russian poet Osip Mandelstam (1891-1938) voiced by the artist over a still image of scrolled messages in varying glass and plastic bottles. "To whom does the poet speak?" asked Mandelstam in his 1913 essay, "About an Interlocutor":

> At a critical moment, a seafarer tosses a sealed bottle into the ocean waves, containing his name and a message detailing his fate. Wandering along the dunes many years later, I happen upon it in the sand. I read the message, note the date, the last will and testament of one who has passed on. […] The message in the bottle was addressed to its finder. I found it. That means, I have become its secret addressee. (58-59)

Equating the writing of a poem to the sending of a message in a bottle, Mandelstam and Ga alike stress the distance and the uncertainty involved in any act of communication. If we are to leave the movement of any message to chance, we must contend with the severe abstraction leveled against our normal conceptions of discourse. As Ga's camera floats along the surface

of a collector's deep filing boxes, each containing messages at the end of their sea-faring journey, she stresses the faith implicated in the initial cast.

But the navigation inherent to communication is neither a purely conceptual nor even "ideal" process. The route along which each bottle travels depends on the material conditions of the bottle and its environment. In the next scene, a Dutch collector pulls out a map before

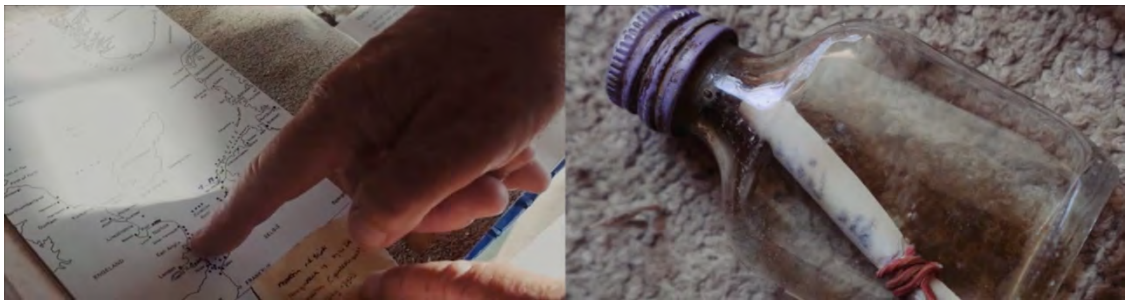

Fig 1. Still from Ellie Ga, *Strophe, A Turning*, 2017. Two-channel video and sound, loop, 37 minutes. Courtesy of the artist and Bureau, New York.

Ga's camera in order to justify the large numbers of messages he receives every year from English school children. He traces his index finger along the ocean's shifting current (fig. 1), southbound along the edge of Western England, across the Strait of Dover, past the northern border of the Netherlands, and into the North Sea toward Norway. The forces of this frequent route, most familiar to the debris that floats along its course, move deep below the surface of the ocean. Driven by wind movements as much as the earth's rotation, circular *gyres* operate as invisible currents carrying much of the water's material debris, messages in bottles notwithstanding. But such scientific systems operate in Ga's video not merely for objective reclamation. So too is her poetic metaphorization of the ocean's patterns an assertion of the material conditions of even the most immaterial forms of media communication, like the

performative oration determining her anecdotal approach, emblematized in a work from two years prior, *The Fortunetellers*.

A 2015 performance at the Experimental Media and Performing Arts Center (EMPAC) at the Rensselaer Polytechnic Institute in Troy, New York, *The Fortunetellers* best captures the processes of oration, organization, and intuitive observation undergirding Ga's work. Sitting before an overhead projector with her back to the audience, she flicks on the project's light and begins narrating her travels aboard a French scientific expedition near the North Pole, which, beginning January 2007, lasted roughly five months. As the crew drifted through endless horizons of ice, meandering along a course without a destination, Ga accumulated a vast collection of photographs, videos, diary entries, and interviews—materials remediated as photographic transparencies which she layers onto the projector's illuminated surface.

Like scenes from *Strophe* and *Four Thousand Blocks*, the overhead projector or the lightbox serve as working desktops, the transparencies akin to stacks of papers and clippings. But when the shadows of her own hands appear on screen, Ga becomes both projectionist and projected, evoking recent expanded cinema techniques by such artists, filmmakers, and theorists as Erik Bullot, who "double" film through an immediate and reflexive recounting of its modes of production. Her research, in other words, follows a direct by-line to her practice, fulfilling the role of both participant and observer key to many an anthropological account (Ingold 4-6), even if the conclusion has yet to be written or the destination yet to be reached.

Exhibiting the evolution of her analyses casts each scene as itself a moment of reflection not yet prefigured by certain discourses or objectives. In *The Fortunetellers*, for example, she foregrounds the navigational desire at the heart of her research by describing a tarot-card game performed with the crew. The instability inherent to her travel forced her to

seek coordination elsewhere: in weather forecasting, oceanographic research, quotidian routines, and ancient forms of fortunetelling. In a card-reading session on January 13, 2011, Ga lists her hand: The Drift, Big Brother, The Cabin, The Plankton, The Fissure, Divination, Universalis, La Poubelle. Soon thereafter, her list becomes the subject of a conversation, and the anonymous shipmate with whom she performs the reading offers further contextualization:

> The theme of instability leads us to your next card, The Drift. Here we have the chief of the expedition marking the drift. Now, the drift was a circuitous movement and we had no control over our direction or our exit from the ice. Once a month, on the first of the month, just for the hell of it, the chief would mark our course on the map.

A single mark provided little orientation. But an accumulation of marks sufficed to show the progression of the ship's course. This symbolic map-marking evidenced not only the perceived value of antiquated forms of maritime navigation but also the constant reassurance of the ship's points of both departure and destination. However circuitous the route, the presence of an origin assured the stability of their navigation. Yet, at the end of their session, one card remained: The Cabin, or, as Ga recounts, "the question of origins, of how did I get there?"

Whereas The Drift relinquished control over the ship's destination, The Cabin threw into doubt the site of its origin. Yet if we are to take seriously Ga's continued poetic metaphorization, her retelling insinuates analytic depths a bit deeper than the forgetting of the name of the port from which the ship departed. Rather, she sees an absent origin as a productive disclosure of difference, much in the same vein as theorists like Barad or Donna Haraway, who reverberate cinema studies' feminist forebears Laura Mulvey, Mary Ann Doane, Theresa de Lauretis, and Jacqueline Rose by articulating a post-critical method of science studies which locates the structure of sexual difference within the perception of data.

But Barad and Haraway are less concerned with "presencing" the absent origin than tracing the effects of the initial, differential disturbance. "A diffraction pattern," writes Haraway, "does not map where differences appear but rather maps where the effects of differences appear" (300), much like the chief who marks neither the origin nor the destination but rather the patterns of the resulting course, which, with accumulation, starts to resemble the ripples of the ocean's guiding waves.

Unfixing herself from these set origins and destinations often affords Ga a responsive reappraisal of the direction of her camera, which, as conveyed by the camera's fall in *Strophe*, may focus on human subjects who must also grapple with the erasure of the site and of the life from which they first embarked. Mandelstam, Ga reminds us, suffered a fate similar to his poems. Even he was not aware, when "launching" his own figurative message in a bottle, of the disaster that would befall him. In May 1938, after the Stalinist-led Soviet Union censored much of his work, they arrested him, forced him into a correction camp in Eastern Russia, and killed him. Years later Mandelstam's poetry was rediscovered, his innocence asserted, and his identity exonerated. But such suffering, conditioned perhaps by as much distance and uncertainty as the drifting bottle, resists the objective, recursive logic attributed to the operations of technical systems subtending his work. Writing, recording, sending, and receiving are not fixed processes for those under duress. Rather, in the haze of the great expanse between one's origin and destination, in the blurred motion of Ga's swinging camera, there begins to emerge the formula for an epistemology of media materiality that opts less for governance, control, and objectivity than indeterminacy, drift, and irreconcilable contradiction. Picturing subjects of humanitarian crises through this lens does not collapse them into fixed,

singular entities but rather opens up spaces for response and redress, recorded through unexpected deviations in the course of composition.

Irretrievable Artifacts

What might be saved when everything is lost? This is the paradoxical question informing another of Ga's projects, *Four Thousand Blocks*, in which her archival impulse records the remnants of the Pharos Lighthouse, which collapsed sometime between AD 956 and 1323 and has since slowly weathered under the Mediterranean Sea outside of Alexandria, Egypt. Its deterioration has plagued historians like Ga since, for its original architectural form—the specifics of its shape, size, and mechanics—has likewise succumbed to the lapse of historical remembrance. Various attempts have sought to illustrate its image, to give form again to these irretrievable artifacts. But like *Strophe* and *The Fortunetellers*, Ga's approach metaphorizes ruins as the instabilities of historical knowledge. Her own media reflexivity extends these archaeological limits to the materiality of the media with which she works, in particular processes of writing and recording which resist logic and symbolization.

Fig. 2. From Ellie Ga, *Four Thousand Blocks*, 2014. Three-channel video and sound, 23 minutes, 40 seconds. Courtesy of the artist and Bureau, New York.

Toward the end of *Four Thousand Blocks*, Ga blackens the center frame of the three-channel screen as a figuration of the absence of the lighthouse's original form. To the left and right of this absent image play observational recordings of, respectively, a photograph floating in a developer bath and the setting of type in a letterpress composing stick (fig. 2). Atop the

central, black expanse emerges intermittent subtitles, excerpts of a conversation with a pair of Egyptian archaeologists exploring the underwater site. Their encounter with the ruins began thanks to a faulty CD provided by other researchers. On the CD were photographs and other recordings which would have given them some vision, however digitally mediated, of the blocks. But when the computer failed to read the CD, they decided to see the site for themselves. Soon thereafter, they earned their scuba diving certificates, rented a boat, and traveled out into the ocean, where they became the first Egyptian archaeologists to explore the ruins of the Pharos Lighthouse.

And while one might dismiss the CD in its entirety, consigning it to obsolescence and championing instead the first-person encounter with the ruins, Ga's anecdote privileges both the material encounter and conceptual inquiry at every level of mediation. When one such encounter gives way to error and obstruction, curiosity takes hold, leading the subject to trust his or her memory to external supplements, a pernicious processes Derrida considers in "Plato's Pharmacy" as "a play of appearances which enable [substitution] to pass for truth…" (130). Writing, he argues, is not a gift but a hindrance, a drug. If we entrust our memories to the *pharmakon* of writing, knowledge crumbles and deteriorates, accumulating into a pile of blocks lying still on the bottom of the ocean floor.

But when Ga turns her attention to the setting of type, she focuses not on the final simulacrum of the ruins' discursive description but rather the embodied handiwork of its preparation. As Ga's hand places letters into the composing stick, she narrates a short history of the California Job Case, which finds capital and non-capital letters placed in the same space to reduce hand travel. Given this strategic organization, the cumulative distance traveled by the hand which hovers over and pulls from each compartment is markedly less. But only through

the repetitious movement of the hand, the long and learned setting of the type, will the setter begin to memorize the divisions of the case. The handiwork, in short, becomes habit, until the work of the hand has been translated back into the mind. "A skilled typesetter," notes Ga, "can read the text set by another typesetter just by watching the pattern of hand movements in and out of the compartments."

In this movement back and forth between the composing stick and the type case, we find also Ga's continuous oscillation between absence and assignment, the "intellectual" or the "symbolic" at play with the "material" transformation of writing and recording. When the center screen assumes its blackened shadow, metaphorizing the disappearance and irretrievability of the lighthouse, the viewer assigns to the photograph and the composing stick the objectifying mode of reference seemingly inherent to each. But Ga's screened typologies destabilize the dichotomous relations between media tools and their operations of grammar—concepts and rhetorical strategies like metaphor ubiquitous throughout her work—in order to perform the very disjunction between what Paul de Man refers to as the "aesthetically responsive" and the "rhetorically aware" (72). Doing so, de Man continues, "undoes the pseudo-synthesis of inside and outside, time and space, container and content, part and whole, motion and stasis, self and understanding, writer and reader, metaphor and metonymy, that the text has constructed" (72). In other words, reanimating the lighthouse through a projection of its mediated ruins unites the mechanics of its operation (i.e. the Kittlerian techno-determinism of, for example, the letterpress) with the logic of its grammar.

Still, the lighthouse, even in the face of the CD, the photograph, and the letterpress, remains formless, *unwritten*, fundamentally resistant to description. Judith Butler, through her own psychoanalytic reading of sexual difference, privileges such resistance in order to describe

a materiality not dependent on signification, therefore prior to (and uninhibited by) discourse, logic, and governance. With reference to Plato's *chora*, she analyzes the presence of a "receptacle," a "permanent, … shapeless non-thing which cannot be named" (*Bodies that Matter* 53):

> In this sense, the receptacle is not simple a figure *for* the excluded, but, taken as a figure, stands for the excluded and thus performs or enacts yet another set of exclusions of all that remains unfigurable under the sign of the feminine…. [T]he feminine is cast outside the form/matter and universal/particular binarisms. She will be neither the one nor the other, but the permanent and unchangeable condition of both, what can be construed as nonthematizable materiality. (*Bodies that Matter* 42)

Butler's shapelessness posits a feminine body regulated by disciplinary ideals and governing norms yet nonetheless never fully attainable by such generalized abstractions. Yet considering Butler's theories of the ontology of matter in the depths of Ga's observational media practice assists in recognizing *how* bodies and objects even begin to matter. Only through an iterative process of approach, through degrees of closeness, do bodies occupy norms, or rather, as Butler notes, "position[s] somewhere between the norm and its failure" (*Undoing Gender* 74).

The materials Ga collects throughout her films, however falsified, anecdotal, *im*material, constitute layers of historical record and remembrance which, when brought to cohere in the durational performance of her projects, start to form the foundation for a site approximate to, yet never exactly like, the lighthouse. The same might be said of the camera's downward turn in *Strophe*, which aims to approach and approximate through its retreat a different traumatic upheaval: that of the asylum seeker. The swing from signification into the pre-symbolic, non-representational world of Butler's receptacle takes form as filmic blur,

nodding not just to the haptic visualities of contemporaries like Steve McQueen but the structural-materialist filmmakers of yesteryear, in particular Stan Brakhage's idealized "untutored eye." Such processes push back against a correlationist account of materiality that takes objects to be passive mediums for human inscription. Rather, Ga opens up a reconsideration of media archaeological approaches more aligned with new materialist theorists like Stacy Alaimo, Jane Bennett, Manuel DeLanda, and Barad, who assert matter's lively, "vibrant," and agentic character. Approaching Ga's medial detritus through this lens reformulates traditional conceptions of difference inherent to media and their mediations, even when such an approach lacks the necessary signification with which to thematize images and individuals.

Projection and Diffraction

Turns, falls, and crossings: throughout Ga's films and performances these tropes reappear frequently, unsettling any viewer's sense of stable spatial or temporal emplotment. *The Fortunetellers* exhibits the most extreme of such cases when the artist sweeps the transparencies off the projector into a pile on the table before her and places, in their stead, a plastic yo-yo, through which the projector's bulb struggles to pass (fig. 3). For those aboard the scientific expedition, the uses of this yo-yo were many: a toy, a name for the scientific tool sent through a hole in the ice to measure the solidity and temperature of the ocean, and a metaphor for the movement of the researcher across and even through boundaries of disciplinary histories. Ga:

> [T]he massive ice cube we are attached to is sitting on top of two layers of water: the warmer, saltier, Atlantic layer; and below that the cooler, fresher Arctic layer. The yo-yo goes down to the arctic layer to take a sample of solidity and temperature, and then

> up to the Atlantic layer. […] [T]he yo-yo is *cheating time*, because it takes at least three thousand years for one water molecule to travel on the oceanic conveyor belt, past the equator, down to Antarctica, and back up again to the Arctic. So, the yo-yo is a moment, taking a sample of the different centuries as it passes through the water sources. […] [This] would be a huge transition. Some would say it would be like entering a whole other world.

The yo-yo, resting atop the surface of the projector, serves for Ga as a machine capable of moving between these worlds. Its up-cast and its down-cast have such little regard for the separation of these bodies of its water, yet the environments it encounters on either side (an

Fig. 3. From Ellie Ga, *The Fortunetellers*, 2011. Performance, running time: 1 hour. Live narration, video, slide and overhead projections, recorded sound. Courtesy of the artist and Bureau, New York.

inside and an outside void of direction or hierarchy) remain radically different. It follows a routine oscillation "re-turning" within the ocean's depths, by which I mean, following Barad's feminist physics, that it moves "not by returning as in reflecting on or going back to a past that was, but re-turning as in turning it over and over again – iteratively intra-acting, re-diffracting, diffracting anew, in the making of new temporalities, […] new diffraction patterns" (Barad, "Diffracting Diffraction" 168).

A small white circle amidst an ocean of black then appears on the screen before Ga (fig. 4). Its edges are clearly demarcated, but from its sides, into the black expanse, radiates a gradient of its illumination. And while the source of its light remains unclear, its stands at once as an illustration for the hole within the ice, the lighthouse's broadcasting beam, and the diffraction patterns of which Barad, drawing on the work of Donna Haraway ("Promises of Monsters") and Trinh T. Minh-Ha, writes. For only when we conceive of difference at every

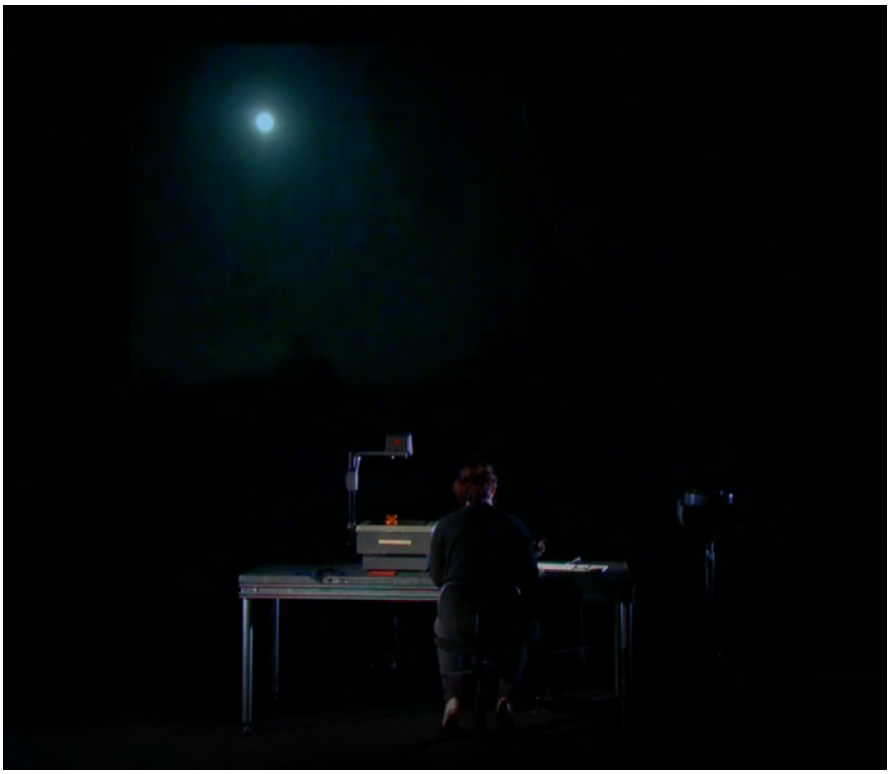

Fig. 4. From Ellie Ga, *The Fortunetellers*, 2011. Performance, running time: 1 hour. Live narration, video, slide and overhead projections, recorded sound. Courtesy of the artist and Bureau, New York.

scale of the dispersive gradient might we begin to complicate the light/dark binarisms with which one might simplify this image, or, more broadly, map the epistemologies that have thus far sufficed to fix matter and its meanings: inside/outside, past/present, objectivity/subjectivity, materiality/discursivity, self/Other. Butler has already assisted in recognizing spaces of *un*figuration as resistance to discursive binarisms, but in her formula, matter remains always implicitly subjugated to discourse (*Bodies that Matter* 9; *Undoing Gender* 217). As Barad asserts, "[l]anguage has been granted too much power" ("Posthuman Performativity" 801). Instead, how might bodies' and objects' matter remain inseparable from their materialization and how might these relationalities have ethical effects across the many scales of Ga's practice?

If we re-turn to the yo-yo's journey through the layers of water and history, we might start to draw a line towards Barad's ontological unification of matter, meaning, and practice. For the yo-yo is a measuring device, an apparatus, which takes as its objective, referential sample a water molecule at each layer. But the result of the experiment is not the inherent qualities of the molecule measured; the results include also the entirety of the material arrangement, an approximation between the apparatus and the object taken as an indivisible phenomenon. Thus, Barad closes down the gap between matter and discourse, bodies and their norms, by mediating through practice. Even if any given phenomenon lists its constitutive parts, each action or element is a contingent separation, an *intra*-action *within* the phenomenon that redefines difference not as something absolute or fixed but rather a dynamic effect of analysis. "Agential cuts," writes Barad, "never sit still…. Inside/outside is undone. […] An uncanny topology: no smooth surfaces, willies everywhere. Differences percolate through every 'thing,' reworking and being reworked through reiterative reconfigurings of

spacetimematterings […] each being (re)threaded through the other. Differences are always shifting within" ("Diffracting Diffraction" 178-179). The yo-yo turns over again within the waters, measuring certain qualities into an arrangement though never effecting a unification of beings. Irreconcilable contradictions, inherent differences, are held within.

Diffraction encompasses this appearance of patterns of difference coming together to form new arrangements of inclusion and exclusion. Contrary to traditional epistemological models of reflection and reflexivity, which uphold ideals of sameness and separateness, a constant keeping of "the world at a distance" (Barad, *Meeting the Universe* 87), diffraction provides a much clearer picture for analyzing the functions of the very apparatus that produces the pattern. For rather than viewing the same from afar, diffraction serves another metaphor of optics and geometry which maps interferences, disruptions, and the *effects* of difference. The very effects of these effects are crucial: no longer does it force media objects and mediatized subjects into competing taxonomies. Now, as if superimposed on the surface of Ga's overhead projector, suspended by a string between two bodies of water, and passing through a small hole in the ice, diffraction offers a space of entanglement, a phenomenal map of disjointed and indeterminate dynamics.

The overhead projector, like much of Ga's work, forces the artist into unexpected encounters, through which she uncovers a new ethics of care built upon the diffraction of her media objects and subjects. Her relationality among the materialities of her practice goes beyond traditional conceptions of media hybridity, which suggest that relations shape pre-existing entities (Haraway, "Promises of Monsters"; Latour). Yet she builds on these encounters, especially those non-human relations espoused by Haraway, in order to redistribute agency in an ethically significant manner toward those under significant duress. Perhaps most

surprising then, is not so much the yo-yo's ability to maneuver through time by passing through layers of water, but the ghostly reemergence of the yo-yo's dislocation, again and again. Derrida reminds us of this alterity always in anticipation when he asks:

> Does [justice] come simply to repair injustice or more precisely to rearticulate *as must be* the disjointure of the present time? […] Does not justice as relation to the other suppose […] the irreducible excess of a disjointure or an anachrony, […] some 'out of joint' dislocation in Being and in time itself […]? (*Specters of Marx* 32).

That which is included sustains always the haunting of that which is excluded. In other words, the message in the bottle sustains the haunting of the catastrophe just off-screen.

Like the materials assembled on the surface of the projector, Ga's falling camera forces us to reckon with irreducible relations between self and Other. In every mediated encounter, the metaphorical message in the bottle compels not just the reading of its surfaced inscription but also the historical effects of its seafaring. To find it is to confront these bewildering spatial and temporal conditions and to offer something in return. But rather than a reconstruction, Ga implores a response, for the relationality to the precarious Other is one already materially entangled with the self. Therefore, one cannot "wait" for a "catastrophe in a bottle"; it has already been found. The Other as its sender is irreducibly and materially bound to the self as its receiver. "Ethicality," Barad asserts, "entails noncoincidence with oneself" ("Quantum Entanglements" 265).

Conclusion

In a 2003 conference organized by *Critical Inquiry*, Peter Galison described the difficulties of a recurring trend of theory within which media studies at times still finds itself circulating. "Specific theory," he claimed, finds itself working "between the zero distance allowed by the

dream of an extreme empiricism and the infinite scale of a magical universalism" (382). To theorize about media means at once to place oneself in an Archimedean point outside of the world and to base one's empirical claims on the specifics of the material, archival, embodied objects of study. To some degree, this is the method with which I have observed Ga's own observational practice. But throughout I have sought inspiration from her study of the horizon, by which I mean her analysis of the alterity of lost objects—drifting onto the Aegean coast, submerged outside of Alexandria, layered beneath water and ice—and her recording through an imperfect, approximate, *approach*. Her form of cultural production, then, privileges the space of "specific theory's" contradiction, joining both poles while holding their respective irregularities in constant limbo on the distant edge of her "horizon of criticism" (Galison 382).

The metaphor of the horizon, then, becomes not a way to suggest a beyond, not an attempt to unearth the invisible levels of structural causality within the grain of the object, but rather a legible set of points one can use to navigate through an expanse of media studies. We might here adopt the epistemological frames Ga shares with maritime modeling—information, navigation, and intuition—in order to locate the value of the object not in its recovery but in the research. As Margaret Cohen writes, maritime fiction might offer a mode of reading which allows for the construction of an archive of things long lost to history:

> The narratologist in the archive of literature shares with the mariner and the reader the craving, "to see, to see." This "worker in prose," too, relies on precise techniques coupled with the pragmatic imagination and the tact hones through practice and experience in her efforts to make the unknown intelligible through piecing together partial information. The remarkable ability of navigators to thread a path across the oceans of the globe for almost three hundred years […] lacking complete information

> about their position on the earth speaks eloquently to the fact that knowledge can be usefully pursued, even amid uncertainty (73).

The navigational work of the researcher draws out a map on which no particular destination is marked. But a glimpse of one's coordinates might be found through the rote regularity of mark-making, much like the captain steering Ga's arctic expedition within *The Fortunetellers*. The hand that pens the mark deliberately projects information in one direction, one bombastic beam of light, causing all of his followers to work toward a similar destination. This is, after all, the intervention of the historian, especially in times of emergency: to find some orientation in a weather of uncertainty, to point to a light in the middle of the night (whatever the cost in the wider scene of one's research) to settle some sense of direction.

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Living in Emergency: The Response of New German Documentary Theater

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Abstract

Late twentieth and early twenty-first century German documentary theater occupies a paradoxical position between aesthetic artifact and factual report. Much work in the genre thematizes exceptional historical and social phenomena which may fairly be considered emergencies. Documentary theater by its nature problematizes the boundary between fiction and fact as well as that between report and material event. The theatrical mediation of documented event as implicit explication of larger issues enjoins a cognitive response in reception. This response, if a serious consideration of a matter thought important by the audience will necessarily require an individual orientation to that issue reflecting one's deeper values and sense of self, defining one's position in relation to said issue. We propose that much German documentary theater may be meaningfully explored as the nexus of concepts of emergency, materiality, theatrical mediation, and reception. The paper is structured as (1) an overview of issues, (2) introduction of concepts, (3) a short historical survey of German documentary theater, and (4 and 5) a comparative discussion of a classic and a contemporary work (*Verdicts*) in terms of the problematics. Methodology reflects the author's synthesis of several theoretical perspectives by among others, Agamben, Bakhtin, de Beauvoir, and Foucault. We conclude that documentary theater synthesizes, as a mechanism of reception, narrativization of material events into an enacted dramatical discourse that challenges audience perspective on and re-construction of, the material referents of documentation.

Keywords
discourse, documentary theater, emergency, materiality, mediation, narrative, subjectivization

In August 2015, as refugees from the war in Syria struggled for survival on the shores of Europe, German Chancellor Angela Merkel announced her government's suspension of the European Union's so-called Dublin Protocol. Since 1990 this rule had required refugees to seek asylum in the first country into which they gained entry. Consequently, the German government began allowing larger numbers of refugees into the country than would otherwise have been the case. Beginning in January 2020, the world's nations began initiating extraordinary measures to combat the spread of COVID-19, many of which continue to this time. Most would agree that both these situations may be fairly described as *emergencies*.

Within a span of somewhat more than one hundred years, the planet has witnessed numerous humanitarian catastrophes including two world wars, genocides, and pandemics. Each of these, and others, have presented the world's societies with challenges of emergency response. They have also challenged the world's artistic and intellectual community to respond cogently and meaningfully to not only particular instances but more generally to the 'state of emergency' as cultural paradigm. Of necessity, such emergencies and condition, subsuming the lives and deaths of humans as material beings, bracket notions of the subject, its construction, its material realization, and the concept of materiality itself.

1.

Of the many ways German writers and artists have responded to these emergencies, documentary theater occupies a prominent place. Prior to Chancellor Merkel's actions for Syrian refugees, ultra-nationalist and xenophobic backlash against immigrants and asylum seekers had already begun to gain ground in the German language area. Austria and

Switzerland had witnessed the electoral successes of anti-immigrant political parties since the beginning of the current century, but such sentiment had failed to produce similar results in Germany.

Beginning in 2013 the right-wing party *Alternative für Deutschland* (Alternatives for Germany) began to win seats in German state legislatures and since 2017 has held the third largest number in the *Bundestag*, the German parliament in Berlin. Social activists and socially engaged artists have reacted to this state of affairs in various media, including that of documentary theater. The director Volker Lösch, in his *Graf Öderland/Wir sind das Volk* (*Count Öderland/We are the People*, 2015), utilizing amateur and professional performers, fashioned a hybrid dramatization of the contemporary political scene amalgamating material from ultra-nationalist agitation and its critics from the renowned Swiss author Max Frisch's play *Count Öderland* (1951). The director and writer Falk Richter, in *Fear* (2015), produced a work somewhat closer to traditional documentary theater with material presented substantially unfiltered from news sources, as commentary on nationalist agitation (Wahl).

There is thus the inescapable feeling that emergency response to the ongoing refugee crisis of peoples fleeing both environmentally and politically unsustainable conditions has become paired with, in the words of one commentator, a "racism emergency" (Pascoët). Racism in unified Germany predates, of course, current controversies over immigration and asylum. Racism as an institutional construct is also interrogated in contemporary German documentary theater. In 2014 the Munich-based dramatists Azar Mortazavi and Christine Umpfenbach pursued this goal in *Urteile* (*Verdicts*). Between 1999 and 2011 a number of bombings, bank robberies, and murders of immigrants took place in Germany. The authorities and press speculated that many of these crimes were committed by underworld figures or the

families of victims themselves. In 2011, it became apparent that these were committed by three right-wing terrorists who styled themselves the *Nationalsozialistische Untergrund* (national socialist underground) or NSU, after two of the members committed suicide and the third was arrested. Through the investigation and trial that followed, it was evident that a large network of individuals had facilitated hiding the three and that state authorities only half-heartedly attempted to solve these crimes and apprehend their perpetrators.

Umpfenbach researched the crimes and conducted interviews with friends and families of two victims who had been killed in Munich. She and Azar Mortazavi then produced a theater text about the effects of structural and institutional racism in German society. *Verdicts* comprises a collage of documentary materials augmented with poetic interludes that foregrounds the victims of right-wing terrorism from the perspective of their families and communities. These authors seek to derive perspicacity from a connection to a 'reality.' With sensitivity to the history of debates on the problematic nature of representation, however, their reality is, in the words of Umpfenbach, "subjectively colored" (Braunmüller).

Where earlier practitioners privileged documentary verisimilitude, admitting of at most, a re-structuring, Mortazavi and Umpfenbach privilege judgment as methodology. Staging and text rely less on irony and distance than shock and empathy. There is structural embrace of intermedial resources. For instance, dialogue is fashioned without interpretive differentiation from interviews, police reports, media headlines, e-mails, verse, and original text. Aesthetics and staging occupy a subsidiary role, but the admixture of text types and allusion to real events crosses the line between intellectual analysis and emotional involvement. The play attempts to make the audience feel the sense of threat experienced by the victims (Watzke). Consider a scene in which an e-mail from an official refusing an interview with Christine Umpfenbach

aligned with texts from a politician, a lawyer, and a nameless female friend that underscore the extent to which right-wing violence has been underplayed by officialdom. The psychological depth of this scene derives from the realization, uttered by the last referenced actor, that there was and probably is not just one neo-Nazi terror cell and what that realization means for members of the immigrant community (Mortazavi and Umpfenbach 54-55). The texts and events re-presented on the stage derive from the original *materializations* of violence. People died, families became bereaved. *Verdicts* seeks to reveal the societal power structures that make injustice possible.

These power structures, however, are no mere theoretical constructs but concrete constellations of actions, documents, and events commonly regarded as referents of corporeal beings and material objects, their interactions, and manipulations. *Verdicts* presents a complex of standard relationships: production, stagecraft, audience reception or participation, and additionally, as *documentary* theater, an explicit relationship to presumptive non-fictive events. An important communicative aspect derives from the noun that forms the title of the play, translating to both *verdicts* and *judgments* in English. For the philosophically oriented the latter term recalls classic disquisitions by Kant, Hegel, and Adorno. Vernacular associations in German range from those invoking the faculty of choice to judicial decision. Further signification derives from the compounding of the term into *Vorurteil* or prejudice. The particular foregrounded events form, together with the theoretical and practical aspects of its dramatic realization, a nexus of implicit relationships, among which are the material constitution of a moral and political self in relation to the depiction of documented human interactions and the social dimensions of those interactions. For the work *Verdicts*, these social

dimensions derive from aspects of German history inextricably linked to the experience of crisis and associated in vernacular perception as in some way constituting an emergency.

2.

What is an emergency? How does the concept of emergency relate to the topic at hand? The *Oxford English Dictionary* traces the original associations of the word to the rising of the submerged or the disclosing of the concealed (176). The modern meaning of a situation requiring action derives differently in languages other than English, e.g. German *Notfall,* literally "case of need." Accepting the word as a semantic complex in dialogue with many significations, including that of *emergence*, we are acquainted in our lives with numerous examples: medical emergency, life-threatening emergency, national emergency, state of emergency, and others. The term, as a signifier of the political, is the object of legal interpretation and juridical theorization. Applied to the literary-theoretical and socio-political realms, the concept has been explored extensively in terms of Giorgio Agamben's explication of Carl Schmitt's "state of exception." From a semantic perspective, it is worth noting that this concept in German, *Ausnahmezustand*, is in fact the common denotation for the English: state of emergency.

Particularly since September 11, 2001, political theorization of governance by a 'permanent state of emergency' in Western democracies has gained currency. The specific point of comparison is, of course, the idea that emergency laws passed by governments that may seek to curtail established liberties in the wake of perceived terrorist activities form exceptions to the various constitutional traditions, and may with prolongation become a new norm of governance. One may think the situation as a dual entanglement. Not only does the emergency lie outside the normal flow of life, but the reaction to it, as legal sanction of abrogated norms,

residing both outside and inside (by virtue of its agreed upon legality) the judicial system, may become, as permanent dispensation of power, the new norm. Yet the exception, and in this case, the emergency so construed, illuminates the established norm through differentiation (Agamben 18). Of course, emergency response may be more benign, and designed to truly protect, as in the case of public health emergencies, although results may be controversial.

German language documentary theater addresses the issue on several levels. Much of the subject matter thematizes societal emergencies: the political chaos of the Weimar Republic, the Holocaust, immigration and xenophobia. Yet, as we shall see, such dramatization in the best cases, strives to make the abrogation of important societal norms evident. This theater seeks to subvert conventional narratives by positing alternative discourses derived from the material documentation of those stories. In a manner similar to Agamben's explication of Hegel on language (21), the play is thus both inside and outside the constructs it portrays. In this manner, it becomes its own performative exception to conventional states of affairs.

Is matter important? Are bodies important? Are bodies material? Allusion to and, frequently, documentation of physical events form the basis of this theater. Whether as part of that documentation or as a facet of dramatic artistry in its historical development, bodies and objects have told and continue to tell stories on the stage. A particularly defining dimension for documentary theater arises from the fact that the script may literally embody the materials from which the drama is derived. The philosopher John McCumber employs the term "the speaking of matter" for the material processes by which "the world's oppressed demand to be heard" (177). In much documentary theater, matter does indeed speak in this way, as we shall see.

Theorization of the body, its (un)necessary materiality, and its relation to the human condition is greatly varied. Simone de Beauvoir emphasized the importance of lived experience for the embodied self (24). For Judith Butler, performativity and cultural discourse define gender and thus the positioning of any particular body as a self in the world (22-25). The more radical position of N. Katherine Hayles finds that there may also be no necessary connection between cognition, body, and materiality (13). Particularly with the advent of information technology has it been possible to conceive of and interact with immaterial objects and subjectivities. What is the ontological status of an image consisting of pixels on a computer screen as human simulacrum, addressing the viewer via accompanying audio file with words expressing synchronous presence?

All these issues have significance for theater. Its position as *mediation* will vary in relation to underlying assumptions about the role of materiality in a given theater piece. The staged work is both conceptual and material. In the German language milieu, Erwin Piscator's utilization of stark contrasts, collage, and new technical staging effects signified a certain outlook in support of a particular political orientation. The re-worked trial transcript of Peter Weiss's *The Investigation* privileges a certain conception of authenticity discoverable in a material object. Intertextuality in Heiner Müller's work produces wide-ranging conceptual associations, in turn aesthetic, historical, material. Documentary theater is confronted also by such issues and may utilize similar techniques. Werner Kroesinger's *Q & A—Questions and Answers* confronts the audience, as participants, with a type of ethical vertigo, in that they are asked to sit next to figures portraying the prosecutor and defendant, respectively, in the trial of Adolf Eichmann, only to witness the actors' roles reversed (Irmer 20).

Documentary theater unavoidably invites paradox in that *subjects* constituted by life histories become objects of portrayal, comprised anew by the exigencies of the dramatic situation, and ultimately constituents of audience self-positioning in relation to the reception of the play. The examination of what it means to be a 'self' has a long tradition in European and German literature. Andrew Bowie observes that the late Enlightenment's interest in the constitution of one's self becomes an aspect of 'modernity' (2), and this interest, transmitted also by Fichte, is further evidenced in German literature in the works of the Romantics: Karoline von Günderrode, Friedrich Hölderlin, and Novalis (88-99).

Twentieth and early twenty-first century criticism has interrogated, in varied modes, the manner in which one, in Foucault's terms, "decides on a certain mode of being" that will determine one's "moral goal" (*Use* 28). This self-formation is not seen as a given in itself but as a dynamic entity in relation to contingent conditions. In this connection, the 'documentary' theater piece by definition interrogates the constitution of one's self in the mediation of corporeality (and/or materiality), figural construction, and socio-political orientation. Performance becomes a site for the interweaving of narratives germane to the figures and materials at issue into a multimedial discourse that enjoins audience response as a positioning to the issues uncovered.

3.

Theater fashioned from documentary sources has been an intergenerational project within the German language area. In 1925 Erwin Piscator wrote *Trotz alledem!* (*In Spite of Everything!*), incorporating contemporary news articles, pamphlets, speeches, and film depicting the background and course of the German November revolution of 1918. These provided a socially conscious, in this case Marxist, politicized viewpoint through a montage of factual material

rather than character development. Rolf Hochhuth's *Der Stellvertreter* (*The Deputy*, 1963) erects a somewhat surrealistic framework freely derived from historical documents and conversations regarding the relation of the Roman Catholic Church to the policies of Nazi Germany. Heinar Kipphardt's *In der Sache J. Robert Oppenheimer* (*In the Case of J. Robert Oppenheimer*, 1964) adapted transcripts of a congressional subcommittee interview of the famed nuclear scientist and germane utterances of scientist colleagues into a dramatic script to elucidate McCarthy-era politics in the United States. Peter Weiss's *Die Ermittlung* (*The Investigation*, 1965) attempted to realize the author's dictum that documentary theater should consist of incident reporting and deviate from original materials primarily in formal presentation (67-68). Many of these plays provoked discussion of the crimes of the Nazi period, about which German postwar society had been silent, through the dramatization of 'factual' and thus 'authentic' material, as distinguished from the merely *constructed* (Irmer 18).

German documentary theater of the present concentrates heterogeneous dramatic resources on the explication of the societal tensions and dislocations attendant upon contemporary events. Older practitioners of the genre have been joined by a diverse group of younger enthusiasts such as Milo Rau, Christine Umpfenbach, and groups like *Rimini Protokoll*. The diverse subject matter(s) of these producers range from explications of political murders to violence spawned by racism and ultra-nationalism. In the 1990s, after a period in which the artform had become relatively marginal, proponents of a new documentary theater like Hans-Werner Kroesinger in works like *Q &A—Questions and Answers* (1996) began to probe contemporary society through "an elaborate understanding of media culture, the theory of deconstruction, and forms of theatre that are not primarily based on text" (Irmer 20). Unlike their counterparts in the 1960s, younger adherents, with postmodern sensibility, began to

distinguish less between primary and secondary sources, bracketing the tension between 'authentic' and 'constructed' (20).

In 2007, the Swiss director Milo Rau's company *International Institute of Political Murder (IIPM)* was founded with a focus on documenting the execution of the former Romanian dictator Nicholas Ceaușescu and his wife. The company continues to document notable historical events through film, literature, documentaries, and papers. The group *Rimini Protokoll* works with experts in various fields, including technology, to create stage and radio plays and installations to elucidate the social environment by dramaturgical means. A significant work in the genre by an older established figure is Austrian Nobel laureate Elfriede Jelinek's *Die Schutzbefohlenen* (*The Wards*, 2013/2015). This piece, concerning the plight of refugees in Austria, highlights the connection of documentary theater with lived experience and embodied mediation in theater. When the actors in a performance are real-life refugees, as is sometimes the case, bodies that have suffered confront an audience with judgments concerning the real and the fictive, and destabilize that supposed dichotomy. Would a computer-generated performance provide similarly perspicacious focalization?

Austrian theater presents a strong tradition of dramatized documentation of real world events, such as Karl Kraus's renowned *The Last Days of Mankind* (1919), employing both direct quotation and fantasy sequences. Peter Wagner's *March, the 24th* (1995) reworks the massacre of two hundred Hungarian Jews by German troops near the end of World War Two into a self-described work of fiction, a parable. Jelinek's *The Wards* deploys passages from Aeschylus, Ovid, Hölderlin, Rilke, and Heidegger as commentary on a text fashioned from protests by asylum seekers in Vienna over unfair and inhumane treatment by Austrian authorities. More recently, the director Peter Arp, in *Srebrenica*, recounts the tragedy of

genocide in the Bosnian conflict of 1995 through the words of a survivor, a United Nations translator. In regard to many of these artistic practices it is perhaps apt to remark the extent to which documentarism may reflect less the encounter with factual events and serve more as a "tool of the regeneration of aesthetic conventions" (Beumers and Lipovetsky 560).

4.

In what way, then, does documentary theater contribute to an understanding of the intersection of emergency, materiality, mediation, and lived experience? A short generalization might be that documentary theater consists in discourses that are not only verbal but material, issuing from modes of speech that construct alternatives to those disclosed in everyday existence. The following comparison will further clarify these issues.

The text of Peter Weiss's *The Investigation* consists of edited verbatim testimony from one of the 'Auschwitz' trials in Frankfurt in 1963. In this sense, the work speaks to, perhaps, not so much a societal emergency as to the related sense of the term, an emergence—an uncovering of the repressed. The aesthetics of this and other works of its type present for its enthusiasts a corrective to the self-absorption of a West German society seeking to escape dealing with guilt in the aftermath of World War II. The focus is on the text, presented without punctuation by anonymized witnesses and defendants. Yet auctorial intervention is revealed not only in these particulars but also in the arrangement of utterances into *cantos*, after Dante's *Divine Comedy*. The declamation and overall staging suggest a debt to Brecht in the minimalist treatment, the accompanying *estrangement effects* that confront the audience, and in didactic purpose.

For the German theater critic Thomas Irmer, this type of documentary theater marks "a shift from the poetic drama and the theatre of the absurd, which were dominant during the

1950s, to the overtly political theatre of the 1960s" (17). Weiss has explained that his documentary theater advocates a practice wherein reality, even if apparently opaque, may be explained in detail. The 'documented' work critiques presumed factual events through their re-constellation and embodiment on the stage. The performance might be considered the conceptual inscription of the materiality of an event within a new medium, enacting differentiation of facets of that materiality that were obscured by their conventional real-world objectification.

The play thus confronts the audience with a synthetic realism for serious political purposes, comprising a discourse that requires audience and societal response, either in approval or opprobrium. This requisite response exerts a performative claim encompassing (in a Foucauldian sense) *the power relationships* involved, creating a position relative to that claim through individual response. This type of theater attempts, then, to situate facticity into this milieu in the form of the claims of actual power structures, in opposition to what some, particularly during the mid-twentieth century, regarded as the aestheticization of the patently fictive in the arts or the escapism of popular culture, and the subjectivity which is bound up with those values.

Azar Mortazavi's and Christine Umpfenbach's co-authored *Verdicts* (2014) works with similar problematics yet with a difference born of contemporary artistic and social engagement. The work takes as its starting point the murder of two members of the immigrant community, one of Greek and the other of Turkish ethnicity. The circumstances surrounding these tragedies are given voice through the verbalizing of interviews and statements by, among others, the victims' relatives, friends, a police reporter, a journalist, a lawyer, a priest, a politician, and the leader of the investigative murder commission, as well as the inclusion of

relevant documents. Several freely composed poetic interludes provide commentary on the events and the immigrant experience in Germany in general. The staging is usually spare, an open space with several utilitarian chairs along a back wall. A maple tree hangs suspended by the roots from the ceiling—signifying what? Perhaps the homelessness of the unaccepted immigrant community or an evocation of the tree-lined streets on which the murders took place (Walter)?

Inversion of expectation is apparent in the opening scene with a testimonial by the brother of one victim about the extent to which the family considered itself integrated into German society. As further texts are introduced, the audience becomes aware that the investigation and journalistic reporting of these crimes inexplicably focuses suspicion on the migrant community itself and discounts suggestions of native German and Neo-nazi involvement (Mortazavi and Umpfenbach 13, 37-39). *Verdicts* both issues from and enacts conditions of emergency in several senses. Even since the inception of this play, right-wing and racist violence has steadily increased in Germany. Xenophobia among the citizenry is well documented, and it is what some call the "structural and institutional discrimination" (Sharifi 67) that constitutes an exception to the societal legal and moral codes that inheres within both as an inversional norm. Yet the contradictory signifiers in the double status of being both inside and outside those norms allows a work such as *Verdicts*, as critique, to uncover the submerged animosities and serve as warning signal for a too long neglected societal emergency.

An actor portrays a merchant recounting the sight of a victim's body—shot through the head. Another actor gives voice to the anguish of the victim's wife as she recalls the police informing her that she could not view the body soon after the shooting since an autopsy was

being conducted immediately (Mortazavi and Umpfenbach 17). There is no corpse on the stage, only living bodies narrating an event that the audience may only conceptually apprehend. The victims, like the audience, were corporeal intelligences. They perceived their bodies as integral to their sense of self. Yet these bodies were not just biological artifacts—the mind's construal of chemical processes as a putative entity—but constellations of lived experiences and familial and cultural connections. The importance of this realization for the play is placarded by the titles of the poetic interludes, "Bodies of Shame." Each illustrates an aspect of the immigrant experience in Germany in its frustrations with lack of empathy by the society in which many have lived their entire lives. The materiality of the victims and their worlds, like that of the actors and audience, is realized as spatio-temporal event. When this materiality is re-constellated in theater, the memory of the original, as documented, becomes just as materially inscribed, by other bodies, in another medium. While this dramaturgical inscription could be dismissed as mere simulacrum, it actually enacts a *dialogical*, in a Bakhtinian sense, relationship of event to text, which extends the narrative also to cognitive processing, becoming in turn a part of that developing narrative.

5.

The issue of the *mediation* of event both by documentary inscription and through stagecraft becomes apparent in a passage from *Verdicts* in which it is revealed that political investigation of the underlying crimes was hampered by the fact that witness testimony was not videorecorded and consisted therefore only of handwritten summaries prepared by the initial investigators (51-53). At this level, then, subtracting bodies and physical objects, event is reduced to mere ink on a page from which a mnemonic record may be abstracted. Documentary theater analyzes and confronts this minimal re-presentation for aesthetic and

critical ends. Perhaps similar to the transformation of computer code into legible and visual, if virtual, instantiation, as alluded to earlier, theater also functions as a site (literally and conceptually) for the transformation of information into material realization.

It might be asked: is documentary theater more about *witnessing* or assessing a *lived experience*? Considering the multiplicity of possible signifiers, it could be either, both, or neither, depending on the work and the intellectual disposition of the audience in reception. For example, Piscator's *Despite Everything!* bears witness to and implicitly recommends to the viewer a Marxist political outlook within the Weimar Republic of Germany. Hochhuth's *The Deputy* probes the nature of responsibility in relation to the stance of Pope Pius XII towards the implementation of measures that led to the Holocaust. Weiss's *The Investigation* works with the assumption that the lived experience of genocide may be interrogated from almost verbatim trial transcripts, uncovering repressed societal guilt, as referenced earlier. The contemporary group *Rimini Protokoll* seeks to "expand the means of the theatre to create new perspectives on reality." Their 'post-dramatic' satirical offerings, often utilizing technology in unexpected ways, include an adaptation of Karl Marx's *Capital*, for the stage, and a terrarium of locusts at the *Schauspielhaus Zürich* (Zürich Playhouse) documented by miniature video cameras, as a commentary on human destiny after climate change.

Contemporary European theater inherits its own history of dramatic reception. The dramaturgical groundwork for Piscator is Expressionism, for Weiss and mid-twentieth century creators, the intellectualized *epic theater* realized as putative facticity. In Umpfenbach's *Verdicts* one perceives, as an echo perhaps of Lessing, the possibility of identification and empathy in the descriptions of indignities visited upon the protagonists. There is interrogation of social processes—although without the scientific pretensions of Naturalism—in uncovering

mechanisms of discrimination. Nameless actors questioning the statements of those portraying politicians suggest a debt to Brecht. Additionally, audience reading of performance technics will supplement and diversify a work's intended thematics. All of which places a work like *Verdicts* in dialogue with a great number of textual and visual significations through which the audience member may cognitively apprehend and individually construct a *discourse* communicating a distinctive viewpoint. Text, stagecraft, affect, internal logic, signification, and perspective all combine to communicate or perhaps to subvert the communication of this perspective, but in either case the presentation will cognitively situate the viewer or participant in relation to that perspective, at some level, whether perceived as witness, a commentary on lived experience, or something else entirely. It is the incorporation into the ongoing lived experience of the theater-goer that ultimately becomes determinative in this regard.

A discourse may be deployed for a multitude of purposes—some prescriptive, some proscriptive, as Foucault elaborates ("Discourse" 215-224). In this sense, the performance becomes a site for the interweaving of narratives germane to that performance into a discourse that elicits individual response and ideally the interrogation of the self that art in general and here, documentary theater, elicits. However, one's overarching values and orientations (which may also be transitory) are constituted, when one is confronted by a discourse of intellectual or moral substance, one's response may assent to, or question (at least partially), or ignore those values. Self-positioning thus becomes a fluid process in relation to specific problematics as when, at the end of *Verdicts,* for instance, a victim's brother asks why everything foreign is so often denied in Germany (Mortazavi and Umpfenbach 58). Does one or does one not interrogate one's own judgments, prejudices, and responsibility in the social order (Bakhtin 68)? In relation to which of many behavioral alternatives does one ultimately position oneself?

Discourses do not arise fully formed. The particular way of talking evinced by a discourse may be decomposed into individual narratives. These may situate the material referents of the play into temporal sequences and thematic categories. They may also position the individual, in reception, within the culture of one's society or present the potential to subvert inherited social constructions. Ultimately, they will frame alternative discourses that situate the "individual self " into "an ongoing process of construction" through social interaction (Jørgensen and Phillips 109). Discourses that arise from the types of documentary theater under discussion actually enact the deconstruction of power structures and the reconfiguration of one's position in relation to this deconstruction. Christine Umpfenbach states that *Verdicts* not only thematizes right-wing extremism but importantly the connection between bourgeois culture and racism. She asks what has gone structurally wrong within German society (Walter)? It is this last query that reveals the subversive core of the play, in that it *marshals the documentation that is used to administer* and support societal power structures to disclose pervasive racism and to discursively call the structure of German society *in toto* into question as an emergency that must be dealt with now.

How then, in *Verdicts,* do the problematics of emergency, materiality, its mediation in theater, and audience reception make a claim on human 'modes of being,' and what is that claim? Viewing the concept of emergency as homologous to some of Agamben's theorizations of 'the exception,' as introduced earlier, situates the former also into his discourse of *biopolitics*. Commencing with the positing of that mode of being which was excluded from the political sphere of the classical world—Greek *zoē*—natural life (in opposition to *bios* or political life), which Agamben terms *bare life* (2), becomes, at the onset of modernity, the bearer of rights but at the same time, as fundament of citizenship in a nation state, also its own

instrument of exclusion (126-130). *Verdicts* structures its discourse in terms of judgments of this problematic. The play consists of twelve scenes vivifying interviews of friends and relatives of the NSU murder victims as well as other principals to the tragedies. Their dialogues constitute the testimony of those excluded from the judgments in official judicial inquiries.

Particularly poignant constituents of the work are Azar Mortazavi's poetic interludes "Bodies of Shame" based on her experiences in Germany as a child of an immigrant parent. Here, not only does the excluded as societal exception thereby critique the so-called normative, but a conception of the 'real' emerges from the embodiment of the life experience of those excluded. The real of *Verdicts* is incontrovertibly political. For Agamben, "refugees . . . represent a disquieting element in the order of the modern nation-state" (131). They once again introduce *bare life* into the political order without the cloak of citizenship. *Verdicts* unmasks the ways in which German authorities and ordinary citizens, through *their* pre-judgment of an essential opposition between those who should be inside and outside the socio-political order, cognitively, materially, and juridically relegate the migrant community to one of natural life only, as despised exception to the broader economic and civic life of the modern German nation-state. When *Verdicts* concludes with the pronouncement that "one must see what actually is" (Mortzavi and Umpfenbach 59), the audience is challenged to find Foucault's "certain mode of being" that defines one's "moral goal" (*Use* 28) in relation to this discourse-through-drama of the emergency of racism in contemporary societies. The play's final words, "I don't want to sleep," are a call to action.

Conclusion

Much German documentary theater, particularly recent works like *Verdicts*, proceed from the

premise of a societal emergency and seek to vivify and explicate this situation on the basis of material documentation and attendant circumstances. Yet the process of dramaturgical adaptation may interrogate not only purported facts but also the bases on which such facts and their material referents are commonly assumed valid. Azar Mortzavi and Christine Umpfenbach challenge audiences to acknowledge the voice of the unheard and the marginalized in society with the goal of affecting social change. Other producers may invite viewers to reflect more on dramatic structuring and performance. The very diversity of significations and possible receptions brackets the relationship of self to that which is purportedly constitutive of documentary theater as a genre, and which here functions perhaps as a cognitive void to be filled, namely, 'the real.' Inherent in the genre is also the danger of closure, the mere replacement of official discourses with a similarly 'authoritative' metanarrative. To this point, it should be evident that works must project the complexity and contingency of actual life experience in order to enjoin the formation of a mode of being that defines a position in response to the discourse projected from the stage (Sieg). Perhaps the primary message communicated by contemporary German documentary theater is that profitable engagement with the material world will be not in terms of data only. It will require appreciation for its constitution in human lives and conduct, and the consequences to oneself and society of any construction of reality that ignores this guiding orientation.

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COVID-19 and the UK Live Music Industry: A Crisis of Spatial Materiality

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Abstract

For the live music industry, and those who work in it, the COVID-19 outbreak has been predominantly framed as an economic crisis, one in which the economic systems through which revenue is derived from music-based products and practices have been abruptly closed off by a crisis of public health. Using Lefebvre's trialectics of spatiality as a theoretical lens, we will argue that, for live music, the COVID-19 outbreak can be seen as a crisis of spatial materiality. During a time of lockdown and social distancing, spaces of music production (rehearsal spaces, studios) and consumption (venues, nightclubs) have found themselves suddenly unfit for purpose. Drawing upon empirical data from ongoing research projects in Scotland and the Midlands, we will highlight the ways in which COVID-19 has disrupted the spatial practice of music. From there, we will argue that there is a need for new representational spaces of music, and the creation of new forms of musical-spatial practice, appropriating spaces of the domestic and the everyday, and fusing / overlaying them with new cultural meaning and (crucially for musicians) a reconsideration of value by potential consumers.

Keywords

COVID-19, live music, music industry, space, materiality, lockdown, musicians

Introduction

In the context of live music in the UK, the COVID-19 outbreak has been framed primarily as an economic crisis, in which the music-based products and practices through which revenue is derived have been abruptly and, arguably, irreparably disrupted by a global public health emergency. Reporting on the crisis, both within the industries themselves and as part of broader media discourse, has tended to express and understand its impact in quantitative terms of economic losses (Hanley), venue closures (Music Venue Trust), and spiraling job losses (Parry). However, while quantitative measures of economic loss provide an important narrative for industry organizations lobbying for government assistance, and present a compelling media narrative through which to report the crisis's impact, they have their limitations for academics and researchers seeking to understand the cultural impact of the crisis, or to offer alternative approaches through which to rethink and restructure music-based practice.

This is not to say that this crisis is not economic in nature. It is not our intention to downplay the urgent importance of such financial interventions in order to preserve music-based economies in the immediate term. However, plugging the financial gap left in the wake of this crisis may only ever be a temporary solution to what may be a seismic shift in the structure of the live music industries themselves. In order to develop and advocate for *effective* economic solutions which meet the longer-term needs of a beleaguered live music sector, it is important to understand the challenges created by fundamental changes to the ways public spaces can be occupied, and to consider how the UK's live music industry might meaningfully adapt.

We argue that the roots of the economic challenges facing the UK's live music industry are fundamentally spatial in nature. The need to reconceive, redefine, and restructure public

spaces around organizational principles of social distancing has left the vast majority of live music spaces suddenly unfit for purpose. To that end, this article seeks to frame the impact of the COVID-19 crisis on the music industries as a crisis of spatial materiality. Drawing upon Henri Lefebvre's trialectics of spatiality, and subsequent developments and applications—such as Karen Dale's theory of spatial materiality, and Robert Prey's discussion of the spatiality of music streaming—we will seek to understand how live music spaces have changed, and the impact that this has had on the "lived experience of the majority of musicians and operators" working in live music (Williamson and Cloonan 320). This theoretical lens will be explored in relation to data from two ongoing research projects, focusing on live music venues in Birmingham and the current jazz scene in Scotland. In doing so, we aim to reframe the debate through the plural lived experiences of those whose creative labor produces the music industries, and use these experiences as a means to begin rethinking the spatial practice of music production and consumption.

Music, Materiality, and Space

Before we can argue for the relevance of materiality and spatiality as offering crucial insights into the music industries' experience of, and response to, the COVID-19 crisis, first it is necessary to situate these terms within the context of that argument. In doing so, we will seek to establish an approach to what Dale has termed a "social materiality," or a system wherein "social processes and structures *and* material processes and structures are seen as mutually enacting" (651, emphasis in original). This section will therefore seek to locate the crisis facing the music industries in terms of wider academic discussions of materiality, spatiality, and practice.

The study of culture, and the mediation of cultural meaning, has long been intimately entangled with discussions of the material world in which they are situated. The concept of materiality, in relation to the study of culture, is concerned with how the "material character of the world around us is appropriated by humanity" (Graves-Brown 1), and how, in turn, social and cultural structures are shaped by their embeddedness within the material world. Rather than simply referring to the material qualities of a particular artifact, object, or space, to talk of materiality is to engage with the relationships through which such material qualities are created and understood as meaningful within systems of society and culture. We use the term materiality here as a shorthand for the entanglement of socio-cultural meaning and the "inescapable situatedness" of human existence within corporeal experience (Kallinikos et al. 6)—the ontological position that social meaning cannot exist outside of the influence of the material world. The meanings of material objects cannot be understood outside of their social context. Likewise, the meanings and practices of culture and society cannot be said to exist independently of their corporeal context.

Recent scholarship by Will Straw, Andy Bennett and Ian Rogers, and Iain Taylor has highlighted the importance of an attentiveness to notions of materiality in studying popular music cultures. Questions of materiality are important in understanding music as a social thing, because such questions attend to the ways the aesthetic qualities of music, and the performative and cultural practices which produce them, exist in entanglement with what Straw describes as music's "material extensions" (231), the artefacts which constitute music's material culture. From the instruments through which it is composed and performed, to the physical audio formats through which it has been distributed and consumed, to the emerging digital materialities of devices and interfaces, music is experienced as part of systems of material

culture. This is not to claim that music can *only* be understood in terms of its material extensions; rather, it is an assertion that music cannot be fully extricated from, or experienced outside of, such systems. The objects and artefacts of music's materiality are "imbued with culture, language, imagination, memory" in such a way as to resist their reduction to "mere object or objectivity" (Dale 652). In short, in seeking to understand the socio-cultural and economic meanings of music within society, we see a sensitivity to its materiality as a crucial component of that analysis.

If, as we have argued, the production and consumption of music's cultural meaning has an inherent and important materiality, then it follows that music is also inherently spatial. It exists and resonates within a given space, and its meanings are colored and shaped by that space. Part of this is owing to the meanings associated with particular spaces of music performance. A rendition of a piece of music in a rehearsal space has a very different cultural meaning to a rendition of that same piece in a concert hall, even if there is little tangible difference in terms of the performances. Likewise, the rendition of a song by an artist to a near-empty venue during a pre-gig soundcheck exists as something different from their performance of that same song to an audience in that same venue-space a few hours later. Given the inescapable situatedness of music, any discussion of the significance of its materiality is also, by necessity, a discussion of the space in which it is situated.

In theorizing the significance of space as processes of production and consumption, Lefebvre's trialectics of spatiality provides a useful set of tools through which to understand how such cultural meanings are produced within, and by, spaces. In particular, Lefebvre's work is useful in seeking to understand the relationship between notions of space and the production and consumption of music as part of capitalism. For Lefebvre, capitalism is not

simply concerned with the production of things *within* space but is actually acutely concerned with the production of space itself. It seeks to appropriate and dominate pre-existing spaces by reframing them in terms of "alienating relations of production" under capitalism (Lefebvre 49), while also actively producing new spaces through the creation of new sites and forms of consumption. This might refer, for instance, to the gentrification of urban areas through processes of 'aestheticization' (Mathews) or social (re)construction (Pérez), the expansion of existing models of consumption into new, online spaces (Prey), or the emergence of new cultural practices amongst consumers once they enfold online spaces into their everyday routines (Lim; Hamilton; Hamilton and Raine; Woods).

For Lefebvre, space is not some kind of fixed entity that 'pre-exists' human interaction. Rather, it can be seen as something which is fluid and dynamic, which is actively produced through sociality, in a "constantly mutating process" (Peters 2). This process can be broken down into three 'aspects' of space, which Lefebvre refers to as "spatial practice," "representations of space," and "representational spaces" (38).

The first of these aspects, which Lefebvre refers to as "spatial practice," is concerned with space as perceived through the lens of the everyday and corporeal experience. This aspect is concerned with "space as perceived through our senses" (Prey 4) in which space is understood in relation to physical experience. As Dale has noted, as well as being actively and phenomenologically experienced, such conceptions of space are often "taken for granted through the habits of the body" (657). As such, experiences of spatial practice are understood through our own "habituated ways of engaging our bodies with a certain materiality" (657) and our subconscious familiarity with particular organizations of space. The second aspect of Lefebvre's spatial triad is what he calls "representations of space," or conceived space. Spatial

practice refers to the meanings contained within the corporeal and physically experienced aspects of space; representations of space can be taken to refer to the cultural meanings of space and the "deliberate construction of space to embody certain conceptualizations in materialized form" (Dale 657). For Lefebvre, this is the dominant space within society and, by extension, for any system of production and consumption. The third, and final, aspect of space is what Lefebvre refers to as "representational space," or space as "directly lived through its associated images and symbols" (39). This is the space in which corporeal, material space is overlaid with 'imagined' or symbolic spaces—a fusing of physical and cultural.

While these three aspects can be difficult to disentangle in terms of our embodied experience of social space, they offer a useful conceptual framework for thinking about the materiality of space as something which is simultaneously experienced as material / embodied and as cultural / imagined. Lefebvre uses this to talk about the difference between "dominated (and dominant) space, which is to say a space transformed—and mediated—by technology, by practice" (he uses examples of military and state power here, but commerce could equally be applicable) and "appropriated space," referring to a more loosely defined category of organic adaptations of spaces in line with the needs of a particular group inhabiting them at a given time (164). As we shall demonstrate in the subsequent sections, these conceptualizations of space provide a useful theoretical lens through which to explore and understand the impact of the COVID-19 outbreak in transforming both the physical experience and cultural meanings of music-based spaces.

Musical-Spatial Crises in Context

In seeking to apply Lefebvre's trialectics of spatiality to the crisis currently facing the UK music industries, we have drawn upon data emerging from two ongoing research projects. The

first focuses on changes to the lives of Scotland-based jazz and blues musicians as part of a government-funded project.[1] The second, funded by the Creative Industries Policy Advice Centre (PEC), focuses on the "UK live music industry in a post-2019 era," and was initially designed to explore how the live music ecology of Birmingham is constituted, and its approaches to challenges related to national and international change.[2]

Each of these projects began before the UK government responded to the pandemic, and each aimed to consider significant issues facing the music industries; namely the impact of changing political and policy environments (most notably Brexit), the impact of venue closures, and the fragility and limitations of the jazz and blues scenes in Scotland. However, within the rapidly transformative context of crisis, each of these projects has come to be dominated by the impact of COVID-19, as musicians, audiences, venue owners, and, indeed, researchers attempted to refocus and reconfigure their work. It is important to note that this is not only a crisis of spatial practice for those who produce and consume music but also for those seeking to study it.

Crises of Musical-Spatial Representation

Data from these projects resonates with the position set out at the beginning of this article, that the COVID-19 crisis has had a significant transformative effect on the representational spaces and practices of live music in the UK. The challenge, from the perspective of venue operators and gig promoters, is the need to re-conceive existing physical spaces of music performance in the face of new requirements around social distancing. These challenges have been the focus of a number of ongoing conversations taking place amongst local industry stakeholders. The quotes below are reproduced from online posts with permission of those quoted. With regard to the ongoing easing of lockdown restrictions and the reopening of pubs and restaurants from the

4th of July, and the subsequent 10 p.m. closing time announced in September, there is widespread concern over the apparent absence of consideration or provision for the resumption of live music. Adam Regan, owner of The Hare and Hounds, a pivotal venue for the independent music scene located in the Kings Heath suburb two miles south of Birmingham city centre, expressed the following concerns on Facebook (quote reproduced with permission):

> We've been looking at different models for the last few weeks. None of them make great reading sadly. And now we're expected to take contact details on entry, monitor other doors to prevent people coming in without giving their details and provide table service. The staff to revenue ratio isn't workable. We're far from throwing in the towel but it's increasingly hard to see us not losing more money than we have during lockdown.

These concerns directly relate to functionality and economic viability of a public house that relies on collective practices related to live music to constitute a representational space. They were echoed by Jez Collins, founder of Birmingham Music Archive and a freelance consultant working in the live music economy of the city (quote reproduced with permission):

> It’s the worst scenario. Gov’t support is being radically reduced without supporting the independent sector who have to bear the costs (financially and emotionally) of putting in place measures to ensure social distancing is adhered to in the full knowledge that it’s not financially viable to open once they’ve done the work so you are stuck in a no-win position. And that’s before you even talk about the margins for live events at 1/3 of capacity.

The significance of such dramatic changes to how such spaces are represented and conceived cannot be overstated. Conceived spaces, as Lefebvre explicitly highlights, are "the dominant spaces in any society (or mode of production)" (39). If music-specific spaces such as venues cease to function as sites of music performance and experience, then they must eventually cease to be conceived as such by those performers, industry workers and consumers who collectively help define them as such—and assign associated cultural meaning and value to these spaces—through their on-going practice.

Data from research into the live music ecology in Birmingham highlights how this process has already started. An interactive online map generated by the project was published on the 1st of June 2020, and contained information related to 198 venues with B-prefix postcodes. These ranged from large capacity venues such as the Resorts World Arena and Birmingham Symphony Hall, through to smaller, independent venues located across the city. The interactive tool—initially planned as part of an ecological mapping exercise—now constitutes a record of the immediate pre-COVID-19 landscape for live music in the city. Key questions for the project are now concerned with how many of those venues will re-emerge from the present crisis, and what steps collectively and individually have been taken to ensure that survival. Equally, and sadly inevitably, this project will document the experiences of live music venues who have not managed to emerge from the COVID-19 crisis. To illustrate this crisis in music-spatial representation and despite some of the temporary coping mechanisms that certain venues have adopted regarding online activities such as live streams, the research team are currently unable to establish contact through email or other online channels with 60% of the 198 venues. In short, these venues have not only temporarily ceased to exist as physical spaces in the city, but they are—for the time being, at least—also failing to manifest as

representational spaces in other, non-physical environments. Although it is far too early to suggest that these venues may not return, their lack of visible activity at this present time is concerning. The potentially rapid collapse of a wide swathe of independent and corporate live music venues due to loss of earnings during this period of lockdown and social distancing cannot be compared to the ebb and flow of music venue establishment and closure throughout music history.

Crises of Musical Spatial Practice

The challenges facing live music spaces to reconceive the physical constraints of venues to meet new requirements of spatial practice have knock on effects for the musicians who rely upon them as sites of performance for their own practice. For many musicians, the proclaimed crisis of the music industries was keenly translated into everyday difficulties: from the immediate loss of earnings as venues were closed and festivals canceled, to the sudden reliance upon home recording, live streaming, and solo or carefully edited group performance. The impact of the lockdown on self-employed musicians with several income avenues is aptly summarized by Maggie,[3] a saxophonist in her 40s:

> It's completely decimated all my work. I'm very lucky that I live with a partner who still (for now) has a job so I'm not homeless and won't go hungry but I still have my own expenses / debts. I don't qualify for any self-employed help as I don't ever earn enough (make enough profit), I don't qualify for Universal Credit as I live with a partner. I haven't explored any other financial help as I feel there will be other folk who need it more. I will be ok possibly until the end of the summer but after that I'm going to really struggle. I had some private students but more of them are elderly and were

> not comfortable with the idea of online lessons, so I've lost most of them. (Interview with Raine, 22 May 2020)

While the disruptions faced by musicians clearly have significant economic implications for those concerned, they can be seen as a crisis of spatial practice—one which poses larger challenges to musical practice itself. For jazz—a genre centered on "creative decisions made within real-time performance" (Black 340), requiring "spontaneous, creative thought and interaction with others" (Black 339), and creating unique and irreplicable performances (particularly in free jazz)—live music is paramount. For several jazz musicians interviewed, the move from the sociable and collaborative spaces of jam sessions, rehearsal rooms, and recording studios to solo music-making at home jarred with their expectations of jazz music production and performance. Making music during lockdown has also highlighted their limitations as solo players, the restrictions of affordable live stream technology, and the extent of their own technical skills. As Alex, a double bassist in his 30s realized: "Musically, I'm fairly on my own … I'm used to playing/practicing with other people since my instrument is an accompanying one" (interview with Raine, 18 May 2020). For Alex, and many others like him, this crisis doesn't just threaten income—it poses serious existential questions about music as a spatial practice and whether certain practices can survive the loss of particular music spaces.

The implications of such crises of spatial practice extend beyond the world of jazz and the experiences of musicians. Work by Emma Webster et al. found that live music offers a unique experience to audiences because it "is where the performer-audience interaction is the most fundamental part of the experience," "allows audiences to inhabit the same physical space as the artists," "is different each time, unlike recorded music," "offers an opportunity for escapism," and "underpins a shared experience" (5). Furthermore, Webster et al. found that

audiences involved in the study valued live music venues as "sites of memorable experiences," that these places "become a part of people's life stories," and that many were viewed as key "places where something significant happened for the first time" (7). The materiality of the venue itself also held value and significance, from historic symbolism—"a reputation or history which enhances user's experiences" and the conference of this "status [onto] performers"—to a venue's acoustic qualities, creating a "good sound" (7).

The live music venue, then, is an intricate part of the live music experience for both audiences and musicians. Equally, the spatial attributes—the cultural and physical aspects—of other music spaces are intricately linked to the musical practices that they house. The recording studio, a place of focused and dedicated work, where each minute counts (literally). The jam session in the back room of a pub, crowded with familiar faces, of fierce but friendly competition. And the concert hall offering audience members both exquisite acoustics and a long history of expectations, of hushed contemplation and applause at the correct moments. It is unsurprising, then, that the temporary closure and continued uncertainty surrounding social distancing regulations has significantly disrupted the practices of the live music industry. For many genres, the live music experience lies at the heart of practices of production and consumption, with live-streaming considered by some to "diminish the art." This valuing of the "live" experience further compounds the current spatial crisis.

COVID-19 and Representational Spaces

As highlighted in the accounts of music practitioners above, we can see that music practices have been impacted by changes in the spaces available to musicians. With the sudden loss of such spaces, new ways of inhabiting space and conveying shared meanings and values are necessary. Data from the Birmingham-based project, for instance, highlights that some venues

in the city have quickly established online responses to closure that are sometimes coupled with the development of interim/replacement revenue streams, or crowd-funding activities. For example, The Sunflower Lounge—an independent venue located in the city centre, a few hundred yards from Birmingham's main New Street railway station—has been creating daily live-streamed sessions as a means of maintaining a connection with their customer and performer base. Others, including DigBrew and 1000Trades (independent live music venues in the Digbeth and Jewellery Quarter districts of Birmingham), have created online content as a means of developing home delivery revenue streams (of beer, food or merchandise). The emerging picture across the city depends to a large extent on the resources available to venues—particularly where venues sit within the existing UK Government furlough scheme—but nevertheless the researchers note two main findings. Firstly, the online activities of venues and promoters are largely reputational and linked to the fostering of community; beyond a handful of examples of home delivery services or crowd-funding, venues are yet to derive revenue streams that are able to fully compensate for the curtailment of their core live music activity. Secondly, despite this, it would appear that customers and musicians continue to offer vocal support and solidarity with venues, which suggests a willingness (at least for the time being) for all stakeholders to continue to engage in practices that render live music venues as semi-functional representational spaces.

Many practices, however, are difficult to translate, such as the earlier example of Maggie's tuition of older and less technologically skilled musicians or the frustrations of venue owners at having to reconfigure the spatial practices of live music. The removal of particular places represents not only a barrier to the creative labor of individuals, but a deeper and more symbolic rupture between the practices of music creation and collective listening and the

spaces that have become a central phenomenological element of these experiences. However, this disruption of the established spaces of music practices also heralds a potential time of change and new directions, with emergent forms potentially representing the seeds of a blended on/offline live music offering and a recalibration of control within the music industry.

In the case of the Scottish jazz scene, the changing nature of audience expectations and musician practices provided a useful bridge in the form of the music video. An established form within popular music more widely, the production of videos is not yet the common practice of the twenty jazz musicians interviewed. This exposed a generational and genre-related division within the scene, with experienced, older musicians primarily focusing on audience engagement through live gigs looking on with interest and trepidation as their younger (and significantly cross-genre) peers reached online audiences through this additional offering. With low funds, many of these videos channeled a "DIY aesthetic," shot by band members using affordable equipment and in local spaces, using skills either self-taught or developed at college or university. Upon the national lockdown announcement, these practices and equipment were essential tools for musicians who are keen to continue to engage with their audiences and (ideally) to monetize these in an attempt to make up for lost income. However, it must be noted that technological ability is not the only factor for success with online video, as concurrent marketing materials and audience engagement activities are required to effectively reach either an established audience, or capture the attention of new audiences. Emerging artists are also struggling to make these methods work for them and are particularly impacted by the loss of informal music-making and audience-developing spaces, such as the regular jam sessions in Glasgow's pubs and bars.

The access to and comfort using equipment at home also offered some musicians a means to stream "live" performances, requesting "donations" from their online audience, a few buoyed by the promotional backing of Scottish jazz festivals and promoters. Equally, band sessions were composed, individually recorded, edited, and released. These practices, however, were not seamless and unconsidered continuations of pre-lockdown techniques but different ways of performing, collaborating, and producing music.

In providing solutions to this crisis, there is also an opportunity for music professionals to increase their control over these changes and to subvert the dominant economic contexts of live performance and spatial practice. However, it must be noted that, in addition to exposing generation gaps between musicians, this study also highlighted the continuation of intersecting gendered experiences and the impact of musicians' economic situations. Increased childcare responsibilities during the Scottish school closures were commented upon by all women musicians with children and had a dramatic impact on their practice time, mental health, and general productivity. Although the movement of music industry conferences and skills training online (and reduction or removal of session costs) offered musicians with childcare responsibilities an opportunity to engage without having to leave the house, these women (as primary caregivers in their family) simply did not have the time. Equally, for musicians with limited savings, mortgages to pay, or ineligible for housing benefits (e.g. living with their working partner), the mental health impact of mounting bills and employment uncertainty made any level of productivity impossible.

For jazz musicians and audiences alike, lockdown represented a fundamental disruption of musical place, moving the valued and authenticating experience of live music out of reach. As a result, musicians have constructed new forms of spatial practice within spaces they now

inhabit: the living rooms, kitchens, and bedrooms of lockdown. For many of us, the work Zoom call has made public what was previously private, bookcases reorganized to provide a professional backdrop, little corners of rooms kept clear and well-lit. For Harrison, a vocalist in his twenties, live-streams do not "recreate that feeling of sitting in a gig," but they do continue to create a feeling of shared experience between musicians and audience (interview with Raine, 27 May 2020). Many musicians also consciously created what they saw as an "intimate" spatiality, not only through the curation of domestic physical space and lighting but also through informal introductions and chat between pieces. Through these live(streamed) performances, musicians were inviting the audience into their private life and taking control of the spatiality of their music.

The reliance upon home-based technologies for collective music making and recording has also created opportunities for international collaboration and independent music production. One previously city-based improvising group has been extended to include improvisers from across the world, and many other musicians have established new collaborative and international relationships with players which they hope to develop through post-lockdown projects. Those most prolific during this time are the musicians skilled in-home recording and mastering techniques, and it is notable that funders such as PRS Foundation are temporarily allowing requests for home studio equipment. Beyond the economic survival of musicians, it is also significant that this reconsideration of music spatiality moves away from both the dominant spaces and the dominant economic structures of the music industry. With the continuation of social distancing, it is likely that a blended approach to live music performance will be necessary, in the short-term at least, and it is notable that these home-based practices place increasing power into the hands of musicians. However, this power has

been allocated unequally, benefiting musicians who can access the skills, equipment, time, and drive to create during a difficult and uncertain time. As PRS Foundation have pre-empted, the continued exposure of inequality in relation to musician gender, socio-economic background, ethnicity, and generation in light of COVID-19 must therefore be considered by industry organizations and government task groups alike when deciding upon supportive provisions. The future of the live music industries will not ultimately benefit from a broad-brush approach to support.

Conclusions

In creating this article and continuing with the fieldwork for the projects referenced here, we experienced our own crisis of spatiality as popular music researchers. From working collaboratively to attempting to study live music when no live music was actually happening, our spatial materiality was also disrupted. Work that seeks to understand the post-COVID-19 music industry landscape will need to make sense of absences as well as creative activities, rapid changes in practices, the use of new spaces and the actions that inscribe meaning upon them, and a range of different responses from across the industry—from sole musicians to international corporations.

The purpose of this article is not to argue that such issues are *not* economic in nature. Rather, we argue that live music's spatiality and its economic viability are fundamentally linked. We believe that a successful economic response to this crisis must be able to account for the changing realities of objective space—such as reduced capacity, limited operating hours, and social distancing measures—and the *perception* of such spaces by both audiences and musicians. Arguably, it is a failure to understand these spatial realities which (at least in part) has hindered the UK government in designing and offering economic support which truly

meets the needs of an embattled live music and events sector. Industry support and funding schemes relating to the impact of COVID-19 must therefore not only mitigate short term issues through the provision of financial support but must also seek to provide support for reshaping the UK's live music offering in response to new and challenging spatial realities. It must focus on laying the foundation for long-term cultural change, future-proofing the industry for additional crises, and making the most of the opportunities that this time of crisis offers.

As media-driven global campaigns focusing on continued racial inequality and gender imbalance within the music industry have demonstrated, the structures and spaces of the music industry are no longer fit for purpose for all. Like many other industries, the dominant spaces of music production and the systems that coordinate its consumption are riddled with gender inequality and harassment, racism and essentializing, musician exploitation and corporate gains. It seems likely that a return to "business as usual" post-COVID-19 may not be possible, but equally it may also not be universally desirable. By considering the COVID-19 period as a spatial crisis for music industry professionals through the frame offered by the work of Lefebvre, popular music researchers and industry professionals alike have the opportunity to redraw the conceptions and practices that underwrite the economic functionality of live music.

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Notes

[1] Research undertaken by Sarah Raine and Haftor Medbøe (Edinburgh Napier University) on the contemporary jazz and blues scenes in Scotland (PLACE funded).

[2] Research undertaken by Craig Hamilton, Patrycja Rozbicka (Aston University) and Adam Behr (Newcastle University) on the live music industry in Birmingham, UK responses to local, national, and international policy change. This project is funded by the Creative Industries Policy and Evidence Centre (PEC), which is led by Nesta and funded by the Arts and Humanities Research Council. For further information on the project to date, see Rozbicka et al.

[3] All names of interviewees from this project have been changed to ensure anonymity. This research was undertaken in accordance to the Edinburgh Napier University research ethics and approved by an internal ethics board.

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teamLab Borderless: Bridging Borders in Simulated Ecologies

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Abstract

This article begins by identifying the ways that spatial borders were destroyed during Australia's Black Summer fires. It then contrasts this with the opposite, the imposition of national and state borders as physical distancing is promoted as a way to counter the virulent spread of the COVID-19 virus. This radical transformation of actual borders is further contrasted with the intersecting virtual worlds in the museum *teamLab Borderless* (2018). *teamLab Borderless* is an immersive exhibition that features simulated worlds that are animated by human contact. They bleed outside of their designated zones, blurring spatial boundaries. *teamLab Borderless* draws from traditions in Japanese scroll art that invite the viewer to imagine themselves within the space, creating an ultra-subjective mode of engagement. This article takes Sybille Krämer's philosophy of media, beginning with the postal and its insistence on the distance between sender and receiver, to explore the rituals surrounding *teamLab Borderless*. It then elaborates on the ways that the experience of *teamLab Borderless* can be understood in relation to Krämer's personal, or erotic principle of communication. It applies these modes of communication to consider the potential of interactivity to mediate between the virtual and the natural world. Ultimately, this article posits that in a culture of climate emergency, an alternative future is one where our relationship to nature is necessarily virtual.

Keywords
climate emergency, spatial borders, immersive art, media philosophy, communication, virtual nature

> "Everything exists in a long, fragile, yet miraculous, borderless continuity of life"
> (teamLab, *Borderless*).

In Australia, the transition from 2019 to 2020 marked an extraordinary time where borders were destroyed by fires and then reimposed in response to the COVID-19 pandemic. Intersecting crises of environment and public health destroyed flora and fauna across vast tracts of land and later atomized populations, isolating people within familial 'bubbles.' The Black Summer fires began in September 2019 with a lightning strike which ignited drought ridden landscapes of the Eastern and South Eastern states. These fires burned at varying intensities for six months. On New Year's Eve, the fires reached such a peak that they created their own weather patterns, forcing people to abandon their homes. While the ferocity of the fire storms obliterated state borders, beaches, the space between the land and the water, became sites of refuge. Just as the fires were beginning to subside early in 2020, a new threat emerged. Horrifying images of intense flames, orange skies, and suffocating smoke gave way to a less visible threat in the form of the COVID-19 virus.

Australia's response to the pandemic required that national, state, territory, and regional borders be closed. The imposition of these borders precipitated a radical change to movement and the experience of space. Communities are atomized, extended families separated, the elderly holed up in their homes or in residential care units. Returned travelers who were quarantined in hotel rooms in the first wave, are refused direct entry into Victoria following a

dramatic escalation of infections emerging from leaks in quarantine. These new borders alter the perception of time. Under lockdown, time slips away. Days spent in isolation blend into one another, their names forgotten, or insignificant. Touching is prohibited, hands are washed, cleaned, sanitized, and gloved. What once might have been an amicable acknowledgement of people passing on the street is now replaced by the broad arc of movement designed to increase physical distance. Face to face communication is mediated via screens. We talk with one another and teach on screens, our image framed by tiny borders. We forget to unmute and instead speak 'into the wind' without being heard. In the outside world, our speech is shielded by masks. Concern for viral transmission necessitates the insistence on distanced, silenced, and mediated communication that creates "unbridgeable gaps" between sender and receiver.

The recent climate and health emergencies necessitated a reconsideration of borders, national, state, and personal. While the Black Summer fires forced residents into peripheral spaces between land and sea, the subsequent closure of borders in response to the pandemic restricted movement and transformed modes of communication. This article begins by charting the ways that borders were compromised and then reimposed in the lived experience of 2019-2020 and draws a stark contrast with the fluid borders that characterize the simulated ecologies produced in utopian installation art. It provides a new way to imagine borders by investigating the *teamLab Borderless* Museum in Tokyo (2018). *teamLab Borderless* offers an immersive experience of an alternative future, one where the relationship to natural ecologies is imagined as purely virtual. This article explores the intersection between the actual, restricted bordered world, and the virtual, immaterial borderless space. It extends the analysis of *teamLab Borderless* into the past as an installation that revises traditions in premodern art that invite the

viewer to imagine themselves situated definitively within the space, rather than observing from outside.

This exploration of how installation art can bridge distance and difference, or "unbridgeable gaps," is framed by the philosophy of media developed by the German media theorist, Sybille Krämer (12). Krämer's early research considered computer technologies as transmission media, but it is her reconsideration of the relationship between transmission and communication, science and nature that inspires this reading of *teamLab Borderless*. In *Medium, Messenger, Transmission: An Approach to Media Philosophy*, Krämer explores the metaphor of messenger as mediator. Throughout, the messenger takes many dimensions. It can be situated in the divide between the sender and receiver, delivering but never bridging the gap between them; it can be invisible as an angel who transmits the message and then disappears, or even felt in the flow of embodied communication that defines the personal or erotic mode of communication. My exploration of Krämer's work begins with respect for the ways that the postal principle focuses on the receiver. It then explores the erotic mode to consider the embodied experience that *teamLab Borderless* provides. It considers the unique ways that this installation positions viewers centrally within the museum, potentially blurring boundaries between objective and subjective, outer and inner worlds. It concludes by identifying how borderless virtual worlds contrast with the stilled and atomized cultures that define the pandemic perspective. However, before we visit *teamLab Borderless*, let me offer some context to specify the distinct interdisciplinarity of its team of creators and the layered history of its location.

Established in 2001, teamLab is a collective of cross-disciplinary artists and scientists who create large scale, light based installations. The collective includes artists, architects, CGI

animators, mathematicians, programmers, lighting designers, and engineers who work collaboratively in their Tokyo studio. teamLab's founder Toshiyuki Inoko has built such a large team that he says, "after we surfaced 400, we stopped counting the numbers." Inoko named the collective to prioritize the word 'team,' followed by 'Lab,' capitalized to emphasize the significance of their experimentation. Inoko has described the team as a combination of "typing pool and experimental laboratory," all collaborating to "improve the work." In an interview with Inoko, Chloe Kantor describes teamLab as "a collective who insist on speaking with a single voice." The team experiments, creates, and speaks as one. With unity at the center of its creative practice, teamLab designs and builds screen based environments that extend a similar unique interaction to the visitor. The visitor is recognized as a key element of the collective, an active participant who is welcomed inside the borderless world and is invited to create the experience of the work for herself and for others. Conventional boundaries that would usually separate visitors and creators are diminished in the experience of *teamLab Borderless*.

teamLab identifies their aim as intending "to explore the relationship between the self and the world and new perceptions through art" (teamLab, *Borderless*). This relationship is signaled well before entering the gallery. Prior to visiting the MORI Building DIGITAL ART MUSEUM: *teamLab Borderless* on Odaiba Tokyo, visitors purchase tickets online and select a specific date for their visit. This is the first hint of the ritualized experience of *teamLab Borderless*, one that is both futuristic and reveals deep connections to its past. With its long and complex history, Odaiba provides a unique location for *teamLab Borderless*. Odaiba began as one of six fortresses designed to protect Edo from Matthew Perry's Black Ships. Fortress number three was subsequently expanded to form a large, artificial island of reclaimed land in

Tokyo Bay. This fortress was designed as a 'teleport town,' a space that interweaves its lived history of protecting Japan's borders with the futuristic technologies, businesses, and leisure destinations of an expansive globalized world. The driverless monorail that whisks passengers across The Rainbow Bridge and onto Odaiba provides the first hint of that futuristic world.

We approach the gallery and join a long line of visitors queuing in the hazy Autumn humidity. All are hopeful of a moving queue, or at least of reaching the next point where an air cooler can provide some relief from the heat. Happily, this queue moves quickly and transforms into a snaking internal line where we take tiny steps in lateral directions. Just before the doors to the entrance, we are offered the rules of admittance in multiple languages. It is at the initial point of contact that the unidirectional, distant transmission aspect of Krämer's mode of postal communication is most evident (21). With messages transmitted, received, and agreed, entry to *teamLab Borderless* is permitted. Once visitors step beyond the curtain, they are offered a choice of pathways. I begin my experience in the 'Forest of Flowers and People: Lost, Immersed and Reborn' (see fig. 1). The artworks in this zone blur the border between actual and virtual. Inside, I am surrounded by floral images that fill the walls and floors, an inflorescence of color that blooms across a background so deep black that it suggests infinite depth. Clashes of colors spanning laterally across the screens draw attention to the surface of the image. Orange daisies are juxtaposed with blue and then fuchsia flowers that appear to be simulated hydrangeas. These flowers appear as buds and then bloom before my eyes. Some of the petals drift and fall. Other walls display pink and mauve blooms of stylized azaleas. The flowers wind their way up the walls like vines. They don't need anything except light to appear and human contact to bloom. The flowers in this forest propagate in response to stillness and touch. Deep red blossoms bloom across walls and floors, making progress throughout

tentative, lest our steps cause damage. The ceiling is darkened to such an extent that any technologies for projection are hidden, almost. The flowers increase to a scale well in advance of their natural size. This immersive experience recalls Gilles Deleuze's suggestion that it is space itself that is animated in the dream image (60). He writes, "Characters do not move, but, as in an animated film, the camera causes movement of the path on which they change places … The world takes responsibility for the movement that the subject can no longer make" (60). The combination of increased scale, saturated colors, the inky black depth of the background, and the movement of the image immerses the visitor inside this thriving garden. While the microseason outside of *teamLab Borderless* is Shūbun, Autumn Equinox, a time when insects hole up underground, the cycles of growth within this floral garden reimagines time as rapidly advancing through the seasons.

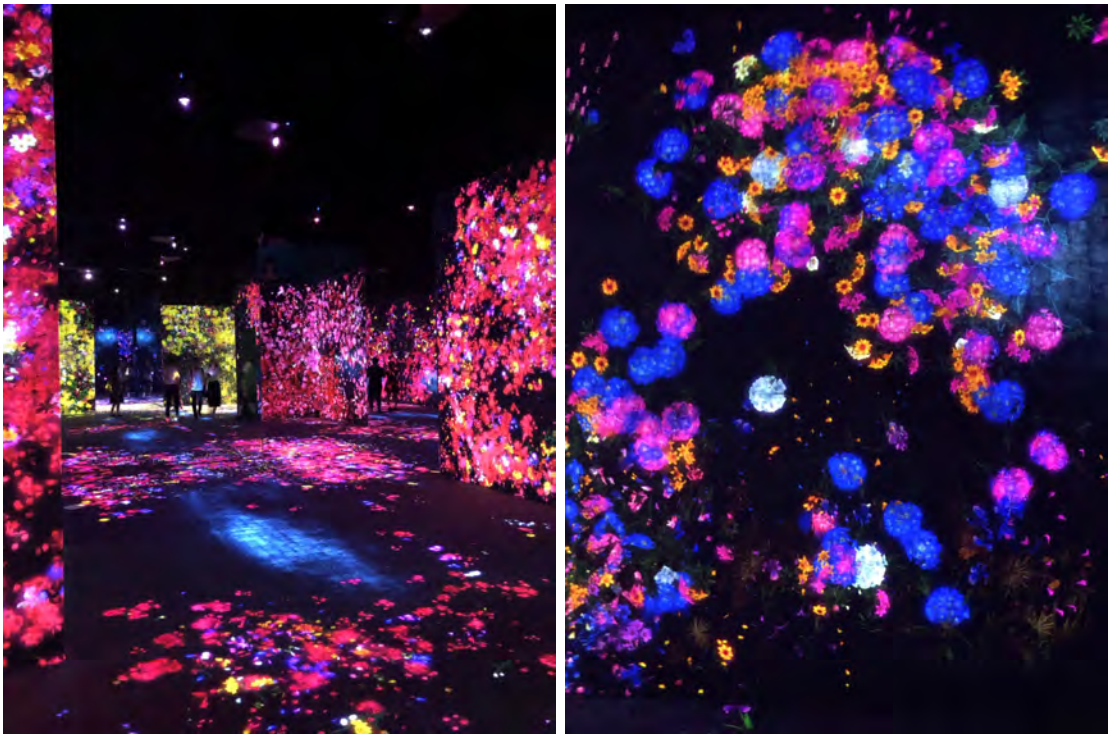

Fig. 1. 'Forest of Flowers and People: Lost, Immersed and Reborn', MORI Building DIGITAL ART MUSEUM: *teamLab Borderless*, Odaiba, Tokyo (teamLab 2018).

Building immersive experiences of a simulated natural world and blurring the boundaries between visitor and creator are the forces driving *teamLab Borderless*. The 'Forest of Flowers and People: Lost, Immersed and Reborn' presents a particular aesthetic that pushes color hues into realms well beyond the natural world, providing new visions of simulated words. The color saturation is heightened to such a degree that they become extrinsic and other worldly. The intensification of color and contrast pushes vision to its limits, asking the visitor to envisage the natural world in familiar yet new ways. This is reminiscent of Kristin Thompson's neoformalist notion of the potential for cinematic imagery to defamiliarize and destabilize vision, ultimately renewing perspective. More recently, Murray Smith's research on a "naturalized aesthetics" of film and art offers a way to consider how the moving image, and in this context, visual installations, can also disrupt routinized perception. Smith understands the potential for color to contribute distinctive, irreducible, sensory experience to the conscious experience, providing an "interface between the mind and the physical world" (118). Visiting *teamLab Borderless* involves a renegotiation of the boundary that separates actual from virtual. This simulated ecology proliferates, producing expanding cycles and spirals that reference the natural world and replace it with images of spectacular excess. Such excesses in color and extremes in scale creates an ecology that surrounds and moves with the visitor. Reluctantly leaving the 'Forest of Flowers and People: Lost, Immersed and Reborn', I am delighted to note the continuity of a similar, simulated ecology in the fireflies that become visible in the black and white images of bamboo lining the corridors (see fig. 2). Visitors have the ability to observe, create, and transfigure the image. Jean Baudrillard's postmodern semiotics of 'hyperreality' can be stretched to apply to the illusion of nature created in *teamLab Borderless*.

In this context the floral imagery becomes an uncanny hyperreal illusion of the simulacra that floats free, unencumbered by borders.

Fig. 2. The Bamboo Pathway, MORI Building DIGITAL ART MUSEUM: *teamLab Borderless*, Odaiba, Tokyo (teamLab 2018).

teamLab Borderless's simulated illusion of the natural world is organized around quiet, almost invisible technologies and specific modes of communication. Krämer's media philosophy provides a framework through which we can explore the ways that teamLab uses these quiet technologies and modes of communication to stage the experience of *teamLab Borderless*. While the design of Krämer's personal understanding model is, as she notes, "embodied in Jürgen Habermas's communication theory, [it] is entirely different" (22). Krämer's notion of "communication as transmission" is asymmetrical and unidirectional, "concerned with emission or dissemination, not dialogue" (22). In the postal mode, "there is no such thing as immaterial signals" (Krämer 22). Krämer's postal mode is established in the

instrumental delivery of instruction that characterizes the pre-experience of *teamLab Borderless*. Communication is definitively material in the signs, notifications, and transmission of singular instruction. The postal mode understands communication as non-dialogical and non-reciprocal, with the maintenance of distance between sender and receiver (Krämer 31). The "unbridgeable" distance is preserved by material media occupying the space between them, regulating the behavior of the receiver. This ritualized formality ensures that "worlds remain distinct" (Krämer 20) leading up to entering *teamLab Borderless*; however, as visitors move through the doors and into the inner world, communication transitions toward a mode that is more visceral. Krämer's 'erotic' mode is contingent on connection with the body to bridge distance and difference. Here the media "establishes a connection despite and in the distance that separates them" (Krämer 23). The installation is sensitive to touch and movement, so we are encouraged to touch the walls and create our own connections and unique experience of this virtual landscape. *teamLab Borderless* invites the touch of our skin and the heat of our bodies in the creation of immersive experiences. While Krämer envisages the aim of erotic communication as "not connection, but unification through direct and unmediated access" (21), *teamLab Borderless* extends this access to walls that invite direct engagement with the artwork, and offers us a place inside it.

These simulated ecologies are illuminated by the presence of the visitor and respond to their touch. *teamLab Borderless* offers a kinetic and tactile reciprocal interdependence, an experience of embodied connection between flesh and screen. The experience of these tactile screens can be understood by consulting the phenomenologists who are less inclined to elevate a distant, powerful gaze and instead prioritize the embodied sensations of the moving image. The spaces of *teamLab Borderless* provoke the haptic visuality that Laura U. Marks

understands as an embodied, multisensory engagement. In *teamLab Borderless*, however, technologies of the exhibition also see, sense, and respond to the visitor. Vision, touch, and movement are designed as a two-way, reciprocal flow. teamLab asserts, "We are now able to manipulate and use much larger environments, and viewers are able to experience the artwork more directly, interact, and instigate change in an artwork. Through this interactive relationship, viewers become an intrinsic part of the artwork" (Kantor). The performance of communication in the erotic, personal understanding mode establishes connections across distance and creates a unified society, "whose goal is precisely to overcome distance and difference" (Krämer 22).

Moving into the 'Universe of Water Particles on a Rock Where People Gather' (see fig. 3), I note that the flowers from the adjacent rooms form a background of entangled colors that contrast with the blue vertical flow of water. An additional experiential element lies at my feet. In this room the floor surface is graduated on a slight incline so that participants can step up toward the waterfall and share the illusion of standing on a rock with the water falling all around them, never getting wet. The particles of water are interactive as well. As visitors touch the walls or stand beneath the waterfall, the particles part around them and flowers bloom in their wake. teamLab prioritizes the centrality of the body in the experience of their artwork. They write that "people understand and recognize the world through their bodies, moving freely and forming connections and relationships with others. As a consequence, the body has its own sense of time" ("Borderless World"). teamLab suggests that the artworks themselves share the same concept of time with the human body ("Borderless World"). Jennifer Barker's notion of the kinetic thrill characteristic of the experience of the moving image may include the ways that this simulated waterfall is projected onto the surface of our skin. Extending Barker's

conceptualization to *teamLab Borderless*, we could suggest that these images actually get under our skin, that the flowing water that surrounds us mirrors our internal rhythms and pulses as we become immersed within the space. The body's sense of time that teamLab identifies reflects that of the imagery itself. The erasure of internal and external boundaries intensifies in this immersive experience.

Fig. 3. 'Universe of Water Particles on a Rock where People Gather', MORI Building DIGITAL ART MUSEUM: *teamLab Borderless*, Odaiba, Tokyo (teamLab 2018).

For Krämer, the personal mode of communication "results in the formation of community" (22). Visitors to *teamLab Borderless* share a primary role in animating the imagery and continuing its flow across the zones. Simulated images of an electric neon ecology spread across the walls and floors, some escape their designated zones, peek into pathways, and transition into new areas. teamLab defines this exhibition as "a group of artworks that form one continuous, borderless world. Artworks move out of the rooms freely, form connections and relationships with people, communicate with other works, influence and sometimes intermingle with each other" ("Borderless World"). teamLab points to one of the aims of their artwork as to "explore a new relationship between humans and nature, and between oneself and the world" (Kantor). This allows for an expansion of Krämer's dialogical mode where "those who communicate with one another become 'one'; if the goal of understanding has been achieved, then it is as if they are speaking with one voice" (22). The erotic principle extends to include the sender, receiver, and the technologies of communication, but this mode also notes the limitations of communicating 'inner worlds.' However, by inviting touch, projecting the image across our skin and allowing us to 'feel' the rhythms of simulated nature, *teamLab Borderless* blurs the distinction between inner and outer. teamLab explains that such an interrelationship relies on digital technologies which have "allowed art to liberate itself from the physical and transcend boundaries" (Kantor). *teamLab Borderless* comprises around 60 artworks. Many of them transcend the boundaries of space and move throughout the museum, interacting with visitors and with each other. This reconceptualization of the viewer's relationship with the artwork has a base in the history of Japanese art.

teamLab writes that, "Until the late nineteenth century, people in Japan depicted the world differently than today. This ancient Japanese sense of spatial recognition has been lost in

modern times. With our work, we explore whether the world itself has changed spatially, or if people have lost sight of how they once saw things" ("Ultrasubjective"). In Japanese scroll painting objects and figures exist on a single plane. Depth cues are imagined laterally. teamLab suggests that "it may seem impossible to perceive dimensionality from this alternative vantage point; however, it can also be argued that it is unnatural to only see the world from a single-point perspective" ("Ultrasubjective"). teamLab develops a logic of spatial perspective that draws from the distinct flatness of traditional Japanese scroll paintings ("Ultrasubjective"). Across the history of Japanese art, perspective is not fixed or singular, but evolving, moving, and as they describe it, unfixed within an "ultrasubjective space" (Inoko). They note that in scroll paintings "separate scenes are viewed by unrolling the scroll with the left hand. You look … at the individual parts of a larger whole. Paper screen paintings are also painted with the understanding that the individual screens will be moved" ("Ultrasubjective"). This is counter to the single point perspective (or Renaissance perspective) that assumes that the viewer is both objective and distanced in relation to the image. Fixed perspective describes the way that lines converge into a vanishing point into the distance, making objects recede and developing an illusion of three-dimensional space. This approach to spatial logic separates the viewer from the image that is viewed. While the traditional Western viewpoint was designed around a single vanishing point, teamLab's approach positions the viewer as "inside the image" (Inoko). The unbridgeable gap that might otherwise separate the sender and receiver is revised in the ultrasubjective perspective.

As teamLab identifies, "the creative process allows for the discovery of features and phenomena that exist only in ultrasubjective space" ("Ultrasubjective"). They write, "when you view a painting from a position where it can be seen in its entirety, you can imagine

yourself inside the entire space… Step closer to the painting so that you can see only one part of it and you visually enter only that part of the represented space in the painting" ("Ultrasubjective"). The viewer is central to the logic of ultrasubjective space. As they step into the space, it is seen, felt, even created and animated by the viewer. In this immersive world of fluid boundaries, space is transformed from three dimensions to two. Viewers feel that they are inside the images, that they are part of the spaces presented in the borderless world (Inoko). The viewpoint of the work is inside the artwork and alongside others. It is not one from the outside looking in (Inoko). Positioning visitors alongside one another and within the image accentuates an experience of proximity, one that diminishes borders and bridges worlds.

For teamLab, the definition of "borderless" also relates to the limitations of human vision. The premise of the visual experience of *teamLab Borderless* is to develop a simulated world that exceeds the limits of our vision. Viewers inside the images of the installation are offered views that extend toward omniscience, seeing all from multiple perspectives within the image. The concept of ultrasubjective space allows the viewer the illusion that she is part of a borderless world. As teamLab suggests, "While viewing a painting, a viewer can pretend to enter and move around freely within the space of that painting. The viewer does not hold a dominant perspective over the depicted space, and is instead merged into the comprehensive experience" ("Ultrasubjective"). *teamLab Borderless* invites an experience of this simulated natural world without assuming a hierarchy of vision. All viewers are offered similar access. Some from a higher, some from a lower vantage point; some perceiving in sharp focus; all seeing color slightly differently, while others with less than perfect eyesight might see it as a blur. teamLab identifies how humans "switch focus over time," how the "range of narrow and

shallow focus is synthesized in the brain" to produce the illusion. Their work is based on the notion that "people use their eyes like an extremely weak camera. They continuously take an infinite number of mental photos of their surroundings, synthesizing the huge volume of these images in their brains, thereby creating an understanding of these images spatially" ("Ultrasubjective").

Fig. 4. Falling Petals in 'Born from the Darkness a Loving and Beautiful World', MORI Building DIGITAL ART MUSEUM: *teamLab Borderless*, Odaiba, Tokyo (teamLab 2018).

Similar zones of embodied perception and fluid borders are central to Peter Sloterdijk's conceptualization of space as spheres, foams, and tiny bubbles. These zones of entanglement provide ways of thinking through actual and imagined borders that are diffuse and permeable while simultaneously creating shared spaces of networked connection. This concept both is a spatial topography and poses a phenomenology that allows us to extend beyond the experience of an individual, to consider the collective. For Sloterdijk, internal and external worlds are

deeply connected in the constitution of lived bodies that experience the world in sensory and kinetic ways. In this framework, a sphere is jointly created as a topological network of relations, one without clear borders. These are macro and micro spheres of entangled connections between humans and objects. teamLab suggests that in order to understand the world around them, people separate it into independent entities with perceived boundaries between them. They tell us that *teamLab Borderless* seeks to transcend these boundaries in the perception of the world, in the relationship between the self and the world, and in the experience of time and space in a continuous flow (*Borderless*).

teamLab Borderless provokes a reconsideration of binaries including the actual and simulated, past and present, nature and culture, the individual and the collective, and the visible and the invisible. In both content and form, *teamLab Borderless* negotiates the visible and invisible. Krämer reconsiders McLuhan's position on the visibility of media to argue that the cinema screen "'disappears' as soon as the film grips me," suggesting that "'smooth' media remains below the threshold of our perception" (31). The messenger is a reflection but "never the presence itself" (Krämer 94). In Krämer's philosophy, "media are peripheral and negligible vehicles that provide undistorted and unmediated access to something that they themselves are not, much like transparent window panes" (23). *teamLab Borderless*'s transparent window panes extend to the illusion of an imaginary virtual world, one that responds to our own movement and touch. They may also offer a communal understanding of the precarity of the external, natural ecology, one that is subject to the current climate emergencies that exist in the ecologies referenced on the screens. These reflections mediate between visitors and the world outside, offering an imagination of wonder, perfection, interconnectedness. For Krämer "mirror images are—in an optical sense—virtual images. They move what is reflected into an

illusory space" (94-5). The pristine state of *teamLab Borderless*'s imagined nature can only be virtual. Connection and interaction are safest in these imagined scenes as climate emergencies in real life force us away from proximity to nature, away from interaction and deep connections. Kantor understands the creative work produced by teamLab as "offering glimpses of what the future in digital art would be through installations that explore creativity, technology, and the natural world." At a time of global climate crisis, with extreme weather conditions burning, flooding, and tearing away nature, these artworks offer a sensory illusion of an impossibly pristine borderless world.

I flew out of Tokyo three days after Typhoon Hagibis swept across Japan demolishing homes, destroying nature, and temporarily closing *teamLab Borderless* down. I arrived in Melbourne just as the bushfires began to burn in Australia. The fires that devastated Eastern Australia beginning in September, continuing across Spring, and into the final days of Summer 2020 also showed no regard for borders. The Australian bushfires crossed borders that had previously distinguished land from roads, public from private, state from state and territory. Ecological destruction forced Mallacoota residents from their homes to the very edges of the land. Live daytime news reports showed the skies becoming apocalyptically crimson and then black as the intense fires shut out all light. The largest fire front extended across New South Wales and reached into Victoria, breaching state boundaries. These Black Summer fires forced a reconceptualization of the very definition of bushfires, with a new lexicon required to account for the particular confluence of weather patterns and drought ridden landscape to form firestorms. In the days and weeks following the most intense blazes, when many of the fires were still uncontained, the air in capital cities was so tainted by smoke that it was registered as Hazardous by the Environmental Protection Association. Residents were advised not to leave

their homes. Smoke traveled across the Tasman Sea toward New Zealand, eventually forming a ring around the southern hemisphere. The duration of the Black Summer fires necessitated an expansion of what was previously thought of as "bushfire season" in Australia. The Black Summer fires revealed the insignificance of boundaries imposed across spaces and times. This was an actual instance of permeable spatial boundaries, something imagined significantly differently within the utopian space of *teamLab Borderless*. While the simulated environment proposed an entanglement of nature and humans, the lived experience of the fires moved us toward an apocalyptic eschatology. Unfortunately, this experience of human and environmental disaster proved to be a harbinger of what was to follow.

The layering of these experiences provokes a reconsideration of the underside of simulated ecologies. Is it possible that the simulation of nature, its breathtaking beauty, sensuous tactility, fluid movement, and extreme colors of the *teamLab Borderless* world offer space to consider its opposite, the horrific loss and destruction of the natural world? Is *teamLab Borderless* building an imagined scenario of such wonder and proximity that it also points to the precarity of nature, its potential for radical destruction? Alongside the wonder of *teamLab Borderless* there is also an underlying feeling of loss. Perhaps it is precisely the excesses of color and beauty that sets it apart from the natural world. Susan Sontag thought about this in relation to the pure spectacle of the cinema and its potential to offer much more than merely a distraction or escape. Sontag argues that science fiction cinema presents an "imagination of disaster." She writes that cinema provides an aesthetic of destruction, a "sensuous elaboration" of the fantasy of living through devastation, one that viewers experience from the safety of their cinema seat. Sontag suggests that cinema compels us to contemplate "the unthinkable" (52). She writes that "the imagery of disaster in science fiction

is above all an emblem of an *inadequate response* [and that] there is a sense in which all these movies are in complicity with the abhorrent" (emphasis original; 52). The ultrasubjective perspective produced by *teamLab Borderless* reveals our own inadequate response to the environmental emergency. Positioning us centrally within a simulated ecology and presenting us with the tools to create it brings awareness to our role, our responses, our responsibility for the current ecological precarity.

Early in 2020 the lights were turned off on Odaiba. The principle of ultrasubjectivity that drives teamLab's experimentation is now less about imagining ourselves within the digital scroll painting, or in the simulated garden—it is now felt acutely as borders are reimposed in an effort to control the spread of the COVID-19 virus. The spatial distance and physical atomization that defines the postal returns with additional force as the necessary condition for connection and communication. However, as I write, there are hints of a return to Krämer's personal mode of communication, albeit in a highly regulated form. The limitless flow, the touch and feel of the artworks are restricted by the new regulations for visiting. Participant's temperatures are tracked using thermal cameras. Visitors are required to wear masks at all times. There are strict guidelines in relation to physical distancing. Visitors need to remain 1 meter apart from others in the queue and are asked to maintain a distance of 1.5 meters while inside the exhibition space. *teamLab Borderless* reopened its doors on June 8th. It has reduced its visitor intake by half. Ventilation within the spaces has been improved. Surfaces have been given an antiviral coating. While once *teamLab Borderless* had the potential to extend Krämer's erotic mode of communication to new levels of sensuous connection and unmediated access, it has now been forced to incorporate distance and reimpose borders. In response to the COVID pandemic *teamLab Borderless* has created a new, remote artwork. 'Flowers Bombing'

is available to anyone to view and participate in from anywhere in the world, a truly borderless artwork.

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Lac Bugs, Petrocapitalism, and Data: 'Mediatic Musicology Without Music'

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"The phrase *musicology without music* is not a call to abandon music or music research," writes Kyle Devine in the introduction to *Decomposed: The Political Ecology of Music*. "Rather," he continues, "it is a call to expand and multiply those domains by insisting that they are not only tied to but constituted by a variety of ostensibly non-musical people, things, and conditions" (21). The proposition of a musicology without music is certainly eye-catching, but the author leaves little room for doubt that the critical perspective employed in the book is one of deep admiration and respect for music as a field of study. Indeed, underlying Devine's project is a broader idea still: that lifting the veil on music's dirty, damaging, exploitative, and even secretive modes of production is a necessary step to counterbalance tendencies that conceive of music as an idealized sphere of cultural production, often finding form in the analyses of great records, genius composers, and virtuosic performers.

Decomposed is also a response to other, often misconceived, ideas concerning the historical teleology of music. Specifically with regard to its technological reproduction, which

has been told and retold as a story of dematerialization and immediacy. With the shrinking sizes and portability of playback devices and the introduction of new (largely digital) storage formats, the physical music object itself has disappeared, so the story goes. Combining theoretical, historical, and ethnographic methods, Devine argues that this is simply not the case, and, in fact, the opposite might be closer to the truth. While it might be true that processes of digitization have given rise to the mp3 and the subsequent introduction of streaming services (which in the book is symbolically marked by the year 2000), the physical materiality of music persists: if it didn't, why do hard drives have a finite storage capacity? And how are we to explain the environmental footprint of the streaming service providers that make use of nuclear, coal, and gas to store and deliver thousands of hours of music to consumers at the click of a button?

Before delving deeper into the content of the book, however, it is worth highlighting two features of the approach that contribute to its originality. The first, of course, as stated in the book's subtitle, is its focus on music's *political ecology*, as opposed to more familiar references in music and media research to *political economy* (such as Attali). Though, as becomes readily apparent, economic considerations are just as prevalent within and central to ecological thinking (the economy itself is an ecological phenomenon, it might be argued). Sure enough, this is not the first time music and ecology have been considered together. There is a burgeoning scholarship under the heading of 'ecomusicology' that has been steadily expanding since at least the 1970s, coinciding with increased political action in the environmental movement and its subsequent successes. The composer, John Cage, once even declared that "[music] IS ecology" (229). What *Decomposed* does differently, however, is subsume the material, ecological, the "ostensibly non-musical," into music itself, in order to dramatically

expand the field and potential objects of a properly musical analysis. For many readers this conceptual move will be most welcome, and it leads directly into the second significant feature, the book's theoretical model.

Devine's deployment of the concept of 'mediality' enables him to articulate the heterogenous "situations in which something called 'music' can come to be as it is in the first place" (22). While it builds on recent music- and sociological scholarship concerned with the concept of 'mediation' (Hennion; Born; Prior)—which emphasizes the necessity to situate the ontology of 'music' within the wider context of its multiple networks of operation—the invocation of mediality situates the book firmly in the field of media theory. In the book, mediality facilitates movement beyond isolated instances of mediation—which takes its modern form of operating *between* two positions—preferring instead the conjunction of temporary mediatic states and practices as they appear at a given (historical) moment while emphasizing temporality.[1] In this respect, conceiving of music as what Jonathan Sterne has described as a "media problem" (1), Devine follows a path marked out by new materialist thinkers and proponents of the so-called 'German media theory' through a focus on technical mediums (though not without caution).[2] Specifically, as stated in the introduction, from the perspective of its mediatic conditions, "music can be dispersed not just into discursive constellations but into those things we need to make and hear it" (Devine 22). Focusing on *those things we need to make and hear it*, and the points at which they interconnect, Devine constructs a counterfactual music history since 1900—at least in relation to traditional historical musicology—whose 'supporting cast' includes bugs and rocks, PVC and server farms.

Lac Bugs

Taking inspiration from the approach of Harold Innis, *Decomposed* is centered around music's staple commodities. From 1900 until the present day, music's three staple commodities are presented as shellac, plastic, and data, corresponding to the three periods of 1900–1950, 1950–2000, and 2000–Now, respectively. Of course, Devine's periodizing logic is more strategic than historically definitive in any concrete sense, as he rightly concedes, as the temporal boundaries overlap and coexist in a complex variety of constellations. Beginning in 1900 with Emile Berliner's shellac disc, the first chapter details how the record industry's pursuit of higher fidelity comes to encompass insect farms, chemistry, open-pit mining, and gendered formations of labor. "Rooting the glory of art in the inglorious conditions of commerce, applied science, smoky labs, and dirty chemicals may appear to denote this cultural form from the virtuous to the vulgar," Devine writes, "[y]et this is art's reality" (43). And indeed, as Marx noted in the first volume of *Capital*, this is the concealed reality for commodity production more generally, what he described as the fetishism of the commodity. Reminding us of these, perhaps, unremarkable truths that underlie the possibility of musical reproduction, Devine is actually refreshing music scholarship's ability to act as a legitimate site of capitalist critique, beginning with a self-reflexive critique of its own forms of production (15).

The reader is reminded that the book focuses on textures rather than individual 'texts' (a choice of word that perhaps reveals something about the author's theoretical background), so there is a long way to go before we reach the iconic 'sizzle' of the revolving shellac disc, which is perhaps where some might choose to start their analysis. Even then, the sounds inscribed upon the surface of the medium do not have access to the depths of its medial conditions. Beginning in the forests of India where 'lac'—an insect resin used in the

production of shellac—is cultivated, ending on the factory floor of the international record presses, the chapter continues with Devine patiently, and in great detail, describing the processes involved in shellac production, all the while situating the discussion alongside now familiar histories in materialist media theory, such as its relation to Edison's phonograph. But far more than this comparative media archaeology of playback technologies, the book proceeds from the staple commodity of lac to the politics of labor conditions in India, where shellac was refined and processed, before taking a transnational leap to the open-pit rock quarries of North America. Recognition of this medial network, which was in no sense outside of music but integral to its production at the time, is significant for critical discussions of music in the present. Not only does it reveal the unsavory reality behind sound reproduction, it broadens the relationship between music and globalization far beyond the free-market liberalism and proliferation of 'world musics' that have been prevalent since the 1980s (77).

Petrocapitalism

Chapter two centers around various forms of plastic production between 1950–2000, with particular relevance to recent discussions concerning the 'retro-romantic' revivalism of vinyl records, cassette tapes, and now even CDs. Though, as readers of the book would by now be aware, Devine is less interested in the aesthetics of nostalgia—what the critic Simon Reynolds (2011) has called 'retromania'—than he is with the ecological implications of such revivalism (excess carbon emissions, the boom of global supply chains, regulations of waste management, and so on). There is a long history related to the political economy of the LP ('long play') and the 45-rpm record, both of which offered new unique selling points for the recording industry to peddle. The LP, of course, with its expanded storage capacity, gave rise to the album, which shaped the imagination of music making even today (though, with the carnivorous nature of

streaming individual tracks, the appeal of the album might be on the wane). But what lurks in the background of such a revival?

Transitioning from insect farmers to oil tycoons, Devine argues that the move from shellac to plastics in roughly 1950 prompted a complete reorganization of the music industry. As is generally accepted, the emergence of plastic has given rise to a throwaway society (Devine 123), partly because of its price index in comparison to other materials and the sheer mass of products whose fabrication it has enabled (LPs, cassette tapes, CDs, and so on). In 1978, roughly halfway through Devine's periodization of music's 'plastic era,' the total weight of polyvinyl chloride (PVC) used worldwide amassed a staggering 160 million kilograms (while it does not necessarily provide a comparable visual, this is roughly equivalent in weight to 11,680,000 bullion bars of gold which far exceeds the current amount underpinning the US economy held at Fort Knox (Bureau of the Fiscal Service)). Returning to mass plastic products with the vinyl revivalism of late, Devine suggests, the music industry is "bending supply to the winds of demand" (126). On the point that demand drives supply, Devine mounts what could become a convincing critique of (often Marxist) social theorists such as Theodor Adorno, who argued that the products of the 'culture industry' largely functioned to satisfy false needs (needs that were themselves produced by the culture industry). While readers of a particular persuasion may be sympathetic to Devine's argument here, it is unclear whether thinking music ecologically really does undo the cultural fetishism diagnosed by Adorno (following Marx), or reinforces it entirely. Of course, if all consumers were to adopt this ecological view then the story might change, but Devine knows all too well such a task as changing one's worldview on music consumption is not straightforward or without consequence. The decision to conceive of 'music' (and, for that matter, any form of production) in mediatic terms

becomes central in this regard, and Devine's book certainly provides a persuasive case for doing so moving forward.

Data

Noting the contrast between the relative ease of booting up your preferred streaming platform and the processes of a globalized workforce that go into placing a vinyl record or a CD on the shelf in your local store, the third and final chapter of *Decomposed* turns to data and streaming, 2000–Now. In this section, Devine quite pointedly targets fallacious suggestions that processes of digitalization correspond in any way to the 'dematerialization' of the music-object. Citing recent examples from journalists and scholars alike, Devine demonstrates how language central to planetary computation such as 'the cloud' has perpetuated the dematerialization myth. As those with half a foot in media studies are aware, 'the cloud' refers not to those of the cirrus variety, but a hardwired network of buildings, underwater cables, servers and server farms, distributed across the scale of the planet. Indeed, as Devine makes clear, nor is the digital music file itself an immaterial or 'spectral' phenomenon. While they are imperceptible to the human sensory apparatus, Waveform audio and mp3 files are physical material entities, and their production and reproduction require large quantities of energy and social labor time.

Alongside increasing the influence of record labels' in the classic political economic realms of marketing and advertising, as well as the newer digitized economics of data mining and so forth, streaming also signals a "political ecology of unending consumption" (138). This consumption extends the notion of *music as tracks* or singular 'works' of art to the digital devices used to listen to them—electronic devices whose obsolescence appears to occur much more rapidly than older playback mediums while mobilizing enormous formations of labor into the musical process. Take the Foxconn factories where much of Apple's assembly is carried

out as an example, whose labor force collectively amounts to 1.4 million (142). Combined with a highly interesting discussion of the Jevons paradox through which Devine explains that greenhouse gas emissions have remained stable throughout each of the staple commodities discussed in the book, the argument against the dematerialization trope is well constructed and highly thought-provoking. It leaves one wondering how the future of music might be formed in the image of a more sustainable world, or if indeed it can be.

Music to Come?

Devine does not offer concrete recommendations as to where music should go from here. To do so would, of course, be premature. In the afterword to the book, Devine recounts some recurring tropes made by respondents to his work that suggest a return to vocal music and those forms or genres which make use of wood and skins. Alas, the 'obvious solutions' (which could perhaps be read as uncritical) that one might propose would inevitably produce their own accidents—as Paul Virilio (2006) would so often warn. But solutions aren't the task of *Decomposed*. Rather, for Devine, the project is one of drawing attention: if we as listeners and, even more crucially, music fans can begin to hear the ecological within the music itself, then perhaps the winds of change might too blow through our consumption habits and practices. We must work toward composing a universal recognition that "to reproduce sound in particular ways is to reproduce particular sets of social relationships" (168). Traditional musicology, whose focus remains fixed on formal qualities of individual 'works,' could learn a lot by shifting some attention to the formal mediality of the musical stack that Devine lays out so thoroughly. Marking something of a return to the importance of thinking in medium-specific ways rooted in mediality, at least for this reader, *Decomposed: The Political Ecology of Music* signals a timely turn from *what* has already been made to *who* makes it and *how*.

Notes

[1] Though, as Devine notes in the book and elsewhere, recent 'mediation' theories have been very nuanced. As such, the concepts of mediation—as it has recently been conceived—and mediality would need to be subjected to a deeper analysis in order to draw out their similarities and differences.

[2] An important distinction that so often goes unacknowledged, but Devine specifies that he is interested in the Anglophone reception of the so-called 'German media theorists,' such as Friedrich Kittler (23).

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