

ABSTRACT

In the year 2000, an article by environmental scientists Paul Crutzen and Eugene Stoermer popularized the term ‘Anthropocene.’ This mode of marking time asserts that global human impacts have reached the point where they define the geologic record; that humanity's collective ability to permanently alter Earth has overturned the Holocene with a new, formal, geologic epoch. The discipline of geology emphasizes that it strives towards an objective lens, and yet ‘Anthropocene’ primarily advances a narrative which inspires social action. This has led to considerable debate across academic fields. This paper seeks to complicate some of these notions of Anthropocene, particularly the ways in which they may universalize humanity as an agent independent from the rest of the natural world. One of the lenses this thesis uses in order to examine this paradigm is the manner in which the terminology of Anthropocene inadvertently positions human agency as able to act upon a static and undifferentiated creation. By the nature of its use of origin, scholars utilizing the term Anthropocene prioritize specific historical narratives over others; highlighting a linear model of time based on progression.

Those who utilize the Anthropocene model often highlight Earth as being on the verge of collapse, and prioritize one mode of mitigating this precarity; that human beings are the sole agents empowered to change the world. This thesis forms connections from an unlikely juxtaposition of scholars in order to re-examine the terminology of Anthropocene; primarily the educator Paulo Freire and the Anishinaabe environmental theorists Vanessa Watts, Robin Wall Kimmerer, and Kyle Whyte. This work begins to deconstruct the concept of humanity as a singularity - and claims that individuals have differing systems of relations within human and natural landscapes - those of the human and other-than-human alike.

**Seal Visions: Time and Agency
in Same and Multi-Species Relationships**

Pearl Sapirstein

A thesis submitted in partial fulfillment of the requirements
for the Degree of Bachelor of Arts with Honors

Mount Holyoke College
June 2026

ACKNOWLEDGMENTS

This thesis would not be possible without the dedicated support of a handful of people. They are the ones who truly created the opportunity for this project.

Professor Christian Gundermann, you have been an incredible advocate for this work from the beginning. Two years ago, while taking your class on Multi-Species Justice, you gently encouraged me to develop my ideas further, leading me to where I am today. I want to extend my profound gratitude to you for providing me with the vital support, guidance and inspiration to make that original suggestion a reality - I have learned so much from you - most importantly, to take myself and my work seriously. Through your work in Gender Studies you have helped me think outside of the box and across the bounds of disciplines, and think critically around social movements and structures of power - among much else. I cannot thank you enough.

Professor Lauret Savoy, thank you for your warmth, understanding and clarity. As my academic advisor you have pushed me to advocate for myself and to believe in my work with wisdom; your help in navigating this last year of college has been so appreciated. Through your background in Environmental Studies, you have taught me about recognizing narratives that may be otherwise missed through subtle cues on what remains, how to represent my embodied experience of landscape, and how to move with intention.

Professor Nathalie Arnold, thank you for your genuine curiosity, kindness, and willingness to stick through the long journey of this project. The Thinking With Animals class I took with you spring of my freshman year helped solidify my commitment to Environmental Studies as a major, setting me on the path to this thesis. Your background in Anthropology has helped me become aware of my own positionality and to examine historical precedent. You have taught me not to see 'humanity' as a collective concept - and to learn from a place of humility and openness to other ways of knowing, being, and interrelating with others.

Professor Lynda Pickbourn, thank you so much for your willingness to take this project on at the last minute! It would not have happened without your generosity and flexibility. Your thoughtful feedback and advice was such a welcome addition to my defense.

Thank you also to my dedicated team of friends and family! You have been my biggest cheerleaders, always willing to talk through my ideas or read some of what I have written. I am so grateful to have been surrounded by so much advocacy.

TABLE OF CONTENTS

ABSTRACT.....	1
ACKNOWLEDGMENTS.....	3
INTRODUCTION.....	5
ORIGIN.....	9
DIALOGUE.....	19
AGENCY.....	41
LINEARITY.....	50
CONCLUSION.....	63
BIBLIOGRAPHY.....	64

INTRODUCTION

When I was young, I didn't know where I ended and where the world began - a world determined by my own lack of temporality. I lounged in the great tree my mom called the Grandmother Apple; summer days stretched around and beyond me.

I was fascinated with living, with understanding modes of others living, with understanding the basis of their perception; human, animal, other.

I peppered my parents with questions on the creatures in our backyard; fox, wren, barberry, barred owl. Over time, I learned to be close enough to ask those beings questions too; why are porcupines so loud amongst themselves but go quiet when I am nearby? How can an owl fly silently, even through pouring rain? Why do bittersweet vines pull others down to keep themselves upright?

I saw my own ability to ask these questions as proof of my own initiation into a separate, 'natural' world - a secret, implicated world - part fantasy, half formed understanding of the answers. I wanted to be in this world all the time.

This was a place I didn't know what to make of - different from playground make-believe and yet not adult either - almost deviant. I found myself drawing reference from the relationships I had within 'nature' as a part of 'nature' - the definition of which I assumed as something as outside the realm of human societal understanding.

As I grew up, my definitions around nature changed. I began to ask questions of others beyond my backyard; hawks and falcons and hare; foragers and chanterelle and tiny crawling insects, which I learned favor some mushrooms over others. There was the woman from West

Africa who explained to me why she sold roselle in Farmer's Markets and the blue jays which told me when to look for maitake.

As I grew up, these relationships were what taught me how to feel the passing of time - more than anything else. Hawks and vultures stretched their wings and took flight in the bright blue of October. In the cold of winter when the power went out, my dad made blueberry pancakes on the woodstove; we watched one more episode of *Avatar the Last Airbender* when our lights flickered back on. The farmer's market sprang up in the spring; chanterelles in the summer.

When I saw myself as part of a secret world of hares, hawks, brush, and bramble - I viewed myself as special. I, unlike others, bridged two worlds: that which was human, and that which was other than. I upheld my ability to slide between them; and yet I still relied on my humanity as the base characteristic needed to understand both.¹ I did not see nonhumans as having the ability to enter what I saw as universal 'human' structures of living; the quality of being able to perceive other ways of life. I, as a human being, was a perceiver of the world, able to dictate nature; all else was what was perceived without much consequence.

I forgot about all the others doing the same; human and other alike. There was the hawk, looking to the falconer; the forager, searching the land. I sat waiting for a winter storm to dictate whether I could watch TV before bedtime and told myself these were two separate conditions of existence.

When I went to college, I soon found myself questioning who I should look to as a guide within environments; human and other alike. My Introduction to Biology professor taught

¹I would not have said, for example, that a matsutake mushroom can understand a human society - or slide within that 'world.' For another perspective on this, see Anna Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015).

classes with sea urchins - but I couldn't always understand its expectation that I separate myself from what I observed. I dropped a class in the fall of my freshman year, and spent that time sitting on a big hill behind my campus - writing poetry on my awareness that there are more species of bacteria in your body than are species of birds.²

Everywhere I looked I began to see the systems of relations I may have missed before. There was the man who went fishing off of the lake by the gym, and the elderly Polish woman who picked honey mushrooms off of footpaths around campus - for her, one constant across oceans.

A study in 2019 found that one third of wild birds have disappeared since 1970. I feel like I could blink and I might miss it. This is measured in charts and numbers, in *New York Times* op-eds, which log a “midsummer decline of 82% of the biomass of flying insects over the past quarter century” - along with relaying that “stocks of bluefin tuna are down to the last 3% of their historic population.”³ The authors of this article, Fitzpatrick and Marra, do not mince words when they attribute a cause to this loss. “All these statistics together underscore the pervasive character of the Anthropocene, the new geological epoch defined by the planet’s natural systems being altered profoundly by human behavior. How deeply will these losses have to cut before society declares, ‘Enough!’”⁴

The removed view of nonhuman lives, presented as ‘losses,’ felt so alien to me. I felt like I was living in two worlds. There was the world of the trees and the jays and the hawks - a world of beings which I looked to in order to understand time, to understand place, to contextualize my

² Ron Sender, Shai Fuchs, and Ron Milo, “Revised Estimates for the Number of Human and Bacteria Cells in the Body,” *PLOS Biology* 14, no. 8 (August 19, 2016): e1002533, <https://doi.org/10.1371/journal.pbio.1002533>; “AviList: A Unified Global Checklist of the World’s Birds Is Now Available,” Cornell Lab of Ornithology, June 11, 2025, <https://www.birds.cornell.edu/home/avilist-unified-global-checklist/>.

³ John W. Fitzpatrick and Peter P. Marra, “Opinion | The Crisis for Birds Is a Crisis for Us All,” *The New York Times*, September 19, 2019, <https://www.nytimes.com/2019/09/19/opinion/crisis-birds-north-america.html>.

⁴ Fitzpatrick and Marra, “Opinion | The Crisis for Birds Is a Crisis for Us All”.

movement in the present - and here I was scrolling through my phone, reading an article written by the director of the Cornell Lab of Ornithology, utilizing terminology which likened birds, insects, and fish to capital.

“Declines of [...] biomass,” “Stocks of bluefin tuna are down”, “how deeply will these losses have to cut”... who is the ‘society’ addressed here? The one who decides which losses to cut, who determines that death may not continue “if only in our own self-interest, because trouble for birds means trouble for us as well”?⁵

There are not two worlds between this conceptual divide. There is only this one world, and yet I couldn't pull these modes of understanding together - I couldn't keep them apart. Within two paragraphs, Fitzpatrick and Marra overtly tie the concept of Anthropocene to a complete objectification of these animal lives; relegated to the terminology of ‘biomass,’ ‘stock,’ and ‘losses to cut’. Anthropocene - a proposed epoch, the ‘era of man,’ situated at the boundary line between the geologic and social sciences - then forms itself through the objectification of the other than human. The birds, fish, and insects are objects to be relegated, situated, and controlled; a prevalent mode of understanding humans as disjunct from nature.

Anthropocene - as I did when I was younger - removes *Anthropos* from the rest of nature. It claims that humanity is a unified force, currently incongruent with the natural world. By providing such a simplistic dichotomy, both sides of the coin may be objectified. Humanity is figured as ‘society’ without attention paid to the many ways of being held within this designation; ‘natural systems’ are voiced as passive processes able to be regulated when they are also made up of many ways of being - often in ways which defy the neat categorization of the ‘human’, the ‘animal’, and ‘others’.

⁵ Fitzpatrick and Marra, “Opinion | The Crisis for Birds Is a Crisis for Us All”.

The main mechanism by which the notion of Anthropocene presents this is through time. It is one flat narrative on who and what has the ability to meaningfully impact time - or do so in a way where they are seen as an agent capable of moving with intention. The phrasing used within this thesis in order to capture this definition is ‘temporal agency’.

This thesis is my attempt to complicate clean-cut narratives surrounding temporal agency; as such, it does not seek to fall into a clean-cut narrative within its own right. The form utilized here is a lyric essay; a blend of creative nonfiction and a more traditional academic inquiry. The creative nonfiction within this piece is an admission of my own positionality; an engagement with the other-than-human in a way which demonstrates other forms of dialogue, relation, and understanding. It attempts to characterize the perspectives I have been privileged to witness - and counteract an aggregate narrative of human impact on the rest of the world through specificity and personal connection.

Simultaneously, the stories, ideologies, and contexts of others are absolutely paramount to this work, in all of their messy contradictions and complexity. The blending of these two modes of inquiry nods to Donna Haraway's methodology of String Figures, a modality which looks for “real stories that are also speculative fabulations and speculative realisms.”⁶ The stories I draw from my own life aren't unreal, just those which are held through my own attempt at meaning-making; attempting to understand the realities of others which cannot be cited.

The term, “string figure” does not just stand for speculative fabulations and speculative realisms, either:

“Science fact and speculative fabulation need each other, and both need speculative feminism. I think of SF and string figures in a triple sense of figuring. First, promiscuously

⁶ Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016), 10.

plucking out fibers in clotted and dense events and practices, I try to follow the threads where they lead in order to track them and find their tangles and patterns crucial for staying with the trouble in real and particular places and times [...] string figuring is passing on and receiving, making and unmaking, picking up threads and dropping them.”⁷

Within my first section - which seeks to highlight the contemporary ideological origin of the Anthropocene - explores how “clotted and dense events and practices” may be universalized, or historically left out of the picture entirely. Multiple different threads are followed; particularly drawing from the work of Andreas Malm, Kathryn Yusoff, and the contributing authors of *Fueling Culture: 101 Words for Energy and Environment*.

Within the next two sections, another thread I pursue is the notion of the Anthropocene's underpinning as a humanist discourse. Humanism is an ideology which utilizes the basis of a shared humanity in order to advocate for rights within a framework of equality. This is not in itself something which may be neatly displayed here. Ideologies which depend on a dichotomy between humans and animals have assumed many forms up until the present day.⁸

Anthropocene uses this basis for shared humanity in one way; it retroactively assumes that human equality is a given rather than something which must be fought for. This effectively obscures structures of power within its worldview - and doesn't allow for a nuanced perspective of its own historical uses, let alone others.

Paulo Freire - also stemming from a humanist position - appears in these pages as well. With respect to Anthropocene, his pedagogy focuses entirely on critical thinking, dialogue, and humanity's current stratification; with different modes of thinking, lived realities, and relationships with oppression.

⁷Haraway, *Staying with the Trouble*, 3.

⁸Vanessa Watts, “Indigenous Place-Thought & Agency amongst Humans and Non-Humans (First Woman and Sky Woman Go on a European World Tour!),” *Decolonization: Indigeneity, Education & Society* 2, no. 1 (2013), 22.

Within his writing, two concepts are inextricably linked; the presumed capability for dialogue, and the ability of one to have temporal agency - to 'perceive' or have self-awareness in time. While Freire is overt in removing the other-than-human from having these abilities, his focus on objectification and the removal of self-determination in some ways contradicts his drawing of boundaries. These emphases lend his writing a nuanced and non-dichotomous framework more than it does Anthropocene: raising new questions on how manners of thinking about temporal agency reflect back on what is prioritized through change.

Diverging from this humanist tradition within the text are Anishinaabe understandings of relationality, as characterized by authors Robin Wall Kimmerer, Kyle Whyte, and Vanessa Watts. They demonstrate the value in extending beyond a separated human ideal; writing with respect and measured intention on their other-than-human relationships. They provide one potential starting point in order to think about relational modes of understanding - situated in their own cultural heritage. They begin to extend beyond *Anthropos*, providing new paradigms surrounding time, dialogue, and the other-than-human.

ORIGIN

By the time the apocalypse began, the world had already ended. It ended every day for a century or two. It ended, and another ending world spun in its place. It ended, and we woke up and ordered Greek coffees, drew the hot liquid through our teeth, as everywhere, the apocalypse rumbled, the apocalypse remembered, our dear, beloved apocalypse—it drifted slowly from the trees all around us, so loud we stopped hearing it.

- Franny Choi, *The World Keeps Ending, and the World Goes On*⁹

We are living in an era conceptualized through the lens of change. Glaciers rise and fall with the breath of tide around them. Frogs fall dead on the forest floor; overtaken by swarming mounds of ants. There is the movement of people; the conceptualized animal; the perceived inanimacy of suburban sprawl and the earth which shifts and settles under felled trees embrace.

In his paper on the advent of fossil capital, Andreas Malm attempts to understand a world he sees as teetering “on the brink of unimaginable catastrophe.”¹⁰ It is hard not to see things this way; many characterize Earth’s crises as headed to a sort of conclusion, heralded by dystopian visions of futures so catastrophic they border on science fiction.¹¹

For Malm, our universal point of downward momentum began to teeter and slip in one place, at one time, and with one technology: England, the early 19th century, and the adoption of the steam engine - ushering in a new age of fossil fuels. Over two millenia, coal burned in Britain; ‘black stone’ of the Roman garrison, the smithies, of the domestic home, and the manufacturer. It was a replacement for wood - of warmth, the hearth, furnace, kiln and brewery -

⁹ Franny Choi, *The World Keeps Ending, and the World Goes On* (HarperCollins, 2022).

¹⁰ Andreas Malm, *Origins of Fossil Capital*, 16 -19 (Verso Books, 2016).

¹¹ Kyle P. Whyte, “Indigenous Science (Fiction) for the Anthropocene: Ancestral Dystopias and Fantasies of Climate Change Crises,” *Environment and Planning E: Nature and Space* 1, no. 1-2 (March 2018): 224–42, <https://doi.org/10.1177/2514848618777621>.

and confined to these roles, its impact on carbon emissions was negligible. Water wheels were the main source of energy for large-scale industry; particularly for the sky-high profits of cotton and its long strings over land and water. The water was free flowing, freely given, and fueling the fire of a great dismemberment of land and people - harnessed by spoke fingers at the continent of final destination.

Before fossil fuels, water was used as a mode of dispossession - carbon neutral and flowing on any river capable of bearing the weight of industry. Coal was less efficient on all counts - unable to match water's volume, cost effectiveness, and superior technology - yet it nonetheless became the language of Britain's cotton industry. The rest of the world found the imprint of black stone in its wake. Water had been found to be too situational; requiring the underlying arteries of streams and rivers within the open roll of country. Those managing water wheels had to cater to workers - in short supply in the less populated areas needed for a wheel to function. Factory towns had to be built for skilled laborers.

In the 1830's, the role of unionization became more developed within British working culture, and those managing the wheels took note of their disadvantage within negotiations. In order to ensure a labor supply without the leverage of political and spatial movement, steam engines became commonplace; able to shift easily to the conglomerate of labor found in the heart of cities.¹² The water factory towns of the rivers turned inwards and the country began to heave black smoke¹³. Moths shuddered and turned dark to match trees caked with soot.¹⁴

¹² Malm, *Origins of Fossil Capital*, 31, 35-36.

¹³ Fruttaldo Antonio, "In the 'Mist' of an Amplification Spiral: The Case of the 'Great Smog of London,'" *Anglistica Aion an Interdisciplinary Journal* 22, no. 1 (2018), <https://doi.org/10.19231/angl-aion.201817>. In a London December of 1952, 5 days of unusually cold air forced fog heavy with soot to hover off the ground, enveloping the city in a potent mix of industrial by-products. Around 12,000 people died over the next 12 weeks.

¹⁴ Laurence M Cook, "The Rise and Fall of the Carbonaria Form of the Peppered Moth," *The Quarterly Review of Biology* 78, no. 4 (December 2003): 399-417, <https://doi.org/10.1086/378925>.

During this time, workers and industrialists were not the only ones in conversation with coal. Some Peppered Moths - bright white with birch bark spotting - evolved to be a deep coal black in order to avoid predation and blend into soot backgrounds. A new morph was named; *Carbonaria*.

Within this study, Malm is attempting to find *origin*. The import of cotton produced from plantations within the Americas necessitated a shift in technology from the water wheel to the steam engine in order to further disenfranchise workers; precipitating a rise in global temperatures as a carbon-neutral source of energy was exchanged for a global economy built on fossil fuel. A linear narrative is created with a clear cause and effect; a fine point is drawn on the moment and location in which “the railway to global warming had been laid down.”¹⁵ In a landscape of ‘points-of-no-return,’ climate change, and ecosystem collapse, one would be remiss not to search for answers.

In the early 2000s, attempts at characterizing the immense upheaval of our time led to widespread adoption of the term *Anthropocene*; functioning both as a proposed measure of geologic time and as a mode of calling to attention the irreversible damage wrought upon the Earth by the perceived mass of actors known as human beings.¹⁶ Conceptualized as a replacement of the Holocene epoch, ‘Anthropos-cene’ or ‘era-of-man’ furnishes the human as a geologic actor - one afforded the full positionality of the creation or destruction of worlds; be it through atom bombs, agriculture, oil fields, or the plantation.¹⁷

Each point of origin by necessity excludes others; what aspects of this make-or-break worlding is afforded inclusion within this new chronostratigraphic unit of time? Who - or what organizations - should officiate these boundaries?

In 2008, an Anthropocene Working Group was created in order to argue for the term’s inscription within the formality of geologic processing and its underlying scientific fields of understanding. The group was tasked with submitting a report to a branch of the International

¹⁵ Malm, *Origins of Fossil Capital*, 47.

¹⁶ Dipesh Chakrabarty, ‘Anthropocene 1’, 68. Imre Szeman, Jennifer Wenzel, and Patricia Yaeger, *Fueling Culture : 101 Words for Energy and Environment* (New York: Fordham University Press, 2017).

¹⁷ Kathryn Yusoff, *A Billion Black Anthropocenes or None* (Minneapolis: University of Minnesota Press, 2018), 13.

Commission of Stratigraphy; a international governing body concerned with precisely defining geologic units. The working group attempted to find the location in which a ‘golden spike’ may be placed: a physical stake marking clear evidence of a change in the earth's strata; pinpointing the exact moment in which a new epoch began.¹⁸ Colloquially called ‘golden spikes’ on account of the stakes placed in the ground where evidence is found, their official name is ‘Global Boundary Stratotype Sections and Points (GSSPs) - meant to set the limits of different formal geologic times using evidence found through sedimentary rock and shifts in earth formation.¹⁹

For Anthropocene - so intricately tied to visions of apocalypse; man as world-ender - the contention surrounding the origin of this time and a search for the scars it marked upon the layers of the earth was apparent. One could choose to place the beginning of the Epoch at the advent of the steam engine’s widespread adoption as Malm implicates; utilizing a layer of coal dust as evidence. One could follow his logic and choose to begin further - with the advent of the plantation economy, fueling the need for the adoption of new technologies in order to serve the British cotton industry - or the drawing and quartering of the Americas; the line between settler colonialism and current incarnations of petropolitics and widespread unrest being one thread particularly well documented.²⁰ The adoption of capital, petroculture, industrial revolution, atom bomb, the sepia layers of the earth across the globe with the markers of their corresponding alterations - all worthy attempts towards the temporal-spatial containment of something which resists categorization. This difficulty in pinpointing the inception of Anthropocene demonstrates its ambiguity, one born of implicit assumptions surrounding what narratives are deemed worthy of entering the canon.

¹⁸ Chakrabarty, ‘Anthropocene 1’. *Fueling Culture*, 69; Yusoff, *A Billion Black Anthropocenes or None*, 17.

¹⁹ David A.T. Harper et al., “Stability and Precision in Chronostratigraphical Definition: The Global Boundary Stratotype Section and Point (GSSP) Is the Solution,” *Palaeogeography, Palaeoclimatology, Palaeoecology* 686 (December 27, 2025): 113515, <https://doi.org/10.1016/j.palaeo.2025.113515>.

²⁰ Yusoff, *A Billion Black Anthropocenes or None*, 17,

For the Anthropocene working group, a point was chosen; the dull glow of a golden spike pressed to Crawford Lake in Ontario, Canada. Citing their decision as primarily due to the higher incidence of radioactive plutonium from mid-century nuclear weapons testing, the choice of marking Anthropocene's origination within the Great Acceleration neatly shed centuries of historical antecedent while doing little to address current conflicts of social stratification, particularly through a racialized paradigm.²¹

Part of the legible impacts credited to Anthropocene is the molecular restructuring of the atmosphere as a consequence of human activity; climate change is generally implicated to *Anthropos* without further interrogation on individual involvement. It presents a determined origin of an inevitable 'road to global warming' which, unlike in Malm's formulation - is credited to all of humanity.²² Yet the unequal distribution of culpability surrounding climate change is widely cited - with low- and middle-income countries historically contributing considerably less to climate change, while at the highest risk of health-outcome impacts; something which may not always be captured from a 'universal' or atmospheric level.²³

It almost goes without saying that the atmosphere is linked with the view of an earth altered by humanity. Even outside of the purview of the Anthropocene Working Group, proposals centering the Industrial Revolution and the Great Acceleration often garner the most

²¹ Naomi Oreskes, "Does the Anthropocene Matter?," *Scientific American* 33, no. 1s (March 2024): 89, <https://doi.org/10.1038/scientificamerican0124-89>. Yusoff, *A Billion Black Anthropocenes or None*, 49-53.

²² Rob Nixon, 'Anthropocene 2', 75. Imre Szeman, Jennifer Wenzel, and Patricia Yaeger, *Fueling Culture : 101 Words for Energy and Environment* (New York: Fordham University Press, 2017). It is also important to note that Andreas Malm is highly preoccupied with struggles of the working class and the movement of populations in order to suit the needs of capital - particularly the moves taken by British industrialists in order to thwart unionization. He does not seek to equalize humanity - although, like Anthropocene thinking, he does draw a line at the beginning of an overarching worldview.

²³ G. Bianco, R. M. Espinoza-Chávez, P. G. Ashigbie, H. Junio, C. Borhani, S. Miles-Richardson, et al., "Projected Impact of Climate Change on Human Health in Low- and Middle-Income Countries: A Systematic Review," *BMJ Global Health* (2024): e015550, <https://doi.org/10.1136/bmjgh-2024-015550>. It is also of particular importance to reference Amitav Ghosh, *NUTMEG'S CURSE : Parables for a Planet in Crisis*. (Chicago.: University of Chicago Press, 2021), 138-145. Within *Nutmeg's Curse*, Ghosh contests that high-income countries will be insulated from climate change; complicating this cut-and-dry narrative of impact while still acknowledging ongoing histories of discrimination.

attention, positioning carbon emissions and expenditure of energy as the mode of measuring an overall human culpability towards the earth.²⁴ In its mobility and intangibility, air serves as a portent of distributed impact and indiscrimination of culpability and victimhood, an ultimate unifier, transcending borders and social stratification. By framing climate change as a ‘global warming,’ or something which encompasses the entirety of the earth, Anthropocene implies the universal human condition of both a shared impact and responsibility.

Yet this is not one shared narrative and responsibility. No one has the same systems of relations to the relations to the earth and air - and the attempt of Anthropocene thinking to present this as such obscures varied histories in favor of one universal story.

Take, for example, the terminology which Anthropocene has adopted; the ‘golden spike’ used as a definitive point in the earth’s strata in order to implicate *Anthropos* into a novel method of manufacturing worlds. The shift in epoch represents a point at which this ability has somehow fundamentally changed from previous generations’ capability to alter their world. The golden spike demonstrates an origin between when (and who) is noteworthy enough to join humanity’s ability to function as a geologic actor.

And yet the ‘golden spike’ is also a term derived from a specific history, one filled with the alteration of strata, worlds, and the environment; yet it was not chosen as a part of the Anthropocene Working Group’s ‘Era of Man’. It is not a history which can be held synonymous with all of humanity.

In 1869, one last spike was hammered into place in the first transcontinental railroad from Nebraska to California, meeting in Promontory Point, Utah; shining in 17.6 carats of solid gold. There is a picture which exists of this event, photographed by A.J. Russell; a definitive marker of the ‘progress’ which came from an attempt to “civilize a wilderness and bind a country

²⁴ Naomi Oreskes, “Does the Anthropocene Matter?,” 89

together.”²⁵ This moment defined the history of the Americas; signaled a massive turning point in the manifest destiny of the continent; formed new trade networks of coal, steel and steam across the globe; in no small measure through the contributions of Chinese workers.

Working from West to east, the railroad permitted Chinese workers only west of Promontory Point, but they nevertheless made up the majority of the workforce, with around 250 - 500 workers present at the location itself.²⁶ They are nearly absent in Russell’s famous picture, pushed far to one side; very little documentation exists on their lives within the historical record.²⁷

It is hard not to understate the significance of the completion of this railroad within American history, as succinctly noted by Michael R. Polk in his archeological study of worker camps within the region:

It bridged the vast unknown spaces of the Great American Desert and accelerated the processes whereby the American frontier was eventually eliminated. It opened the great western lands to settlement, hastening the creation of western territories and states. It united East and West. Instead of taking six weeks to cross the nation by pony express, mail now took six days from coast to coast. The railroad led to the almost complete annihilation of the American bison, changing Native American lifeways. Historians count the completion of the transcontinental railroad among the most significant and far-reaching events in the nation's history.²⁸

There is a national park located here; Golden Spike National Park. The location of the Last Spike is still on display; metal ‘golden spikes’ are sold for \$24.99. There are magnet replicas of markers of topographic elevation conducted by US Geologic Surveys.²⁹

²⁵ Ryan Dearing, *The Filth of Progress: Immigrants, Americans, and the Building of Canals and Railroads in the West* (Oakland, California: University Of California Press, 2016), 149.

²⁶ Michael R. Polk, “Interpreting Chinese Worker Camps on the Transcontinental Railroad at Promontory Summit, Utah,” *Historical Archaeology* 49, no. 1 (March 2015): 59–70, <https://doi.org/10.1007/bf03376958>.

²⁷ Ryan Dearing, *The Filth of Progress*, 147.

²⁸ Michael R. Polk, “Interpreting Chinese Worker Camps”, 59–70.

²⁹ Western National Parks Store. “Golden Spike NH Benchmark Magnet - WNP | Shop Our Parks!,” WNPA.org, 2024, <https://store.wnpsa.org/products/golden-spike-national-hist-park-magnet-benchmark-049563>.

The Chinese communities who worked here have been referred to as ‘Silent Spikes’ - meant to denote their invisibility and disposability.³⁰ The original ‘golden spike’ was not placed in Crawford Lake, Ontario, did not begin with nuclear weapons testing in the 1950s, and was not a universal narrative. The all-encompassing nature of the Anthropocene’s golden spike does not account for its own history - otherwise it would lend more to being placed at the point in which the American continent was joined. The origin chosen for the Anthropocene separates itself from the stories held by the ‘invisible spikes’ of Chinese migrant workers from 1869. It neglects to acknowledge the reshaping of the Americas as contributing to the shaping of its terminology, extrapolates the language of ‘golden spike’ without paying attention to legacy; reconstitutes its definition. The objectification of Chinese workers is built into wording which now aims to signify an equal humanity.

In *A Billion Black Anthropocenes or None*, author Kathryn Yusoff notes this as well; following other stories and histories ignored by the universality of Anthropocene terminology. While examining the legacy of chattel slavery in the Caribbean and Americas, she is careful to “pay attention to the grammars of geology and to think with the modes of objectification that the genre of the Anthropocene both unleashes and maintains.”³¹ The irony of the golden spike’s history - one which in and of itself falls outside of the boundaries chosen by the Anthropocene Working Group - is not an outlier, but indicative of the removed view of a conflict decontextualized from origins through their own creation. There is no room for a contained narrative within the vast chorus of voices on the planet; no one story of worlding can hold them all.

³⁰ Kenneth Tam, “Silent Spikes,” Queens Museum | Silent Spikes (Queens Museum, 2019), <https://queensmuseum.org/exhibition/silent-spikes/>.

³¹ Kathryn Yusoff, *A Billion Black Anthropocenes or None* (Minneapolis: University of Minnesota Press, 2018), 17.

By acknowledging an “injunction on the recognition of historic modes of geopolitical mattering while maintaining unequal relations of power through continued environmental exposures,” Yusoff puts aside the perception of a presumed global human condition from a non-existent bird’s-eye view and begins the messy work of examining physical relationships of people with the land - not just the overarching concept of change decontextualized from its material effects or lengthy racialized histories.³²

Yusoff recognizes that the way we characterize the world around us - even, perhaps especially, through the ‘impartial’ scientific language of geography and epoch - always stems from somewhere, and can never stop at a tipping point. Those who worked the mines, picked the cotton, and formed the ‘silent spikes’ which laid down Malm’s ‘railway to global warming’ demonstrate there have always been people more at risk for the environmental exposures which extraction - and more specifically the carbon economy - is dependent upon.³³ This railway to environmental conflict was not something built in futurity - it was born through a direct relationship between the cessation of slave and migrant labor and cheap energy - in the form of fossil fuels - compounded by ongoing environmental exposures afforded to the working class and marginalized populations. To draw a dividing line between this continuation is an inherent act of erasure - there is no geologic ‘golden spike’ without the golden spike found at Promontory Point, nor is there a steam engine origin separated from its popularization through the cotton industry.

³² Yusoff, *A Billion Black Anthropocenes or None*, 14.

³³ Chakrabarty, ‘Anthropocene 1’. *Fueling Culture*, 69; Yusoff, *A Billion Black Anthropocenes or None*, 51. It is important to note that Britain itself had a predominant coal industry; this sentence is not meant to conflate different systems of relations outside of labor and resource extraction - but rather to demonstrate the opposite. There are many human stories behind the face of climate change. For more information on worker’s struggles within the context of British extraction, see Kirsti Bohata et al., *Disability in Industrial Britain : A Cultural and Literary History of Impairment in the Coal Industry, 1880-1948* (Manchester (UK): Manchester University Press, 2020).

This field has started to grapple with this question in regards to the existent striations of culpability between people and their corresponding risk of bodily harm as the instability of the environment continues to reveal itself in terms of climate change - but may omit the fact that this is just one facet of a story that has been playing itself out for centuries. This embodiment of harm is not new; apocalypse is not new; the destruction of the environment is not new. We are not a unified force. In these times, we must look beyond the intangibility of one new aspect of a very old story; begin the messy and intricate work of untangling the threads of many narratives instead of that of one beginning.

We are not *Anthropos* with shared systems of relations, narratives and history; we all have points of origin and modes of referentiality. We are not ‘the asteroid’, as Rob Nixon quotes from Elizabeth Kolbert in *Fueling Culture*.³⁴ Our time - this beautiful time with its own swirling eddies of creation and destruction, moment by moment - requires more from us; we must name the patterns of harm we create and learn to reintegrate ourselves with the narratives, history, and relations ignored by a lithic or atmospheric scale.³⁵

³⁴ Nixon, ‘Anthropocene 2’, 74.

³⁵ Both of these views are important; they may hold their place as much as any other. But they cannot be all there is.

DIALOGUE

I am in the bow of a canoe, single paddle in hand, tucked through the frame-rowing nothing but gnarled oak wood. The water outside the canoe I row inside itself is just rough enough for the seat below me to creak and threaten to break with every wave, but not so much that I feel that I am in danger. My dad is at the stern, his paddle touching water. He presses strong hands against the ocean and molds it like clay. He makes it look easy. He makes it look like I could mold water, though we both know if my paddle rowed more than wood it would be ripped from my grasp - the water plays for keeps. I keep my paddle tight against the hull and
pantomime.

We are going to turn around soon. In any case, something will turn. I am 12 years old and straight rods of salt grass stretch above my head and so high their thin reeds pierce a great gray sky like sewing needles through cloth. I see them all but ahead of me, lines of dully disoriented soldiers playing their hands with a pointed bayonet.

Ahead of us there is just ocean; sky-meld-into-ocean kind of greywater, both made of deep dark construction paper folded hamburger style from the creased point of horizon like water just keeps flowing above us too. It feels like that to me at least, here, at the very edge of the salt marsh where ocean meets bayonet mouth. It feels like I am at the edge of the world. Like someone tilted that hamburger style ocean-grey-sky on its end and I am at the precipice, looking on and on and on and on and on to endless continual float, and I am grasping the only things which make sense, and it is those sky piercing reeds and my one useless boat bound oar which I paddle as if it in itself could keep me from disambiguation. Right now, it feels that way. I

feel like if I dipped that paddle into the water and started paddling I'd find myself on headlines like MAINE'S CHILD ATLAS OF THE SALTMARSH - and paddling in this river mouth would be the only thing that kept this world turning, and then I would never stop. Like I said - the water plays for keeps.

I was right, I had known it in my heart.

My dad coughs behind me, hoarse and full of seafoam. I tune in to his rhythmic splash-thunk of steering just before it stops.

He fiddles with the array of materials strewn in the inch of water at the underbelly of the boat and retrieves a rod and reel. It is small and blue, for adults. I take it anyway, careful to keep the hook cast away from us as I have been taught, string and metal whistling into the wind.

The water provides water - but before long we have gained the attention of one of the Atlantic Ocean's cast-off emissaries. She is wide and oblong and made of ocean into fur like a waterskin bottle. She is so close I could press my hand into the dark grey spots on her light apple back in the dark gray ocean-into-fur-into-sky and I would taste mud and salt and clean cut sand.

She exhales and stares me down her vacuum sealed rabbit nose. Her eyes are so wide and beetle black I swear I can see stars. My dad swears we are having a conversation.

Our boat drifts back down river to the saltmarsh and she does not, and before long she is gone.

My dad brings up this memory almost every time I see him, which isn't a lot. It seems like a plea.

*“I knew the girl with the salt oak hands who talked to the seal with a light apple back”
and all he wants to hear is that I knew the man who taught me to cast a rod and reel. He has
forgotten the obvious.*

*The seal was not an emissary. It had come to the rod, hoping for cast off bass or bait. I
knew the man who taught me to cast a rod and reel, but I do not know the man who stands before
me. I am not the girl with the salt oak hands.*

*Our visits end as they always do. I stand in his kitchen, smile frozen at his question disguised as
memory, put on fur lined boots, and step inland out the door.*

Sometimes it is hard to see where one day ends and the next one begins. The clock flips from 11:59 to 12:00 - a sharp, precise march into the next calendar day - and yet the sun rises and falls in gradual motion. Seasons pull away just to swing back again.

Natural cyclicity, as compared to the linear motion which many structure their lives around, exist in a form of relation with each other; both asserted through different modes of understanding. Should I look to the sun or the clock in order to know my place in the world; do I move with the seasons, or push through the ages? Who else do I listen to in order to form this understanding?

When one determines origin as is done with Anthropocene, it creates a statement surrounding how time is conceptualized - such as the geological sequence - able to be cut and examined, piece by piece.³⁶ This is also linked to implicit assumptions surrounding agency; how is time defined? Who is able to define it, and who is seen as meaningfully participating within time? What assumptions and omissions are made in an epoch coined the 'era of man'?

This section seeks to examine these systems of relation with time. As was previously explored, origin occurs with inheld biases to stories, narratives, and authority of voice, all modes of learning and unlearning - that which has been taught and allowed to enter a historical conversation - and that which has not. Anthropocene is then a mode of determining one's relation-with-temporality; asking human beings to understand themselves as holding a selective position to the world around them; an inherent separation between the human and natural realms. Critiquing this reference point requires one to grapple with these questions surrounding learning, dialogue, and agency.

³⁶ Kyle Powys Whyte, "Time as Kinship," *Cambridge University Press EBooks*, September 2, 2021, 39–55, <https://doi.org/10.1017/9781009039369.005>.

Four educators provide two points of contact within these questions; the mid-century humanist Paulo Freire, and the Anishinaabe scholars Vanessa Watts, Robin Wall Kimmerer, and Kyle Whyte. These educators all stake claims surrounding who- and what- is included within time; which definitions are seen as ‘correct.’ Anthropocene too, quite literally ‘stakes a claim’ on who fits within the set span of this epoch, and so these three different modes of understanding enter a conversation; all drawing boundaries around how one should live in relation with others.

In Brazil in 1921, a teacher was born, one who strived to change the world: the author Paulo Freire. As a child, Freire knew hunger. He was born to a middle-class family who fell on hard times during the Great Depression; his father died when he was 11. His family could afford to send him to private school, but could not always afford food; he dropped back a grade 4 or 5 times. He grew up playing with boys who would never get the same chances he did, fully knowing the weight of that responsibility.³⁷ This experience opened his eyes: the mode of learning currently supplied by schools was not sufficient. There needed to be more; learning which supplied the working class the tools to create the world they wished for, not just accept the facts they were given.

Freire’s family fortunes changed, and he jumped into learning as if it gave him life. He went to law school but never became a lawyer, instead choosing to teach. He revolutionized Brazil’s school system, focusing primarily on helping the illiterate read; opening up a new realm of possibilities.

Freire was a humanist; focused on uplifting the human in all the ways he could. He was Catholic, but rejected hierarchy and religious education; a lawyer who didn’t practice law.³⁸ He

³⁷ Donalda Macedo et al., “Letters to Cristina Reflections on My Life and Work Paulo Freire Translated from the Portuguese,” 1996,

<https://files.libcom.org/files/paulo-freire-letters-to-cristina-reflections-on-my-life-and-work-1.pdf>

³⁸ Walter Omar Kohan, *Paulo Freire* (Bloomsbury Publishing, 2021).

became a teacher who pushed away from a rote ‘banking’ education - memorizing dates and numbers without understanding their historical context - or the narratives which will always go along with them.³⁹ Freire knew that knowledge was the key to be able to contextualize one’s own understanding of the world - and convert that understanding into action in order to create change. He aimed to address the vulnerabilities one incurs when they yield their own truth to one given by institutions. He coined the term ‘banking’ education for this form of vulnerability - a mode of learning which prioritizes the storage and withdrawal of memorized information over the critical thought needed to transform the lives of the working class.

Instead of this commodified learning, Freire chose dialogue as his mode of education; the student and teacher in continuous conversation. His aim was not to ‘convert’ students to his own mode of thinking, but rather to give them the tools to create their own narratives; to enact their own histories. Teachers should also be willing to learn; to come with the humility of potentially finding new ways of understanding; know that those they taught may see things differently. For Freire, "dialogue cannot occur between those who want to name the world and those who do not wish this naming - between those who deny others the right to speak their word and those whose right to speak has been denied them."⁴⁰ For if one is rejecting the ability to have a conversation, one is denying others the right to speak; shutting down any form of dialogue, potentially rejecting those who must name - and therefore change - the world for themselves. How can one effectively teach - and learn from others - if anyone sets themselves apart as an ‘I’ in a world of “[...] mere its, in whom I cannot recognize other I’s?”⁴¹

³⁹ Freire, *Pedagogy of the Oppressed*, 61.

⁴⁰ Ibid., 61.

⁴¹ Ibid., 63.

Freire stated that “to exist, humanly, is to *name* the world, to change it.”⁴² He saw people as fully capable of transforming the world, but only if they recognized it; uplifting dialogue as a mode of understanding above all else. In his teaching, dialogue is the way in which people “achieve significance as human beings.”⁴³ Freire's seminal text, the *Pedagogy of the Oppressed*, demonstrates this “intense faith into humankind, faith in their power to make and remake, to create and re-create, faith in their vocation to be more fully human.”⁴⁴ This act of creating and recreating, making and remaking, characterized a world-in-time for Freire - *an epoch*. Freire, then, spoke of epoch as the culmination of humanity's ability to remake the world far before the contemporary use of Anthropocene did - both part of a long standing western humanist tradition, holding its own form within conceptions of epoch within the current time. He recognized and prioritized the significance of human beings within epoch, to the exclusion of all else; human societies, movement, and understanding in-relation held his focus.

This differentiates his definition from the geologic sciences which adopted Anthropocene in the modern day; a discipline which examines time far beyond the scale of human history. As one may learn from Yusoff and *A Billion Black Anthropocenes or None*, Geology as historically practiced and Anthropocene presupposes a neutral and objective lens despite their own apparent biases, not intractable from its own extractive histories.⁴⁵ Scientific practices were not created as much as removed from the positionalities of the individuals who helped to define its adoption; the frames around which geology has conventionally based its understanding differentiate Anthropocene from that which has come before it. Other epochs work through sections of time which are often difficult to conceive; the current Holocene epoch

⁴² Freire, *Pedagogy of the Oppressed*, 61.

⁴³ Ibid., 61.

⁴⁴ [...] “(which is not the privilege of an elite, but the birthright of all.)” Ibid., 63.

⁴⁵ Yusoff, *A Billion Black Anthropocenes or None*, 64.

itself contested by the Anthropocene began around 11,800 years ago.⁴⁶ In comparison, the proposed ‘golden spike’ found through the atom bomb and Crawford Lake proceed with an epoch which began around 70 years ago, well within the lengths of many human histories it itself excludes.

Freire did away with such boundaries entirely. He recognized what is lost when one narrative is favored over its historical impetus; when origin is placed while removing its contextualization. He instead pushed away from any “closed period of time or static compartment in which people are refined” in order to allow for the historical continuity which represents shifts in human dialogue and action.⁴⁷

Through Anthropocene’s origin within geology and its inherent measurement of periods, sequence and duration, the term embraces these historical injunctions; despite the use of epoch being typically reserved for periods far before the human beings which defined its existence. By including both this ‘bird’s eye view’ of the world while also directly stating opinion surrounding when humanity has reached the ability to have global impact, Anthropocene holds a sort of dual space between modes of thinking. It finds itself framing a removed and impartial tradition directly in conversation with human culture and agency - making a statement on which time one was able to have reached the zenith of world-shaking action - and who and what was involved in shaping that process. As is noted by Rob Nixon in *Fueling Culture*, the “grand species narrative which drives the Anthropocene hypothesis is, in both senses of the phrase, epochal; it moves the geological boundary markers while also disturbing conventional assumptions about human agency, identity, and temporal power.”⁴⁸ Within this quote, Nixon draws a line between

⁴⁶ Rhodes Fairbridge and Larry Agenbroad, “Holocene Epoch | Causes, Effects, & Facts,” in *Encyclopædia Britannica*, 2019, <https://www.britannica.com/science/Holocene-Epoch>.

⁴⁷ Freire, *Pedagogy of the Oppressed*, 74.

⁴⁸ Nixon, ‘Anthropocene 2’, 74.

Anthropocene's structural foundation within the western scientific tradition, and its simultaneous influence towards human beings' awareness of their own impact towards the world around them.

Freire defines his epoch as "characterized by a complex of ideas, concepts, hopes, doubts, values, and challenges in dialectical interaction with their opposites, striving towards plenitude. The concrete representations of many of these ideas, values, concepts, and hopes, as well as the obstacles which impede the people's full humanization, constitute the themes of that epoch."⁴⁹ By "disturbing conventional assumptions about human agency, identity, and temporal power," Anthropocene holds its own form of uncanny resemblance. What is Anthropocene without the "complex of ideas, concepts, hopes, doubts, values, and challenges" formed from the humanity it envelops?⁵⁰ What does it mean to hold both the presumption of scientific impartiality with all of the hopes, pinnacles, and pitfalls expressed through the story of a humanity capable of changing the world?

In other words, Anthropocene attempts to hold the space for shifts in these human ideals, hopes, and enactment while rejecting Freire's need for historical continuity; upholding the "static compartments in which people are confined" by the nature of its own measurement of sequence, duration, and tethering to scientific tradition.⁵¹ Nixon's conception of temporal power - or the capability to 'make and remake' worlds so central to Freire's view of humanity - is limited within Anthropocene's own epochal narratives.⁵² The ability to 'make and remake worlds' reduces itself to a seventy year span of an approximately three hundred thousand year species existence; a right given to all humanity within Freire's definition; his ever-evolving mode of understanding human potential on this planet through their capacity for dialogue.⁵³

⁴⁹ Freire, *Pedagogy of the Oppressed*, 74

⁵⁰ Ibid., 74.

⁵¹ Ibid., 74.

⁵² Nixon op. cit., 74.

⁵³ Freire, op. cit., 63.

Anthropocene - built upon the language of a generalized *Anthropos* - then still presents a disjunctive form of personhood. It is one which removes temporal agency to those outside of the definition's set timeframe by the nature of its claim over 'temporal power.'⁵⁴ There are those from before Anthropocene and those living within it; only those beyond its set start date are seen as noteworthy enough to be included as one who may meaningfully transform the world. The fluidity of Freire's definition of human agency constructed through time becomes lost within Anthropocene's rigidity. In other words, the boundaries surrounding an era defined by Man's ability to 'make and remake' worlds implies one way of defining the narratives around our time; one chronological section of the human beings which have had a hand in making it.⁵⁵

Both Anthropocene and Freire equalize humanity through their own respective positions. This is particularly apparent through their "grand species narrative" on how notable change is enacted, but they are not without differing positionalities within structures of power.⁵⁶ Both have very differentiated narratives surrounding the form which human action has taken, with different reference points and motives. Freire focused on helping those marginalized realize the power of their own voices to shape action; he wished to critique structures of power by moving beyond a top-down mode of learning and expression. Freire separated all of humanity as equal as compared to the rest of the world - he meant to help all individual human beings recognize their own capacity to enact their surroundings. He wished for all to bring to the table their own disparate and dialectic histories and narratives within the grand story of what it means to be human.

Following Yusoff's critique of Anthropocene, a very different picture emerges; the Anthropocene obscures power by presenting all humanity as having equal culpability despite

⁵⁴ Nixon, 'Anthropocene 2', 74

⁵⁵ Freire, op. cit., 63.

⁵⁶ Nixon, op. cit., 74.

structural imbalances.⁵⁷ Freire's "faith in [humankind's] power to make and remake [...] faith in their vocation to be more fully human" is lost within Anthropocene; the power of shaping the world becomes concentrated within human beings who live well within the last century.⁵⁸

Anthropocene does not address the "obstacles which impede the people's full humanization" as something which "constitute the themes of that epoch;" it assumes an equal and full humanity, retroactively assigning a narrative surrounding those who had an impact in creating the present.⁵⁹

Other forms of contested temporal agency also show up within Freire's mode of thinking, particularly surrounding the ability of the nonhuman to enact meaningful change upon the earth. Anthropocene reduces temporal agency to the humanity preceding the golden spike; for Freire, agency-in-time becomes split between the first indivisible boundary between 'ape' and 'man'. All life outside the human - as stated through the reference of animals - acts mechanistically without the world as external to themselves; they do not have the ability to perceive time, nor history.

"Unable to decide for themselves, unable to objectify either themselves or their activity, living 'submerged' in a world which they can give no meaning, lacking a 'tomorrow' and a 'today' because they exist in an overwhelming present, animals are ahistorical. Their ahistorical life does not occur in the 'world' taken in its strict meaning; for the animal, the world does not constitute a 'not-I' which could set him apart as an 'I'.⁶⁰

Existing without history, nonhuman beings are shut out from all forms of agency, self-reflection, and living identity. They have no past and no future; frozen in time and still-being as humanity enacts the world around them. This condition is to Freire a 'prop world' - one set in static, humming multiplicity - extending to epoch in natural continuation.⁶¹

⁵⁷ Yusoff, *A Billion Black Anthropocenes or None*, 64

⁵⁸ Freire, *Pedagogy of the Oppressed*, 74.

⁵⁹ Ibid., 74.

⁶⁰ Ibid., 71.

⁶¹ "In contrast to animals - people can tri-dimensionalize time into the past, present, and future. Their history, in the function of their own creations develops as a constant process of transformation within which epochal units materialize." Ibid., 74.

There is the human and there is all else there is; the actor and the stage, the movement of the prop. There is the enactor and all which is meant to be enacted upon.⁶²

The entirety of the world derives its meaning from what is seen as one aggregate way of being; the movement of a humanity through all else inanimate. This is not an inanimacy within the context of the physical state of holding life or breath, but inanimate as in not in animation - not moving from frame to frame - not processed by what the average human brain can consciously experience at around 10 bits per second.⁶³ Inanimate as in not endowed with spirit; inanimate as in lacking consciousness. Inanimate as in being dull or dumb - unable to speak, through wording or body language.

Above me is a gull, riding the stiff tide of air over rocks slick with sweat. I can taste the salt spray on my tongue and my hand follows her trajectory as she rides parallel to the jagged coastline. Her perception of movement is faster than mine; an internal frame rate ticks ever so quickly. She may see in high definition what I only perceive as a blur; the rush of sea spray becomes a thousand glittering droplets in clear free fall. She converses with that which I may be too slow to comprehend; both of us creating, both of us enacting.

What does it mean for Freire - so concerned with the language of agency and dialogue - to then so quickly reject that potential for all else but the human? Within the span of eight pages of text, he denounces those who see themselves as an 'I' in a world of "mere its" before himself rejecting the other-than-human as an 'I'.⁶⁴

⁶² Anthropocene, too, holds this dichotomy. There is the Anthropos actor and the world which is acted upon. In this way, what has changed? What an isolated world these two definitions hold. There is the human, in a 1-dimensionalized way of being. There is all else, afforded no being. There is no potential for communication.

⁶³ Britton A Sauerbrei and J Andrew Pruszynski, "The Brain Works at More than 10 Bits per Second," *Nature Neuroscience*, June 13, 2025, <https://doi.org/10.1038/s41593-025-01997-0>.

⁶⁴ Freire, op. cit., 71

This statement is one which is done with confidence, with no regard to its apparent contradiction. Yet it is not a mistake and it is not done carelessly. It is a shadow cast by the nature of an upholding of the human in all the ways one can; something which Anthropocene also holds. It creates a humanity in equal being and agency; the only ones afforded the title of being capable of changing the world.

Somewhere in my mind I am suspended; I am Atlas - the map-maker, seen as holding the world - date neatly printed on a newspaper clipping. I am that which is seen as making and remaking, as I am the one which holds the water; as If I am the one which dictates the sea. I look to the horizon as if it is a precipice; a sharp line to which there is no return. It is not Cartesian coordinates and yet it embodies every direction. There is salt in my lungs and the ocean gray is everywhere ahead of me, filling in the empty space. The horizon is not a manifest destination.⁶⁵ The water churns and churns. The water churns and churns. The water churns and churns.

Within her paper on ‘Indigenous Place Thought and Agency amongst Humans and Non-Humans,’ Anishinaabe writer Vanessa Watts contrasts two lenses of understanding the agency of others; Euro-Western epistemological-ontological frames with that of ‘place-thought’ - an Indigenous mode of understanding the world.⁶⁶ Within Watt’s formulation, traditional Euro-Western approaches to agency divide one’s perception of the world from that which constitutes it; through the two structures of epistemology and ontology. Epistemology - a wide branch of study which studies how one knows and the bounds of what is knowable - views human perceptions of the world “as being distinct from what is in the world, or what constitutes it,’ whereas ontology seeks to understand exactly what constitutes and constructs the world.⁶⁷

⁶⁵Anna Zett, “This Unwieldy Object,” 2014.

⁶⁶ Watts, "Indigenous Place Thought," 22.

⁶⁷ Ibid., 22.

This separates 'how/why' we can know what the world is - and the distinction of those who may ask these questions - from 'what' the world is made of.⁶⁸ In other words, the study of a person's mental awareness of being is separated from the study of what creates the structures and components of physical being. This essentially divides those found to be able to participate in dialogue and 'rational' inquiry by Euro-western conventions from all else.⁶⁹

Freire - an academic trained in this Euro-western method of understanding the world - relies heavily on this distinction. Epistemology reinforces the concept of a human as the enactor; ontology as a world which is enacted upon; creating room for a distinction where "to exist, humanly, is to name the world, to change it."⁷⁰ Epistemology then references the concept that human existence is above all through the naming of the world - the perceiving and knowing of everything else; able to change the 'prop' world of objects within an ontological formulation. Others - seen as unable to 'perceive' the world, are therefore unable to be seen as true beings beyond what an outside observer trained within this mode of understanding can view as physical evidence of life. A hyacinth blooms, a rabbit sniffs and intakes air, and a lichen creeps up the tree; but they do not fit within the paradigm of being able to understand or relate to their place on earth. As they are seen as "unable to objectify either themselves or their activity," they are themselves objectified.⁷¹

If reason - capacity for dialogue and understanding - is the way in which humans "achieve significance as human beings,"⁷² then the rest of the objectified world also becomes evaluated through this perspective; "where thought, perception, and action are separated from the supposed inertia of nature."⁷³

⁶⁸ Watts, "Indigenous Place Thought," 22.

⁶⁹ Ibid., 24.

⁷⁰ Freire, *Pedagogy of the Oppressed*, 74.

⁷¹ Ibid., 71.

⁷² Ibid., 71.

⁷³ Watts, op. cit., 24.

Just as with similarly placed Anthropocene, here one may find that the narratives, histories, and traditions which constitute our understanding of the world and one's place in it cannot be decontextualized. Separating humanity from the rest of all which exists is not an objective choice in worldview. It is identified by Watts expanding through processes of colonialism, as a strategic divide between what may be seen as resource and those who may utilize it: "Over time and through processes of colonization, the corporeal and theoretical borders of the epistemological-ontological divide contribute to colonial interpretations of nature/creation that act to centre the human and peripherate nature into an exclusionary relationship."⁷⁴

What Freire views as a concrete boundary between the 'I' of a perceiving, feeling, humanity and the 'not I' of all else is called into question⁷⁵. A spectrum of presence is enacted by the nature of the traditions which he draws from; both for the human and other-than-human alike.⁷⁶ Freire - avidly invested in the liberation of people from oppression - yet returns to the worldviews which undergird that which he spoke out against. The colonial playbook in which "dialogue is broken when one of the partners lack humility" is apparent through his view of animals' ahistorical condition and lack of perception.⁷⁷ His assumption of the human/nature divide therefore simultaneously reintroduces the mentality he rejects within his writing; one often used in order to subjugate human beings as well as others.

In this way, views which center a disjunct between the human/natural divide radically alter the way in which human beings may view the planet; particularly surrounding those viewed as mere 'props' without presence - simultaneously relegating subsets of human beings within this

⁷⁴ Ibid., 26.

⁷⁵ Freire, *Pedagogy of the Oppressed*, 71.

⁷⁶ "This is one theoretical structure to understand the world and its constituents. It necessitates a separation of not only human and non-human, but a hierarchy of beings in terms of how beings are able to think as well." Watts, op. cit., 24.

⁷⁷ Freire, op. cit., 63.

paradigm. As long as there is an 'it' as a set mode of understanding being, there is always the possibility of transference into that category.

By following Vanessa Watt's example - contesting the assumptions born out of this Euro-western framework through Anishinaabe worldviews - one is allowed new interpretations beyond this thread of understanding; contextualizing critiques of Anthropocene within frameworks which do not fall prey to the same colonial implications.

In contrast to this Euro-Western framework, Watts states that place and thought are not divided in Anishinaabe practices; but rather that humans and non-humans alike are informed by the land upon which they walk, creating a basis for societal interaction beyond boundaries determined by one's humanity or species. Agency is something given to the world beyond the metric of its tangibility towards Euro-western perception. One's ability to move intentionally is no longer up to the 'removed' outside observer of a generalized human:.

Where waters flow and pool, where mountains rise and turn into valleys, all of these become demarcations of who will reside where, how they will live, and how their behaviours toward one another are determined. Scientists refer to this as ecosystems or habitats. However, if we accept the idea that all living things contain spirit, then this extends beyond complex structures within an ecosystem. It means that non-human beings choose how they reside, interact and develop relationships with other non-humans. So, all elements of nature possess agency, and this agency is not limited to innate action or causal relationships.⁷⁸

When one goes beyond the structures which separate humans from nature, the rest of the world becomes infused with life. This is not just a life according to a scientific standard, acting as a mechanistic background to human societal structure; it is a world filled with *dialogue*, with other beings feeling, thinking, perceiving and naming the world for themselves. One enters a much less lonely reality; no longer one of Anthropos as the sole agent responsible for maintaining or

⁷⁸ Watts, "Indigenous Place Thought," 23.

changing the planet. Intention is built from interaction between individuals and societies across species divides.

Robin Wall Kimmerer, another Anishinaabe teacher, finds a similar observation; Freire's mode of dialogue as the basis of agency is no longer dictated by the species boundary of Anthropos. One does not need to press for entry into a thinking, feeling world; the category of 'it' is almost entirely removed - no longer applicable to the living.⁷⁹

She tells the story of Nanabozho - Original Man - part human, part spirit. Walking through a land unknown to the human, he was "unsure of his parentage or his origins - only that he was set down in a fully peopled world of plants and animals, winds and water."⁸⁰ One of his first actions on an Earth new to him was to walk east - the direction of knowledge, while also acknowledging that "all the knowledge he needed in order to live was present in the land."⁸¹ He walked, dirt, grass, and mud underfoot along the continent of Turtle Island.

As he continued exploring the land, Nanabozho was given a new responsibility: to learn the names of all the beings. He watched them carefully to see how they lived and spoke with them to learn what gifts they carried in order to discern their true names. Right away he began to feel more at home and was not lonely anymore when he could call the others by name and they called out to him when he passed 'Bozho!' - still our greeting to one another today.⁸²

Freire's provision for authorship, reflection, and agency - the ability to *name* the world, and therefore shape it for themselves - is expanded beyond the human being. Nanabozho listened to the others he viewed around them, and they heard him too. He did not see himself as holding

⁷⁹ See the chapter 'Learning the Grammar of Animacy'. Robin Wall Kimmerer, *Braiding Sweetgrass : Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. (S.L.: Milkweed Editions, 2013), 48.

⁸⁰ Kimmerer, *Braiding Sweetgrass*, 206. The need for origin is not to deny the reality of origins lost. It is held here too; with open-hearted compassion. This lack of historical continuity may also be honored and included as part of the canon; the lack of a previous history may reveal truths as well as obscure.

⁸¹ Ibid., 206.

⁸² Ibid., 208

his own knowledge and ability for self-reflection above a ‘prop world’ - he learned in a reciprocal dynamic from all which surrounded him.

In this way, Anishinaabe naming - “the first job the creator gave Nanabozho,” may represent an act of dialogue in a multitudinous world of others who dictate this world for themselves; an act of relation.⁸³ What is a name if it is not made through collaboration? Who calls your name when you deny the existence of those around you?

What happens if Freire’s definition of naming is then altered? Instead of saying that “to exist, humanly, is to name the world, to change it,” one could choose to take an approach inspired by Nanabozho; that ‘to exist, with being, is to name the world, to change it.’⁸⁴ We then all name ourselves and are named by others; we teach and are taught in continuous rotation. All of those seen as human again enter the fold.

The water holds me and I try to hold the water. I am not that which keeps the world turning. The seal holds the fisherman and the fish she snares with pinprick teeth. She lives in a world of relation; of enacting her surroundings.

I smell the salt tang of living and the slate gray of all that is beyond and comprehending. She stares back at me as I sway in the breeze in a hollowed out vessel meant to be whole. She stares until she names me too.

⁸³ Kimmerer, *Braiding Sweetgrass*, 206.

⁸⁴ Freire, *Pedagogy of the Oppressed*, 61.

LINEARITY

We row past a stretch of rocks I know and in a blink I am young again. My bare feet press against chalk-like jagged stone. The edges of the rock are sharp and flaking; extending out like orchid petals. Grass shifts and flows over in places, spilling outwards: the cracked edges give way into a steep drop from lawn into the sea; to rock beach like salt and pepper hair.

There is a toy boat in my hands; bright red and made of plastic. It is marketed as a wildlife research station. There is a plastic sperm whale in my other hand: too matte and too shiny, all in one.

In the hull of the boat are live periwinkle snails. Their shells curve and direct inwards into no determinable outcome. I press my eye to the black hole of their being and no matter what I do I can't prove to myself the evidence of their living inhabitation outside of the fact that I simply know them to be so. The hull of my boat fills with them; as many as I can reach. They dry like bone meal as the sweat of the rocks recede. I pull them inwards, towards the deep water, where there are tidepools stretching out in rock crevices. The pools are just big enough for me to pretend they are the oceans; accessible for me and my noah's ark. They are light enough to swirl in the water before settling. They hold a rough gleam as they fall to the kelp streamer bottom; crab and shrimp scuttle and move out of the way.

Before long the tide comes. It rushes into all which I thought was a world unique in miniature and I suddenly remember I am a 6 year old girl with a boat in her hands and I am looking out to gleaming incomprehensibility. I cannot save all of the snails dried out on the shore through a world of my own making. The tide will come in and it will go out.

I hold my dad's hand as I walk to the car and there is hot sand all around me. My other hand is still holding the toy ocean research vessel. The plastic sperm whale has been forgotten. In my mind I will never leave Maine and I will save all the animals and I was raised by wolves and all I need is the freedom of adulthood to bend reality. I am still holding my dad's hand. The tide still comes inwards.

The periwinkles shift and settle and begin to come out of their shells.

Anishinaabe, Anthropocene, and Freire's forms of understanding temporal agency and dialogue all hold radically different contexts, positionalities, and frames of reference; yet their unlikely juxtaposition illuminates new ways of understanding time, agency, and the other-than-human. Through one alteration in Freire's Euro-Western viewpoint - that of the limited agency of animals - one finds that his definitions of relationality within epoch are mirrored within these contemporary critiques of Anthropocene.

Kyle Powys Whyte - another Anishinaabe academic and climate justice advocate - finds himself here; cautioning against understanding time, agency, and dialogue through modes of knowledge connected to histories of colonialism. This is particularly apparent in his papers on 'Indigenous science (fiction) for the Anthropocene; Ancestral Dystopias and Fantasies of Climate Change Crises', and 'Time as Kinship'.

Within both papers, Whyte points to the way in which the Anthropocene is often linked to a "coming period of irreversible destabilization of the global climate system - an impending climate crisis."⁸⁵ Just like Yusoff and Freire, Whyte critiques a chronostratigraphic unit of time, Anthropocene's definitive form of granting 'temporal power' set by origin.

Only certain subsets of human beings have been able to 'make and remake' the world - those whose stories have been prioritized by the start date of Anthropocene; those who exist before its beginning.⁸⁶ The human beings held within this new epoch are given the unique ability to make or destroy the world - whether through atom bombs, industrialization, or global warming - in all counts a linear narrative from origin to inevitable catastrophe. From Malm's 'railway to global warming' to 'points of no return,' a clock ticks to the midnight of unstoppable devastation; universal apocalypse.⁸⁷

⁸⁵ Whyte, "Indigenous Science (Fiction) for the Anthropocene", 224-42.

⁸⁶ Freire, op. cit., 61.

⁸⁷ Malm, *Origins of Fossil Capital*, 47.

The novelty of this conceptualization of apocalypse, however engaging, soon proves itself to be devoid of historical contextualization. Whyte is quick to point out an irony within this; “that the hardships many nonIndigenous people dread most of the climate crisis are ones that Indigenous people have endured already due to different forms of colonialism; ecosystem collapse, species loss, economic crash, drastic relocation, and cultural disintegration.”⁸⁸ A new apocalypse is feared without the acknowledgement of unimaginably violent histories of death and devastation; particularly apparent through Whyte’s example of European colonization of the Americas.

When environmental change credited to human beings is viewed as sequential - point ‘A’ to point ‘B’ - urgency is generated; in the rush to prevent this apocalypse which may be conceptual to some and a memory for others, top-down and colonial mentalities may be engaged.⁸⁹ ‘Tried and true’ methods of enacting change are implemented - those formed through the same oppressive structures which refuse to acknowledge their history. Relationality is missed; perspectives other than those formed through a colonial standard are not consulted due to convenient fears of imminent collapse. The same modes of being apparent through colonial oppression remain the norm; delaying effective organization and long-lasting solutions. Communication and adaptability break down in the service of a faster - and more amiable - solution; one which does not address systemic differences in power.⁹⁰

Indigenous land is co-opted for wind power development.⁹¹ Countries within the Global South may be forced to bear the burden of reducing the world’s carbon footprint.⁹²

⁸⁸ Whyte, “Indigenous Science (Fiction) for the Anthropocene”, 226.

⁸⁹ Whyte, “Time as Kinship,” 39–55.

⁹⁰ Ibid., 39–55.

⁹¹ See ‘Isthmus of Tehuantepec’. Ibid., 39–55.

⁹² See the ‘Clean Development Mechanism’. Ibid., 39–55.

As one strategy to relearn these forms of agency - from granting those in history a recognition of agency to addressing present disparities in power - Whyte turns to a mode of relation termed ‘counterfactual dialogue.’ This form of dialogue is not one in a literal or conversational sense, but rather philosophical interaction meant to function across time. Rather, it is made of narratives which “unfold through our interacting with, responding to, and reflecting on the actual or potential actions of our ancestors and descendants [...] as continuous dialogues.”⁹³ This framework asks for active engagement with ancestors and descendants as these histories and futures move through life alongside them. It is not feasible to decontextualize events to just what is seen through a chronostratigraphic scope.

By returning to this way of thinking, Whyte also continues to acknowledge those whose histories have had influence on where we are today, whether or not a singular or sequenced form of events would recognize this as such; creating more beyond one overarching mode of perceiving the world. Engaging in counterfactual dialogue means that one’s context in history is always apparent. It is a process of constant upheaval and moral positioning, in which one must ask:

“How do we return the gifts from our ancestors?” [...] “How do we become good ancestors ourselves?”⁹⁴

In order to address the importance of this mode of relationality, Whyte states the following:

⁹³ Whyte, “Indigenous Science (Fiction) for the Anthropocene,” 229.

⁹⁴ Ibid., 229; Kimmerer, *Braiding Sweetgrass*, 165.

The form of philosophizing that is promoted by these questions, I claim, is counterfactual dialogue. It is a dialogue in which—without full information—we speculate on how our ancestors and our future generations would interpret today’s situations and what recommendations they would make for us as guidance for our individual and collective actions. What we determine to be right or wrong actions in our lives stems importantly from the results of these dialogues that involve currently living persons, memories and stories of past persons and the anticipated interpretations of future persons. The philosophical places of counterfactual dialogue are endless, given many dialogues are possible depending on which generations of ancestors or descendants we choose to begin with.⁹⁵

Here, time no longer has a start or end date; no origin or “brink of unimaginable catastrophe.”⁹⁶ It deconstructs the one narrative provided within *Anthropos*; forms a continuous reference to differentiated histories with their own trajectories.

Freire also found that dialogue is formed in an intrinsic relation with one’s perception of time, of their own contextualization within all that may come before and after one’s self. He asserted that ‘true dialogue’ can only exist with those who engage in “thinking which perceives reality as a process, as transformation, rather than as a static entity - thinking which does not separate itself from action, but constantly immerses itself in temporality.”⁹⁷ This is differentiated from ‘naive thinking’ - which sees “historical time as a weight, a stratification of the acquisitions and experiences of the past.”⁹⁸

⁹⁵ Whyte, ‘Indigenous Science (Fiction) for the Anthropocene, 229-230.

⁹⁶ Malm, *Origins of Fossil Capital*, 16 -19.

⁹⁷ Freire, *Pedagogy of the Oppressed*, 65.

⁹⁸ Ibid., 65. The entirety of this quote is cited as being ‘from the letter of a friend’.

In order to engage with history dialogically, one must see it as more than a stratified or 'built' up sequence of events which progress naturally in a linear fashion, independent from one's actions. Instead, one must recognize that the "acquisitions and experiences of the past" were formed through the transformation of others; they must think in a way which constantly immerses themselves in their own temporality. They must also look forward, towards the future; as part of "reality as a process, as transformation."⁹⁹

Freire's version of time then is similarly *active and relational* - in which time is formed through complex interactions between one's histories and ongoing futures, in addition to the "ideas, values, concepts, and hopes, as well as the obstacles which [...] constitute the themes of that epoch" within any given moment.¹⁰⁰

This epoch is never able to be cut and deconstructed, or devoid of its historical continuity. Freire's foundational tenet of dialogue - which "imposes itself as the way by which [people] achieve significance as human beings" - then is likewise built off on an attempt at providing agency for those who have come before us and who come after us - in addition to those we converse with within our set historical context - moving across time as well as within it; fully present to one's own place in continuum.¹⁰¹

Just like Freire's forms of dialogue, counterfactual dialogue aims to provide answers towards new forms of existing within being; within the context of our own time and all that continues before and beyond it. It is not, however, Whyte's only presentation of Anishinaabe relational forms of time.

⁹⁹ Freire, *Pedagogy of the Oppressed*, 65.

¹⁰⁰ Ibid., 74

¹⁰¹ Ibid., 74.

There is no question surrounding the fact that the world is currently existing in a state of precarity. Western forms of understanding this precarity resort to categorization through time; a “movement through identical units like years or centuries.” Differences in climate are tracked and monitored through this framework, primarily utilized in order to draw attention to potential risks of climate change towards human beings. Time becomes a race to save one’s self or one’s own group, rather than networks of relations; one can no longer see the fuller picture.¹⁰²

In response, Whyte calls upon the cosmological framework of ‘time as kinship’ - which doesn’t measure from points of origin or duration, but rather through ongoing systems of relation; a mode of measuring the changing ways of being through the world within the members of a particular society. Kinship - in this context a term meant to capture a “category of relationships grounded in responsibility” - serves as a method of understanding one’s connection to others through reciprocity, mutual dependence, and looking to guidance from others, including the non-human.¹⁰³

One example Whyte provides is from the words of Oscar Hatfield, an Elder of the Confederated Tribes of Siletz Indians. Rather than focus on the tipping point of climate change on measurement of data over units of time, Hatfield is able to view climate change through structured webs of interdependence. This data is not casual, in which two species with a linear relationship (such as predator/prey dynamics) have a direct result on one or the other. Rather, this framework seeks to acknowledge the way one may be able to place themselves within cycles of being - understanding the passage of time and one’s own actions through interrelation with others:

¹⁰² Whyte, “Time as Kinship,” 39–55.

¹⁰³ Ibid., 39–55.

‘...in the spring, you got carpenter ants, big black carpenter ants, and [eel hunters] didn’t go eeling until they saw those carpenter ants, they came out to mate, grow wings and fly off and start new colonies and stuff and that was what they marked when the weather was right to start eeling.. they marked other things the same way, but you don’t do that anymore because our weather’s changed so much that you can’t mark anything like that; there’s no way to do it’¹⁰⁴

Here, time is not marked by one simplistic narrative. The cascading effects of the revolutions of seasons trigger all sorts of beings to engage in their own ways of life. One can look to the patterns which others uphold in order to begin their own seasonal patterns, and so on it goes; a cyclical movement with many threads of becoming.

There is no longer one singular continuity; one aberrant humanity in one thin line of becoming, enacting, and changing.

¹⁰⁴ Whyte, ‘Time as Kinship’, 39-55. Whyte includes this quote - and its accompanying analysis - from a study by Samantha Chisholm Hatfield et. al. After interviewing Indigenous Elders and other Traditional Knowledge Holders, the study concluded that their participants were both more likely to perceive changes in interactions between humans and others due to their prioritization of relationality. In addition to this, they were more likely to link environmental change to colonialist histories rather than a relatively new issue. Whyte is cited as a contributor. Samantha Chisholm Hatfield et al., “Indian Time: Time, Seasonality, and Culture in Traditional Ecological Knowledge of Climate Change,” *Ecological Processes* 7, no. 1 (July 9, 2018), <https://doi.org/10.1186/s13717-018-0136-6>.

AGENCY

When I was young, I found it very difficult to reconcile the world I knew in my heart and hands to that which was distilled in me through education. I would listen to my teacher and my classmates, hear stories on the ‘dumb’ animal; the word’s definition of being incapable of speech being just as pertinent as lacking the intelligence required to understand.¹⁰⁵

And yet knew; I couldn’t help but feel the animacy in the world around me, look into eyes I knew were looking back at mine. I would hook a fish, silver scales meant to mimic the sunlight as seen from below, now glinting in a noonday sun; the cold sliver of the needle and the pearl beads of blood. I would taste the metallic sting and the alien horizon. ‘A fish out of water’ - attempts at understanding, attempts at trying to communicate, and yet still wrought out of my understanding of what the fish may be experiencing. I saw the pain, and fear; but did not know what they made of the boat or this horizon I assumed was alien to them but may in fact be one experienced before.

I didn’t know how to hold it, this communication done under duress; wording without yet reaching true dialogue, but still the beginning of comprehension. I was fascinated at the idea of

¹⁰⁵ Whenever “one” says “The Animal,” each time a philosopher, or anyone else, says “The Animal” in the singular and without further ado, claiming thus to designate every living thing that is held not to be human (man as rational animal, man as political animal, speaking animal, zōon logon echon, man who says “I” and takes himself to be the subject of a statement that he proffers on the subject of the said animal, etc.), well, each time the subject of that statement, this “one,” this “I” does that he utters an asininity [bêtise]. Jacques Derrida, *The Animal That Therefore I Am*, ed. Marie-Louise Mallet, trans. David Wills (New York: Fordham University Press, 2008), 31. This quote has been adapted from an analysis by Stacy Alaimo, ‘Animal.’ Joni Adamson, William A Gleason, and David N Pellow, *Keywords for Environmental Studies* (New York: New York University Press, 2016).

understanding; repelled by the pain I saw - and yet still in relation - still moving through modes of being.

In order to fish for striped bass as my dad and I used to, one had to learn to watch the common terns; diving underneath into schools of bream as the larger fish pushed them up from below. Both types of predators disorient the smaller fish; both migrating in spring to reach the Maine coast. We would fish off of a canoe just off the shore, trailing along on the surface of the ocean; the terns a white arrow just ahead. Sometimes there were bright flashes in the water; bream dancing to stay afloat, moving between worlds in their attempts to evade the chaos around them.

When I saw the seal that day on the water with her head so close to my own, I did not think about the fact that I was a human or she was an animal; it felt like she held the world clenched between her teeth. I tried to understand; I wanted to know her life, her story. Whether she approached out of curiosity, or expecting food, a conversation was initiated: I was the one still living in the moment, too young to truly grasp the long arc of history or the true meaning of the past or future. Who taught her how to hunt, to navigate the world? To slip between the bass and the terns, and to dart through water like a rocket; did she know the time in which we came to fish, to follow boats to a school like a beacon on the water? Or knew to see a canoe as out of the ordinary as we rolled along the current? This is in no way the markings of one who doesn't know how to communicate their feeling, or who lives in a world devoid of meaning-making. I tried my best to learn her form of communication, and learn from the others around her; to follow the shifts of the terms, bass, seals and bream; a dense network of individuals enmeshed in their own form of culture.

Anthropocene - a linear narrative of time - is not sufficient in grasping the scope of climate precarity.

My home - the Gulf of Maine - is warming 99% faster than most of the world's oceans.¹⁰⁶ Migratory patterns are changing; new types of fish are finding their way north.

A tern spirals and dives into the water, finding purchase on a single, silver bullet. From above it is small and sleek like a herring, or a hake. A quick beak grasps the fish and carries it back to one small brown chick, hidden in an array of rocks and sticks.

The fish is not a herring. It is a butterfish, stomach pushing downwards like a silver dollar. It is too large for the chick to eat, who gives up trying to swallow it. He goes hungry, surrounded by dead and dying fish.¹⁰⁷

Seals wash up dead on beaches as migratory bird routes change; struck by avian influenza.¹⁰⁸ Gulls fall by the dozens. A cascade of effects caused by the change of seasons twist and disorient. The world spins out of balance in ways which are nearly impossible to calculate or quantify. The use of chronostratigraphic periods to mark change removes the agency of those before us to contribute their stories to the record; aggregates living people into one singular demographic. The prefix of 'Anthropos' itself outright removes the agency of the other-than-human. It then contributes to oppression towards humans and others alike through the one-dimensionalization of this one urgent, linear, narrative.

¹⁰⁶ Kathryn Miles, "An Overheating Gulf of Maine Is Now Forcing Wildlife to Adapt—or Move," Audubon, January 25, 2022, <https://www.audubon.org/magazine/overheating-gulf-maine-now-forcing-wildlife-adapt-or-move>.

¹⁰⁷ Ibid.

¹⁰⁸ M Gilbert, J Slingenbergh, and X Xiao, "Climate Change and Avian Influenza," *Revue Scientifique et Technique (International Office of Epizootics)* 27, no. 2 (August 2008): 459, <https://pmc.ncbi.nlm.nih.gov/articles/PMC2709837/>.

Within *Staying with the Trouble; Making Kin in the Cthulucene*, author Donna Haraway states that the ‘cene suffix denoting epoch stems from the Greek word *Kainos*, meaning “now, a time for beginning, a time for ongoing, for freshness.”¹⁰⁹ By contrast, the word *epoch* comes from the Greek *epoché*, a fixed point or cessation; itself stemming from the verb *epechein* - “to hold back”.¹¹⁰ Down to its etymology, epoch is a fixed point which cannot escape its own inherent implications towards continuum.

Anthropocene brings this quality into high definition. The use of these contradictory chronostratigraphic periods becomes wrapped up in the fears, doubts, anxieties and urgency of living beings - over what is popularly seen as ‘static’ time. A species is marked as holding the world - and in doing so, shrinks definitions of temporal agency for most. It assumes that the other-than-human cannot contribute in this era-of-man; that the human beings who lived before the boundary of epoch did not themselves contribute to the point of being included in the power to change the world. The clock ticks ever forward.

Within *The Mushroom at the End of the World*, author Anna Tsing notes these complications surrounding temporality.

Progress is embedded, too, in widely accepted assumptions about what it means to be human. Even when disguised through other terms, such as "agency," "consciousness," and "intention," we learn over and over that humans are different from the rest of the living world because we look forward-while other species, which live day to day, are thus dependent on us. As long as we imagine that humans are made through progress, nonhumans are stuck within this imaginative framework too.

¹⁰⁹ Donna Haraway, *Staying with the Trouble: Making Kin in the Cthulucene* (Durham: Duke University Press, 2016), 10.

¹¹⁰ “Definition of EPOCH,” [www.merriam-webster.com](https://www.merriam-webster.com/dictionary/epoch), n.d., <https://www.merriam-webster.com/dictionary/epoch>.

Progress is a forward march, drawing other kinds of time into its rhythms. Without that driving beat, we might notice other temporal patterns. Each living thing remakes the world through seasonal pulses of growth, lifetime reproductive patterns, and geographies of expansion. Within a given species, too, there are multiple time-making projects, as organisms enlist each other and coordinate in making landscapes [...] The curiosity I advocate follows such multiple temporalities, revitalizing description and imagination. This is not a simple empiricism, in which the world invents its own categories. Instead, agnostic about where we are going, we might look for what has been ignored because it never fit the time line of progress.¹¹¹

Like Kyle Whyte, Tsing rejects a progress narrative and instead asks for an awareness of the collaborative time-making which exists between others, both within the same and separate species; the different pulses of time all engage with. These different temporal patterns may sync back up or differentiate as each living thing had the power and agency to remake the world. The categorization of species is no longer what determines how temporality is perceived; interconnection becomes prioritized instead.

Whyte, in speaking for his ancestors on their perspectives of current conflict through the context of their times, takes this further. He theorizes they would be surprised at the “absence and triviality of nonhuman agency in human affairs. They would have asked us what use words such as “human” and “nonhuman” even have for helping us address pressing issues.”¹¹² Within these quotes, both Tsing and Whyte suggest that the category of the human is no longer something which may be relied on as a singular determinant of ones’ structures of engagement within the world.

¹¹¹ Anna Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015), 21.

¹¹² Whyte, ‘Indigenous Science (Fiction) for the Anthropocene, 229-230.

Human beings have different systems of relations and are involved in different modes of time-making; from the Chinese workers of the transcontinental railroad to Indigenous scholars who protest the concept of a novel catastrophe in the face of the devastation of the precolonial Americas.

They were not suitably held within the Anthropocene; their stories disconnected from its segmented grand narrative of what it means to alter the world. Is *Anthropos* as the basis of a linear and standardized mode of time-telling capable of holding all of these human narratives, even as it excludes all others?

But what does this mean, to put aside the determination of one's humanity as a mode of structuring authority of voice; as what decides whose actions are viewed as relevant and historical? What is beyond *Anthropocene*? Beyond *Anthropos*?

The removal of the label of *Anthropos* within this context creates a host of complex ethical questions; how does one uphold human rights if 'being human' is no longer tied to the sense of one's fundamental agency? What determines the presumption of one's right to speak, to be seen as capable of making an impact on the world? Where is the boundary where the category of *Anthropos* must be engaged? It is not my place to deny these many questions outright. I do not claim to have all the answers; this is not one narrative or linear progression.

This is a contradiction which Vanessa Watts addresses as well; in reintegrating humanity with the other-than-human, care must be taken to sidestep the stigmatizing dichotomies which may animalize certain groups of people while upholding exceptionalism in others.

Our varied cosmologies speak to an intimacy with animals and mutual, recognisable agency. In the context of settler colonialism, Indigenous peoples are confronted with paradoxes of being: we must fight against being animalized! we must fight for our animality! We are not subhuman! our beingness is intimately tied to animality! The compass for resolution here is generated by settler colonial attitudes towards Indigenous and animal bodies. The view that humans are a superior species to animals is violently operationalised through the closeness between animals and Indigenous bodies. Yet, reconciling this with respect to decolonising animal studies must extend beyond granting humanity to Indians. It is the perversion of the animal-human closeness that cultivates a space for violence against Indigenous peoples. Countering this with a farness of Indigenous bodies from animal bodies will not undo violence. With respect to Indigenous cosmologies, this closeness with animals is not a question of interest or principle, but of obligation.¹¹³

The fundamental difference between animalization as a method of stratification and the irrelevance of species level language to some models of dialogue with others must be emphasized. The settler colonial divide between the human and animal is part of this ‘violent operationalization’.

In the face of so much precarity - for human and animal alike - what would occur if all were given the presumption of equal temporal agency, where all are considered “historical”, where all exist with being?¹¹⁴ Where are the stories of the seal, the tern, the butterflyfish; seen as ones which open themselves to dialogue and interpretation; who are animate and able to likewise inform change?

When I introduced this thesis, I spoke about my childhood; my humanity being what could help ‘save’ the world. I thought my ability to hold two worlds could bring them both together - that human beings with the unique intention and ability to see other ways of life was what could save nature.

¹¹³ Vanessa Watts, “Growling ontologies: Indigeneity, becoming-souls and settler colonial inaccessibility”, 19, Kelly Struthers Montford and Taylor Chloë, *Colonialism and Animality: Anti-Colonial Perspectives in Critical Animal Studies* (London: Routledge, 2021).

¹¹⁴ Freire, *Pedagogy of the Oppressed*, 61.

I thought I viewed other ways of being; I thought I lived without the urgency of progressive time. I did not view my intention as being tied to my own march towards progression; an inward push born out of the presumption of catastrophe.

Anthropocene is a compound word; time and man in a single breath. It conjures species, apocalypse, origin, urgency, and universality all in one; indeed the “complex of hopes, doubts, values, and challenges” Freire states as epoch - a culmination of one partial discourse over a singular and objective mode of viewing the world, one perceived as ‘correct’.¹¹⁵ It is a term so displaced from its own partiality that it doubles back on itself, a snake eating its own tail. The world spins and it revolves with it; knots of grief, anxiety, and the reassertion of a universal role to play and mode of addressing this conflict.

Somewhere beyond this form of progress is connection.

On one summer break from college, I returned home to find the gulls gone. I had seen them every day on my way to school growing up, fighting over scraps outside the fish market and the McDonald’s. They had died of avian influenza and I had been gone, and it had taken me six months to notice the silent leeching of community.

I am sitting on a school bus, an emerald blue scar of water speeding below. It leads to oil drums lined up to water like a nature documentary and thin slices of Fore River marshland and crumbling fortresses on islands overlooking a wide bay. As we meet the midpoint of a bridge across the water there is fog which rushes to greet us and soon there is nothing but the thin peach rings of streetlights and the structure of city rising up in the distance like a hazy outline.

¹¹⁵ Freire, *Pedagogy of the Oppressed*, 61

Brick buildings appear, one by one; there is a blue wood house perched right at the intersection between bridge and land. It hovers on the edge of an outcrop, almost tipping into space. In the second highest window of the blue house is a small orange cat; one I see many mornings - enough that I look for him every day as he looks to the traffic which comes with the sunrise.

Just beyond the cat house is a row of harbor markets creeping up the city like overgrown moss. A man steps out of one of the buildings and heaves something into a dumpster with a light orange swinging lid.

In a moment there are the white wings of gulls everywhere you can look; he is engulfed in them. They move in biblical proportions. In a matter of moments the veil is pierced and dozens of fish heads spill out of the trash bag, wide eyes splayed and heaved into the air by beating wings. I crane my head to look before the bus turns the corner. I know they will wait for the man tomorrow.

Black backed and herring gulls are not threatened; my feelings of loss are not connected to an endangered species. The oldest known herring gull lived to be forty nine years old. Many of the gulls I knew ten years ago should still be here - years of lost being, lost agency - the ability to move and change the world for themselves.

This is an absence I don't know what to do with; how to explain to some. I hear the questions now; *you should tell time through dumpster diving seagulls? Find your place through losses of such mundane connections?*

Yet life is made of such connections. Turquoise barrels of oil pool over neatly trimmed grass flanked by canada geese. The water pulls outwards and there are so many others; seen and unseen. I watched the gulls whenever I could, watched the cat watching the gulls, watched the

dock worker throw his hands up and walk away from the mess of wings. The tide comes in and out, the oil shifts and settles, and the brick cracks underfoot. We are all contributing to landscape.

I was 13 years old and the gulls were my unruly elders - a group of individuals who each viewed the world for themselves.

Now things are quieter. There is less birdsong in the forest. There are less insects in the summertime. Many species, common and endangered alike, are 'declining' - in other words, individuals are dying. Webs of interconnection are disappearing, and with them goes the ability to hold dialogue - to learn from others at risk - and so time marches forward in a rush to avoid a generalized catastrophe over recognition of the active loss of intimate relationships. If a nonhuman being is seen as existing as a 'prop,' perceiving purely in the moment, is that loss seen as mattering to them outside of 'just one bad day?' How is that life then assigned *value*, when the other-than-human are not allowed to speak for themselves? Where is there room for their experience and their relationships with the rest of the world?

Within *Staying with the Trouble*, Donna Haraway suggests the term *Cthulucene* as a mode of telling time; an ongoing mess of fleshy, tentacular, interrelation - resisting route categorization or one overarching narrative.

Specifically, unlike either the Anthropocene and the Capitalocene, the Cthulucene is made up of ongoing multispecies stories and practices of becoming-with in times that remain at stake, in precarious times, in which the world is not finished and the sky has not fallen-yet. We are at stake to each other. Unlike the dramas of Anthropocene or Capitalocene discourse, human beings are not the only important actors in the Cthulucene, with all other beings able simply to react. The order is reknitted: human beings are with and of the earth, and the biotic and abiotic powers of this earth are the main story.

However, the doings of situated, actual human beings matter. It matters with which ways of living and dying we cast our lot rather than others. It matters not just to human beings, but also to those many critters across taxa which and whom we have subjugated to exterminations, extinctions, genocides, and prospects of futurelessness.¹¹⁶

¹¹⁶ Haraway, *Staying with the Trouble*, 55.

Putting aside Haraway's marking of potential catastrophe - the implication of an end - she points toward the need for reckoning with current ideological situations surrounding living and dying. These histories matter; not just for human beings, but for beings-in-themselves as well.

Haraway's term of becoming-with reflects this - an acknowledgement of the intrinsic interconnection which exists as one moves through forms of being - moves into ways of interacting with time and space. We become who we are through interacting with others: the gulls and seals, family and educational structures, air and cities, oil and water.

As Kimmerer also points out, imagine what would happen if one acknowledged those connections! There is so much more room for the relationality which has always been there; hand upon hand of joy and grief; humor and sobriety. A prop world is suddenly awash in birdsong.

Imagine walking through a richly inhabited world of Birch people, Bear people, Rock people, beings we think of and therefore speak of as persons worthy of our respect, or inclusion in a peopled world [...] imagine the possibilities. Imagine the access we would have to different perspectives, the things we might see through other eyes, the wisdom that surrounds us. We don't have to figure out everything by ourselves: there are intelligences other than our own, teachers all around us. Imagine how much less lonely the world could be.¹¹⁷

¹¹⁷ Kimmerer, *Braiding Sweetgrass*, 58.

CONCLUSION

This is a conclusion which does not seek to determine an ending. It does not have a linear beginning; interactions with others have existed as long as there have been beings to do so. My systems of relations - those in my life who have shaped me and are shaped by me - are not like anyone else's; this is a directive only as much as it invites exploration.

The Anthropocene has one vision of what these relationships should look like; as being dictated by human collective action, from one marked time to another. This leads to the erasure of agency - of one's ability to be recognized as they determine their world - both historically and within the present day. In order to address the conflicts existent within this current time, more webs of connection must be respected, with different modes of knowing incorporated.

Actors unacknowledged through Anthropocene's inception, those not heard by a universalized humanity under a colonial framework, and the nonhuman are essential voices within current conflict. No one way of thinking will hold all of the answers, nor does it have to. Situated on an Earth full of multiplicities of knowing and becoming, acting and changing, nothing is static. There will always be more to understand.

BIBLIOGRAPHY

- Adamson, Joni, William A Gleason, and David N Pellow. *Keywords for Environmental Studies*. New York: New York University Press, 2016.
- Antonio, Fruttaldo. “In the ‘Mist’ of an Amplification Spiral: The Case of the ‘Great Smog of London.’” *Anglistica Aion an Interdisciplinary Journal* 22, no. 1 (2018).
<https://doi.org/10.19231/angl-aion.201817>.
- Birds, Cornell Lab of Ornithology. “AviList: A Unified Global Checklist of the World’s Birds Is Now Available,” June 11, 2025.
<https://www.birds.cornell.edu/home/avilist-unified-global-checklist/>.
- Bohata, Kirsti, Alexandra Jones, Mike Mantin, and Steven Thompson. *Disability in Industrial Britain : A Cultural and Literary History of Impairment in the Coal Industry, 1880-1948*. Manchester (UK): Manchester University Press, 2020.
- Chisholm Hatfield, Samantha, Elizabeth Marino, Kyle Powys Whyte, Kathie D. Dello, and Philip W. Mote. “Indian Time: Time, Seasonality, and Culture in Traditional Ecological Knowledge of Climate Change.” *Ecological Processes* 7, no. 1 (July 9, 2018).
<https://doi.org/10.1186/s13717-018-0136-6>.
- Choi, Franny. *The World Keeps Ending, and the World Goes On*. HarperCollins, 2022.
- Chwałczyk, Franciszek. “Around the Anthropocene in Eighty Names—Considering the Urbanocene Proposition.” Institute for Interdisciplinary Research into the Anthropocene, June 22, 2020.
<https://iiraorg.com/2020/06/22/around-the-anthropocene-in-eighty-names-considering-the-urbanocene-proposition/>.
- Cook, Laurence M. “The Rise and Fall of the Carbonaria Form of the Peppered Moth.” *The Quarterly Review of Biology* 78, no. 4 (December 2003): 399–417.
<https://doi.org/10.1086/378925>.
- Cusumano, Mariaclaudia. “Anthropocene, Capitalocene, Plantationocene, Necrocene, or Chthulhucene. How to Interpret the Environmental Crisis.” *Sociology and Social Work Review* 7, no. 1 (June 28, 2023): 149–56. <https://doi.org/10.58179/sswr7108>.

- Dearinger, Ryan. *The Filth of Progress : Immigrants, Americans, and the Building of Canals and Railroads in the West*. Oakland, California: University Of California Press, 2016.
- Derrida, Jacques. *The Animal That Therefore I Am*. Edited by Marie-Louise Mallet. Translated by David Wills. New York: Fordham University Press, 2008.
- Fairbridge, Rhodes, and Larry Agenbroad. “Holocene Epoch | Causes, Effects, & Facts.” In *Encyclopædia Britannica*, 2019. <https://www.britannica.com/science/Holocene-Epoch>.
- Freire, Paulo. *Pedagogy of the Oppressed*. New York: Bloomsbury Academic, 1970.
- Ghosh, Amitav. *NUTMEG’S CURSE : Parables for a Planet in Crisis*. S.L.: University of Chicago Press, 2021.
- Gilbert, M, J Slingenbergh, and X Xiao. “Climate Change and Avian Influenza.” *Revue Scientifique et Technique (International Office of Epizootics)* 27, no. 2 (August 2008): 459. <https://pmc.ncbi.nlm.nih.gov/articles/PMC2709837/>.
- Grudin, Robert. “Humanism.” In *Encyclopædia Britannica*, 2019. <https://www.britannica.com/topic/humanism>.
- Haraway, Donna. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press, 2016.
- Harper, David A.T., Lucia Angiolini, Charles M. Henderson, and Thomas Servais. “Stability and Precision in Chronostratigraphical Definition: The Global Boundary Stratotype Section and Point (GSSP) Is the Solution.” *Palaeogeography, Palaeoclimatology, Palaeoecology* 686 (December 27, 2025): 113515. <https://doi.org/10.1016/j.palaeo.2025.113515>.
- Imre Szeman, Jennifer Wenzel, and Patricia Yaeger. *Fueling Culture : 101 Words for Energy and Environment*. New York: Fordham University Press, 2017.
- Kelly Struthers Montford, and TaylorChloë. *Colonialism and Animality : Anti-Colonial Perspectives in Critical Animal Studies*. London: Routledge, 2021.
- Kenneth Tam . “Silent Spikes.” Queens Museum | Silent Spikes. Queens Museum, 2019. <https://queensmuseum.org/exhibition/silent-spikes/>.
- Kyle Powys Whyte. “Time as Kinship.” *Cambridge University Press EBooks*, September 2, 2021, 39–55. <https://doi.org/10.1017/9781009039369.005>.
- Macedo, Donalda, Jilda Macedo, Alexandre Oliveira, Routledge York, and And London. “Letters to Cristina Reflections on My Life and Work Paulo Freire Translated from the Portuguese,” 1996.

- <https://files.libcom.org/files/paulo-freire-letters-to-cristina-reflections-on-my-life-and-work-1.pdf>.
- Malm, Andreas. *Fossil Capital*. Verso Books, 2016.
- Miles, Kathryn. “An Overheating Gulf of Maine Is Now Forcing Wildlife to Adapt—or Move.” Audubon, January 25, 2022.
<https://www.audubon.org/magazine/overheating-gulf-maine-now-forcing-wildlife-adapt-or-move>.
- NOAA Fisheries. “Climate Change in the Northeast U.S. Shelf Ecosystem.” NOAA, 2026.
<https://www.fisheries.noaa.gov/new-england-mid-atlantic/climate-change/climate-change-northeast-us-shelf-ecosystem>.
- Nps.gov. “A Moment in Time - Golden Spike National Historical Park (U.S. National Park Service),” 2016. <https://www.nps.gov/gosp/learn/historyculture/a-moment-in-time.htm>.
- Nps.gov. “Welcome to Golden Spike,” 2026.
<https://www.nps.gov/media/video/view.htm?id=4562E100-7309-45A6-8B34-3FEFD864C6B6#>.
- Oreskes, Naomi. “Does the Anthropocene Matter?” *Scientific American* 33, no. 1s (March 2024): 89. <https://doi.org/10.1038/scientificamerican0124-89>.
- Polk, Michael R. “Interpreting Chinese Worker Camps on the Transcontinental Railroad at Promontory Summit, Utah.” *Historical Archaeology* 49, no. 1 (March 2015): 59–70.
<https://doi.org/10.1007/bf03376958>.
- Robin Wall Kimmerer. *Braiding Sweetgrass : Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. S.L.: Milkweed Editions, 2013.
- Sauerbrei, Britton A, and J Andrew Pruszynski. “The Brain Works at More than 10 Bits per Second.” *Nature Neuroscience*, June 13, 2025.
<https://doi.org/10.1038/s41593-025-01997-0>.
- Sender, Ron, Shai Fuchs, and Ron Milo. “Revised Estimates for the Number of Human and Bacteria Cells in the Body.” *PLOS Biology* 14, no. 8 (August 19, 2016): e1002533.
<https://doi.org/10.1371/journal.pbio.1002533>.
- Sörlin, Sverker . *The Future of Nature : Documents of Global Change*. Edited by Libby Robin, Sverker Sörlin, and Paul Warde. New Haven: Yale University Press, 2013.

- Tsing, Anna. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press, 2015.
- W. Fitzpatrick, John, and Peter P. Marra. "Opinion | The Crisis for Birds Is a Crisis for Us All." *The New York Times*, September 19, 2019.
<https://www.nytimes.com/2019/09/19/opinion/crisis-birds-north-america.html>.
- Walter Omar Kohan. *Paulo Freire*. Bloomsbury Publishing, 2021.
- Watts, Vanessa. "Indigenous Place-Thought & Agency amongst Humans and Non-Humans (First Woman and Sky Woman Go on a European World Tour!)." *Decolonization: Indigeneity, Education & Society* 2, no. 1 (2013): 20–34.
- Western National Parks Store. "Golden Spike NH Benchmark Magnet - WNP | Shop Our Parks!," 2024.
<https://store.wnps.org/products/golden-spike-national-hist-park-magnet-benchmark-0495>
 63.
- Whyte, Kyle P. "Indigenous Science (Fiction) for the Anthropocene: Ancestral Dystopias and Fantasies of Climate Change Crises." *Environment and Planning E: Nature and Space* 1, no. 1-2 (March 2018): 224–42. <https://doi.org/10.1177/2514848618777621>.
- www.merriam-webster.com. "Definition of EPOCH," n.d.
<https://www.merriam-webster.com/dictionary/epoch>.
- Wynter, Sylvia. "Unsettling the Coloniality of Being/Power/Truth/Freedom: Towards the Human, after Man, Its Overrepresentation--an Argument." *CR: The New Centennial Review* 3, no. 3 (2003): 257–337. <https://doi.org/10.1353/ncr.2004.0015>.
- Yusoff, Kathryn. *A Billion Black Anthropocenes or None*. Minneapolis: University of Minnesota Press, 2018.
- Zett, Anna. "This Unwieldy Object," 2014.