Vibrant Rock, Earth, and iPhone: Disrupting Extractivism in the Work of Marcela Armas and François Quévillon.

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Abstract

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As new extractive frontiers emerge in the Anthropocene, this thesis examines the way artworks by Mexican artist Marcela Armas and Canadian artist François Quévillon intervene in the capitalist paradigms, worldviews, and technologies that enable the extraction and exploitation of nature, mineral resources, and human labour. *Tsinamekuta*, 2016-2021, by Armas stands as a defence against mining practices on Indigenous land in Mexico, and revolves around a magnetic mineral called pyrrhotite and its radical potential to hold Earth memory. *Esker/Lithium*, 2019-2024, by Quévillon enters an iPhone into dialogue with a controversial prospecting lithium mine in Quebec, and considers the way novel forms of extraction emerge within digital, technological, and information-saturated environments. These artworks cultivate an ecology of practices that navigate assemblages of technologies, extractive zones, and environments across varied topographies of power. The theoretical foundation for this thesis draws from Elizabeth Povinelli's concept of geontopower, Jason Moore's inquiry into capitalism as an earth-moving and environment-making process, Vanessa Watt's Place-Thought, and Franco "Bifo" Berardi and Jean Baudrillard's ideas around semiocapitalism and simulacrum, amongst other authors. These thinkers investigate the climatic and social catastrophe of our epoch and challenge the ways in which dominant strategies of power dictate relations to nonhuman entities and to nature. This thesis thus explores what it means to be attentive to, become-with, and form alliances with different forms of existence through artistic practice, offering ways to move forward within the precarious and challenging times known as the Anthropocene.

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This thesis focuses on artworks by the Mexican artist Marcela Armas and the Canadian artist François Quévillon, both of whom are part of a global movement of contemporary art that aims to critique and dismantle the rolling catastrophe of the Anthropocene. The artworks *Tsinamekuta*, 2016-2021, by Armas and *Esker/Lithium*, 2019-2024, by Quévillon address and problematize human-environmental-technological relations and extractive mining practices. Armas's project *Tsinamekuta* is a multidisciplinary artistic endeavor that revolves around a magnetic mineral called pyrrhotite, borrowed from Indigenous Wixárika territory in Mexico, as well as the creation of experimental instruments to interpret the magnetic field of the pyrrhotite. She activates the instruments in a ceremony with local Wixárika people, where Armas performs an inscription of two human heartbeats onto the mineral via magnetic induction. The data from the ceremony is later transposed onto a plaster reproduction of the pyrrhotite covered in beadwork. *Esker/Lithium* by François Quévillon is a sculptural assemblage and installation that revolves around a lithium mining prospecting site in northwestern Quebec, featuring an iPhone with a defective lithium-ion battery tethered to photographic and moving-image representations of the landscape, as well as other technological and digital manipulations of the geographic place under prospection by a transnational corporation. These two artworks intervene in colonial paradigms, worldviews, and technologies that demarcate zones for capitalist extraction, and demonstrate a response-ability (to use Donna Haraway's term) to the way late capitalism and neoliberalism structure relations between humans, environments, and (digital) technologies. Importantly, they weave together alternative sensibilities that commit to an ethos of care and reciprocity by tethering science and technology to place, culture, and community.

My thesis situates these artworks within the broader era of the Anthropocene. I am interested in this concept beyond its designation as a meteorological or geological event, but

rather for the dramatic impact it has had across various arenas of critical thought, natural and social sciences, and geopolitical governance across the global north and south.[1] As Elizabeth Povinelli puts it, the Anthropocene marks the time in the history of the planet when human existence has begun to overwhelm all other biological, geological, and meteorological forms of existence.[2] While the declaration of the Anthropocene as a geological era was officially rejected by geologists in April of 2024,[3] important work has been done to situate the Anthropocene as an extension and product of colonization of the Americas. In the words of Povinelli, "the brutal dispossession of human and more-than-human worlds and a vicious extraction of human and more-than-human labor…gave birth to liberalism and capitalism, and alongside them, a massive machinery that disavowed their structural violence."[4] Povinelli refers to this climatic disaster as "ancestral catastrophe," a useful term that helps us challenge the location of contemporary climatic, environmental, and social collapse. Jason Moore presents a challenge to the dominant narratives of the Anthropocene and asks: Are we really living in the "age of man" with its Eurocentric and techno-determinist horizons? Or are we living in the Capitalocene—the "age of capital" – the historical era shaped by the endless accumulation of capital?[5] When shifting our thinking about environmental change towards that of the Capitalocene, we approach a relational view of materiality, one in which the flows of resources, circuits of human labor, and environment-making processes form a dialectical whole.

[1] Elizabeth Povinelli, *Geontologies: A Requiem to Late Liberalism* (Durham: Duke University Press, 2016), 12-13.
[2] Povinelli, *Geontologies*, 9.
[3] Damian Carrington, "Geologists reject declaration of Anthropocene epoch," The Guardian, March 22, 2024. https://www.theguardian.com/science/2024/mar/22/geologists-reject-declaration-of-anthropocene-epoch#:~:text=The%20guardians%20of%20the%20world's,planet%2Dchanging%20impact%20of%20humanity
[4] Elizabeth Povinelli, *Between Gaia and Ground: Four Axioms of Existence and the Ancestral Catastrophe of Late Liberalism* (Durham: Duke University Press, 2021), ix.
[5] Jason Moore, "The Capitalocene, Part I: On the Nature and Origins of Our Ecological Crisis," *Journal of Peasant Studies* 44, no. 3 (March 2017): 596.

Dominant liberal discourses frame climate change around the threat of apocalypse—an impending, immanent catastrophe arriving over the horizon. This forward-looking gaze is inscribed in the utopian roots of liberal theory, which has historically promised the possibilities of bright futures, progress, freedom, and universal inclusion. Yet the horizon of late is darker, forecasting rising sea levels, increasing levels of acidity, mass extinctions and loss of biodiversity, melting polar ice sheets, out-of-control weather systems like firestorms and cyclones, and so on.[6] Rather than prophesizing the "end of Man" prevalent in these apocalyptic discourses of the Anthropocene, Joanna Zylinska sees the current situation as "an opportunity to challenge the technicist, humanist, capitalist and masculinist projects that have impelled us towards social and environmental crises."[7] Anishinaabe scholar Kyle Powys Whyte reminds us that Indigenous peoples have already experienced the destruction of their worlds on an apocalyptic scale. Whyte argues that the severe damage inflicted upon the ecosystems, plants, and animals through sustained settler colonial campaigns severed the material, place-bound anchors of Indigenous contemporary customs, stories, and ceremonies.[8] He contends that Indigenous perspectives on surviving climate change are thus not rooted "in the dread of certain futures" as many popular liberal discourses insist, but rather arise from the knowledge of lived experience, namely having survived genocide, dispossession, and climate destabilization.

What has been illuminated through critical responses to the Anthropocene is that understandings of capitalism and its alliance with extractivism, imperialism, colonization, and (neo)liberalism must be anchored in discussions of how these oppressive systems of power operate through nature, environments, humans, and societies with respect to an earth-moving

[6] Povinelli, *Between Gaia and Ground*, 37.
[7] Johanna Page, *Decolonizing Science in Latin American Art* (London: UCL Press, 2021), 87.
[8] Kyle Powys Whyte, "Our Ancestors' Dystopia Now: Indigenous Conservation and the Anthropocene," in *The Routledge Companion to the Environmental Humanities*, 1st ed., ed. Ursula K. Heise et al (London: Routledge, 2017), 209.

repertoire of science and technology aimed at capital accumulation. The interdisciplinary projects of contemporary artists like Armas and Quévillon that respond the Anthropocene have the power to provide us with roadmaps of different ways of *how* we can turn back toward the Earth itself. What is integral here is the question of how to cultivate relationships of reciprocity and respect for the environments and vibrant ecologies that provide the basis for all life and forms of existence on Earth. I consider how these artists and scholars provide us with tools to think critically about the ethical, political and economic issues of our present reality, and how they can be addressed. For Donna Haraway, the key lies in negotiating the possibility of life and resurgence within our present timescape: "when the world is not finished and the sky has not fallen—yet."[9] Haraway offers different figurations for our contemporary epoch that move us toward practices of "becoming-with," relationally making livable worlds, and unmaking oppressive systems of power.[10] She proposes that people embed themselves within the "thick, ongoing presence… full of inheritances, of remembering, and full of comings" that can help us foster a "response-ability"—a collective ecology of knowing and doing for the trouble of our times.[11]

I first encountered these artworks in the exhibition *Eco(systems) of Hope*, curated by Erandy Vergara Vargas, at Anteism Books in Montreal, in October 2022. Vergara Vargas brought together local and international artists to explore ideas of hope, relationality, community-building, and multi-species survival on Earth. Vergara Vargas's title emphasizes the word "ecosystem," which she defines as "a community of living beings in interaction with each other/their environment," thus calling attention to how all life is imbricated within dense

[9] Donna Jeanne Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016), 55.
[10] Haraway, 55.
[11] Haraway, 2.

networks of dependencies that are sustained through exchanges of energy, information, and matter.[12] *Eco(systems) of Hope* explores how artists responding to the Anthropocene invoke climate responsibility, equity, and care; virtues that are largely absent from the production of mainstream tech developers or scientists.[13] I became inspired by looking at these artworks side-by-side, as they both speak to the powerful ways we become-with and through others, land, technologies, and environments. I decided to pursue these artworks for the insights they offer as direct responses to extractivism.

Extractivism is an ancestral catastrophe that "travels across spheres of capitalist life."[14] Principally, the concept diagnoses a core symptom of capitalism and liberalism as the "nonreciprocal, dominance-based relationship with the Earth."[15] The extractive global economy inaugurated in the sixteenth century converted natural resources such as silver, water, timber, rubber, and petroleum from the Americas into global commodities and were distributed to colonies in the Global North. The forty-year course of neoliberal privatization and deregulation processes have exacerbated extractive projects across the Global South. The concept finds its roots in contemporary Latin American critical thought as e*xtractivismo*, which refers to the intensive exploitation of natural resources across the Global South. *Extractivismo* emphasizes "the various pathological effects of political and economic dependency on resource extraction," including the violent reorganization of social life and the theft of resources from Indigenous and Afro-descendent territories.[16] As Thea Riofrancos observes, the ever-broadening language of

[12] Erandy Vergara Vargas, "Exhibition: Eco(Systems) of Hope," *Erandy Vergara Vargas Art*, Curatorial Statement, September 18, 2022. https://erandyvergara.art/exhibition-ecosystems-of-hope/
[13] Vergara Vargas, "Exhibition: Eco(Systems) of Hope."
[14] Thea Riofrancos, "Extractivism and Extractivismo," in *Global South Studies: A Collective Publication with The Global South*, November 11, 2020.
[15] Naomi Klein, *This Changes Everything: Capitalism Vs the Climate* (New York: Simon & Schuster Paperbacks, 2015), 148-149.
[16] Macarena Gómez-Barris, *The Extractive Zone: Social Ecologies and Decolonial Perspectives* (Durham: Duke University Press, 2017), xvii.

extractivism mirrors the proliferation of new extractive frontiers. Extractivism is also the dominant logic of renewable energy transitions ("green" extractivism), and it further encompasses the operations of digital platforms ("data extractivism"), revealing the scope of capitalist accumulation through extraction: "mineral resources, labor, data, and cultures."[17]

Both artworks by Armas and Quévillon revolve around a particular "extractive zone," a term Macarena Gómez-Barris uses to name the resource-rich regions marked for extraction. In extractive paradigms of thought, extractive zones can be "poisoned, drained, or otherwise destroyed for the supposed greater good of economic progress."[18] Crucially, the concept of extractive zones provides an entry to examine the way colonial paradigms and technologies map these territories as commodities, reduce life to resource conversion, and erase "the proliferation of life and activities that make up the human and nonhuman planetary."[19] Gómez-Barris argues that the strategies of power driving the extractive zone presents no calibration "for the life forms that exist beneath the gaze of such grand schemes," but rather subsume and erase the myriad of local, social, and ecological ways of knowing and seeing. [20] My thesis further highlights the works of Elizabeth Povinelli and Jason Moore which, respectively, challenge the ways in which the divisions and hierarchies of Life and Nonlife and the ontological separation of "Nature" and "Society" are mobilized at the core of extractive processes. I investigate extractivism as a historical and ideological world-praxis, as opposed to merely material processes of extraction.

The artworks of Armas and Quévillon provide an opportunity to discuss the ways that the environmental, economic, and social devastation of the Anthropocene is tied to the dominance of

[17] Publisher's blurb for Sandro Mezzadra and Brett Neilson, *The Politics of Operations: Excavating Contemporary Capitalism* (Durham: Duke University Press), 2019.
[18] Neal Alexander, "Walking the Tar Sands: Poetry and the Fossil Economy," in *Green Letters* 26, no. 3 (March 2022): 231, doi:10.1080/14688417.2022.2102526.
[19] Gómez-Barris, *The Extractive Zone*, xvii-xviii.
[20] Gómez-Barris, xvii-xviii.

Western ontological and epistemological thought. I will demonstrate how these artworks combat strategies of power that mobilize science and technology toward the ends of controlling, rationalizing and commodifying nature across the globe. They emphasize attentiveness as a necessary mode of participation within entangled worlds of mutual becoming through encounter, recognition, and an ongoing curiosity.[21] Armas and Quévillon open up spaces that invite a critical reflection on our ethical involvement with the Earth, its natural environments, and our relations to technology within the prevailing zeitgeist of our times.

[21] Deborah Bird Rose and Thom Van Dooren, "Encountering a more-than-human world: ethos and the arts of witness," *The Routledge Companion to the Environmental Humanities* (Abingdon, Oxon: Routledge, Taylor & Francis Group, 2017), 124, http://site.ebrary.com/id/11326155.

Tsinamekuta by Marcela Armas

Marcela Armas's project *Tsinamekuta* is a multifaceted endeavor that began in 2017, six hundred meters deep within a mine located in the mountain Tsinamekuta (or the Cerro del Frayle) in Central Mexico.[22] From here, she withdrew a sample of pyrrhotite, an iron sulfide mineral with highly magnetic properties capable of inscribing the Earth's electromagnetic field. As an artist-researcher, Armas explores the possibilities for the pyrrhotite to act as an archive of the Earth's memory, and develops a series of instruments that produce a sonic expression of the encoded electromagnetic information as a type of ancestral song. Over the course of five years, Armas engaged in a series of dialogues with the Wixárika community and gained permission to perform a ceremony in the spring of 2021. A Wixárika shaman, Mara'akame Jairra, agreed to join the artist in the ceremonial offering of pyrrhotite at the foot of the mountain Tsinamekuta. During the ceremony, Armas inscribes the electromagnetic data of two human heartbeats into the pyrrhotite. Afterward, a plaster reproduction of the mineral is created, overlayed with an interpretive depiction of the pyrrhotite's transformed magnetic memory map in the traditional beadwork of the Wixárika peoples. The project concludes with the return of the transformed stone deep into the mountain from where it was borrowed, imbued with the memory of their hearts.

I will argue that the extent to which Armas engages with the pyrrhotite—she borrows it from an operating mine, places it under scientific and technological scrutiny, imbues it with her heartbeat, and presents it as an offering in sacred ceremony—performs an illocutionary force of "turning toward" the mineral way of life, subverting an extractive logic that severs our connection to the Earth and reduces minerals to inert "resources" for the taking. Armas's

[22] Marcela Armas, "Tsinemakuta," *Marcela Armas*, artist website. Accessed May 2024, https://www.marcelaarmas.net/?works=tsinamekuta.

encounter with the pyrrhotite leads me to ask: what forms of existence get to count as "life"? How are some forms of existence treated as lively and worthy of human respect, while other forms of existence are determined to be nonvital, inert, and beyond the purview of moral consideration? To approach these questions, I will begin with Vanessa Watt's concept of "Place-Thought" in order to illuminate the ways in which the abstraction of thought from place precedes extractive logic. Elizabeth Povinelli's concept of geontopower will inform my analysis of *Tsinamekuta* as it uncovers the logic behind extractivism, namely, that it depends upon a hierarchy of life and nonlife, and move on to analyze the pyrrhotite as an object imbued with vitality using Jane Bennett's notion of vital materialism. I will argue that Armas's use of sound powerfully brings the viewer into an intimate connection with the rock matter of the Earth and ushers a moral and ethical consideration for neglected forms of existence.

Mining in Wirikuta: Resistance and Place-Thought

The extractive zone at the heart of Armas's artwork is the vast semi-desert region called Wirikuta, otherwise known as the Catorce region. In this section, I will foreground the destructive mining practices in Wirikuta and the resistance that has emerged as a response. I will then examine the ways Anishinaabe scholar Vanessa Watts locates the violence of extractive practices within the fundamental separation of thought (the mind, knowing and thinking, notions of agency) and place (the body, nature, geographic land) in order to provide the grounds for my analysis of Armas's artwork.

Wirikuta is a sacred ceremonial site to the Wixárika Indigenous peoples, most of whom are settled in Western Mexico. Certain groups of the Wixárika embark upon an annual pilgrimage from their communities and travel 400 km east to Wirikuta, where they honor their

ancestors and collect the sacred cactus peyote that thrives in the semiarid climate.[23] In 1994, the State of San Luis Potosí declared Wirikuta as a "historical and cultural site subject to ecological conservation" after pressure from various conservationist groups.[24] For the first time, boundaries were drawn for the Wirikuta reserve and special zones were allocated specifically for mining activity. As the Wixárika are not legal owners of the land, the region is comprised mainly of ejidos (collectively owned farmlands) and private mining concessions. The most prominent mining company active in Wirikuta today is Canadian mining company First Majestic Silver, which acquired the rights to the mine the land for silver and gold in 2009.[25]

In September of 2010, a group of leaders within the Wixárika communities joined environmental activists and Indigenous rights organizations to create the Frente en Defensa de Wirikuta (FDW), a unifying body opposed to the impending mining project in Real de Catorce.[26] In their first public statement, the FDW expressed the spiritual and cultural significance of Wirikuta to the Wixárika people: "Since time immemorial the Huichol people have made their pilgrimage to the sacred place Wirikuta, retracing a long route first traveled by our ancestors, when the world was forming, to the place where the sun was born in the semi-desert of Real de Catorce."[27] The Wixárika assert their right to territory first and foremost as a cultural right; explaining how their deep connection with Wirikuta is inherent to their very culture. The FDW sets out to protect Wirikuta against extractive practices, with the aim of preserving Wixárika culture— "so the keys of knowledge and the candles of life that give meaning to our Wixárika

[23] Andrew Boni, Claudio Garibay, and Michael K McCall, "Sustainable Mining, Indigenous Rights and Conservation: Conflict and Discourse in Wirikuta/Catorce, San Luis Potosi, Mexico," *Geojournal: Spatially Integrated Social Sciences and Humanities* 80, no. 5 (September 2014): 759, doi:10.1007/s10708-014-9593-3.
[24] Boni, Garibay, and McCall, 759.
[25] Boni, Garibay, and McCall, 759.
[26] Boni, Garibay, and McCall, 759.
[27] Boni, Garibay, and McCall, 766.

identity may be renewed."[28] While the Wixárika defense front demanded the 'immediate cancellation of 22 mining claims" held by First Majestic Silver within Wirikuta, the company is still active today.[29] First Majestic Silver responded to the FDW's demands claiming to promote the sustainable development of the region in attempt to mitigate the industry's public image as environmentally destructive and socially disruptive, and committed to the construction of two water-treatment facilities (20% of which would go toward mining operations).[30] As Gómez-Barris emphasizes, Indigenous peoples and allied resistance groups like the Frente en Defensa de Wirikuta are viewed by the state and corporate entities "as obstructions to the expansion of extractive capitalism."[31]

When considering an extractive zone such as Wirikuta, we might pause to consider how the capitalist and extractive world-praxis produce hegemonic systems of knowing that are abstracted from the land. Povinelli argues that the abstractions of "terra nullius" (the colonial imaginary of vacant and uninhabited land) and human-centric practices of property ownership "bring into view the profound alienation of European thought."[32] Vanessa Watts articulates a critical concept called 'Place-Thought,' which signals the fundamental inseparability between thought and the land within Indigenous worldviews. Watts puts it this way: "Place-Thought is the non-distinctive space where place and thought were never separated because they never could or can be separated."[33] She emphasizes that what constitutes the notion of "society" in Indigenous thought revolves around the interactions between the spirit, animal, mineral, plant,

[28] Boni, Garibay, and McCall, "Sustainable Mining, Indigenous Rights and Conservation," 767.
[29] This declaration further demanded for the reserve to enter within federal rather than state jurisdiction, which would completely forbid mining, as well as these other demands. See Boni, Garibay, and McCall, 759.
[30] Boni, Garibay, and McCall, 771.
[31] Gómez-Barris, *The Extractive Zone*, xvii.
[32] Povinelli, *Between Gaia and Ground*, 93.
[33] Vanessa 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,* vol. 2, no. 1, (2013), 21.

and human worlds.[34] In Western thought, however, "society" is abstracted from land, nature, and place; as environmental historian Jason Moore argues, this separation is "directly implicated in the colossal violence, inequality, and oppression of the modern world."[35] I will return to Moore's discussion of how this ontological separation fuels the capitalist project in my second case study. Here, however, I focus on how Watts's Indigenous perspective argues for the reintegration of thought into place, and how this is reflected in Wixárika resistance efforts.

Within Indigenous frameworks, the concept of Place-Thought entails the inseparability between theory and praxis. Watts ties her concept to the Haudenosaunee and Anishinaabe origin story: In this cosmology, "Sky Woman becomes curious and falls through a hole in the sky and she is safely brought down to earth by different birds who land her on the back of a turtle. With the help of other animals, they are able to create territory, and the beginning of humankind."[36] Watts emphasizes how the idea that the human being was the last of the earthly species to arrive is found across many Indigenous creation stories, which implicates a notion of arrival into "an already-functioning society with particular values, ethics, etc."[37] In Indigenous cosmologies, this binds humanity into a state of dependence, implicating them in particular agreements and arrangements with the other pre-existent worlds. Concepts of ethics, governance, ceremony, society, territory, clan systems, and sovereignty stem from this "original circumstance" and "original Place-Thought."[38] The Frente en Defensa de Wirikuta reflect this notion of Place-Thought in their claim to sovereignty: "Territory, in the Indigenous conception, constitutes the natural space for life, conceived of as a fundamental ecological unit where life flourishes in its

[34] Watts, "Indigenous place-thought & agency, 21.
[35] Jason Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. (New York: Verso, 2015), 3.
[36] Watts, 25.
[37] Watts, 25.
[38] Watts, 23.

multiple expressions and forms." [39] They demonstrate how all knowledge and thought are tethered to the very territories that provide the foundation for life: "[Territory] is a source of wisdom and knowledge, of culture, identity, traditions and rights. Thus, territory integrates all elements of life in all its natural and spiritual diversity."[40]

Tsinamekuta stands as a defence for the sacred region of Wirikuta and urges for a sense of care, regeneration, and reciprocity with the land. The separation of thought from land violently severs the relationships between the ecosystems, plants, and animals that Indigenous peoples have had local living relationships with for hundreds of years. For the Frente en Defensa de Wirikuta, "the dispossession and/ or deterioration of [Wirikuta] would affect [the Wixárika] people equally as if they were to be deprived of the territory where their community life takes place."[41] The resistance against mining in Wirikuta thus combats the violent depletion and degradation transnational corporations like First Majestic Silver inflict upon the land, which serve as the material anchors for contemporary customs, stories, and ceremonies.

Pyrrhotite as Vibrant Matter

In order to support Armas's dedication toward providing a defence for the mineral life that constitutes Wixárika territory, this section examines the ways rock and mineral forms of existence are rendered "for the taking" by extractive paradigms that operate through a strategy of power Povinelli calls "geontopower," or the governance over Life and Nonlife. I will then move on to frame the piece of pyrrhotite, seen within Western paradigms of thought as "Nonlife," within Jane Bennett's vital materialism in order to argue that Armas's project reveals the rock to be far from "inert" or "dead."

[39] Boni, Garibay, and McCall, "Sustainable Mining, Indigenous Rights and Conservation," 766.
[40] Boni, Garibay, and McCall, 766.
[41] Boni, Garibay, and McCall, 767.

Geontopower is the strategy of power that governs the extractive zone. It articulates "a set of discourse, affects, and tactics used in late liberalism to maintain or shape the coming relationship of the distinction between Life and Nonlife."[42] Geontopower is geared towards excavating and instrumentalizing specific kinds of existence on Earth—minerals, mountains, rocks, rivers, fossil fuels, coal, natural gas, etc, toward the ends of capitalist accumulation. Povinelli argues that Life/being (bios) is only made meaningful through its sharp contrast to Nonlife (geos).[43] In traditional ontological frameworks, all forms of existence have been measured by the qualities of only one form of existence: *bios*, or *zoe* (the Greek and Latin words for "Life," respectively). If we consider the ontological status of rocks within this metaphysical paradigm, we see that since rocks cannot die and do not strive to remain in existence, they are designated as "Nonlife."[44] Povinelli emphasizes that the artificial boundaries between Life and Nonlife are part of a liberal imaginary in which rocks, rivers, and fossils are seen solely for their instrumental value to the capitalist project and deemed unworthy of care and justice. This is the ontological ground that is prior to the social-technical practices of extraction. Povinelli moves beyond the language of Life/Nonlife and employs the term "existents" to reference "what might elsewhere be described as life, thing, organism, and being."[45]

Armas elevates the sample of pyrrhotite beyond its designation as "Nonlife." Pyrrhotite is a type of iron sulfide which acquires a magnetic field when submersed in the Earth's magnetic field, demonstrating a capacity to respond to other actants. In the natural sciences, this property is known as magnetic susceptibility: the particles of the mineral align with the earth's magnetic

[42] Povinelli, *Between Gaia and Ground,* 4.
[43] Povinelli, *Geontologies*, 10.
[44] Povinelli, *Between Gaia and Ground,* 45.
[45] Povinelli, *Geontologies*, 5.

field when experiencing temperature changes or abrupt events.[46] The magnetic alignment then becomes "frozen" in place, creating a record of the Earth's magnetic field at the time of their formation. The preservation of this magnetic information is a process called remanent magnetization, a crucial property to the fields of archaeology and geology for dating the Earth's geological strata and constructing a history of ancient geological processes.[47] However, Armas's scientific inquiry is interested in this property for the potential it possesses as a means to archive the ancestral memory of the Earth itself.

We can consider here how the pyrrhotite seems to possess a certain vitality. Jane Bennett asks the following question: "Does life only make sense as one side of a life-matter binary, or is there such a thing as a mineral or metallic life…?"[48] She continues: "I think that there is, and that there are good ecological and biotechnological reasons for us to get better acquainted with it."[49] She develops a theory of vital materialism to unpack how seemingly lifeless and inert existents such as the pyrrhotite operate as "actants," quasi agents, or forces "with trajectories, propensities, or tendencies of their own."[50] Borrowing the term from Bruno Latour, "actants" demonstrate the ability to "do things," such as to modify other entities, to alter the course of events, and to produce effects.[51] Rather than a duality of Life or Nonlife, Bennett insists on the vitality of matter precisely because the notion of inert matter fuels "earth-destroying fantasies of conquest and consumption."[52] We can thus apprehend the sample of pyrrhotite as swarming with vitality; an existent which demonstrates a remarkable capacity to respond to and register its immediate

[46] Chuck Connor, and University of South Florida, "Magnetic Maps Overview Maps and Profiles," (class lecture, University of South Florida, Tampa, Florida) n.d., http://www.cas.usf.edu/~cconnor/pot_fields_lectures/Lecture8_magnetics.pdf
[47] Connor, "Magnetic Maps Overview Maps and Profiles."
[48] Jane Bennett, *Vibrant Matter: A Political Ecology of Things*, (Durham: Duke University Press, 2010), 53.
[49] Bennett, 53.
[50] Bennett, xii.
[51] Bennett, viii.
[52] Bennett, ix.

environment. As such, its vitality beckons an ethical response-ability, implicating notions of care, preservation, and reciprocity.

Subverting Extractivism through Technological Practice

In collaboration with artists Gilberto Esparza, Diego Liedo, and Bruno Monsivais, Armas creates various instruments that investigate the possibilities of interpreting the magnetic information of the pyrrhotite as a record of the Earth's memory, translating the magnetic intensities of the pyrrhotite into a sonic interpretation. Integrating design aspects from electric, mechanical, electronic, and software engineering, the instruments record and remix traces of the natural phenomena present in the mineral world that is otherwise invisible or not of interest to hegemonic modes of inquiry. The expressed goal of the artists is to recover the spirit of nature—as if it were a lost signal—in ways that reestablish deep bonds with the Earth beyond destructive, economic relations.[53] New media theorist Jussi Parikka emphasizes how our relations with the Earth are mediated through technologies "of visualization, sonification, calculation, mapping, prediction, simulation, and so forth," and contends that it is through these means that we can grasp the Earth "as an object for cognitive, practical, and affective relations."[54] The three instruments created to produce a sonic interpretation of the pyrrhotite's encoded data powerfully give expression to an earthly material considered as "dead" and "inert" in extractive paradigms of thought.

The first instrument is the size of a small table, composed of bright, untreated wood, and rests upon three legs. When viewed from the top downward, the instrument takes the shape of a dodecagon, a type of twelve-sided polygon. The surface has an engraved geometric design of

[53] There will Come Soft Rains, "Marcela Armas (Me) Tsinamekuta," Exhibition website, 2018, https://softrains.org/artworks/tsinamekuta/.
[54] Jussi Parikka, *A Geology of Media*, (Minneapolis: University of Minnesota Press, 2015), 12.

twelve triangles on the perimeter of a circle, where twelve lines converge toward the center (Fig. 1). When the pyrrhotite is placed on the surface and the instrument is powered on, the circular plate begins to revolve. A wooden mechanical arm with a metallic sensor hovers above the mineral, and acts as a magnetometer that reads the data of the varying magnetic intensities on the rock's surface. A signal from here interacts with an analog frequency generator that produces a sound composition of varying pitch, rhythm, frequency, and spatialization signatures. This stream of data is then transmitted to the second instrument in real time, connected to one another by a black cord. This instrument takes the form of a long horizontal accordion with a wooden frame and triangular boards on either end (Fig. 2). In the middle of its light-coloured bellows, a black panel begins to move slowly from one side to the other. Slowly, a steady hum of sound frequencies is produced—the sonic interpretation of the mineral's magnetism.

The third instrument is used for the process of recording the heartbeat of Armas and Wixárika shaman Mara'akame Jairra into the mineral via magnetic induction during the ceremony. It takes the shape of a small wooden sphere and is attached to the first instrument supporting the pyrrhotite (see Fig. 3). A small software chip on the side of the sphere is sensitive to the magnetic intensities of the human heartbeat through the direct contact with skin. A different mechanical arm with a bright copper tip is erected above the pyrrhotite for this process, acting as the intermediary that transfers the information of the heartbeat to the pyrrhotite.

We might pause to consider how the pyrrhotite is capable of inscribing information pertaining to the human heartbeat. Just as the Earth possesses an electromagnetic field which extends from Earth's interior out into space, the human body emanates one as well, detectable up to three feet away from the body using sensitive technologies. The heart produces the strongest field in the body, generated by the electrical activity of each heartbeat. As the heart contracts and

relaxes rhythmically, the electromagnetic field extends out in all directions in the shape of a torus field. Scientists at the University of Arizona suggest that the heart's electromagnetic field is an important carrier of bioinformation that is central to the normative functioning of the body, as varying pulse pressure produces frequency and amplitude information that is carried to every cell in the body.[55] Demonstrating a powerful form of alliance between different forms of existence, the pyrrhotite acts as a meeting point between the energetic electromagnetic fields of the heart and the Earth.

Before returning the pyrrhotite into the earth, the stone was reproduced in plaster and covered with colored beads, paying homage to a traditional Wixárika technique (see Fig. 4). The visual design of the reproduction depicts a magnetic intensity map of the magnetic data recorded by the third instrument during the ceremony. Magnetic intensity mapping is a technique used in geophysical practice to measure and map variations in the strength of the Earth's magnetic field within a geographic area.[56] This technology is deployed for extractive, geoindustrial purposes to target potential valuable metal or mineral deposits for extraction. These deposits are often found alongside the presence of magnetic minerals, allowing for extractive projects to target potential ore bodies more effectively.[57] The colours employed for magnetic intensity mapping represent varying measurements of the strength of a magnetic field, measured in nT or nanotesla. Although a magnetic field is a vector field, meaning it contains both a measurement of the direction of its flow at a given point as well as a measurement of its magnitude (or intensity) at a given point, the measurement depicted across the map is the magnitude.[58] The magnetic map of the transformed pyrrhotite employs cooler green and blue hues to represent lower magnetic intensity, whereas the

[55] Katherine O. Burleson and Gary E. Schwartz, "Cardiac torsion and electromagnetic fields: the cardiac bioinformation hypothesis," *Med Hypotheses,* vol. 6 (2005): 1109, doi: 10.1016/j.mehy.2004.12.023.
[56] Connor, "Magnetic Maps Overview Maps and Profiles."
[57] Connor, "Magnetic Maps Overview Maps and Profiles."
[58] Connor, "Magnetic Maps Overview Maps and Profiles."

warmer colour range of red, orange and yellow signifies higher magnetic intensity. [59] Armas's art-science-technology approach allows us to become curious about the unknown dimensions of energy and information depicted upon the pyrrhotite.

Armas's experimental research employs sophisticated technology to call attention to a form of memory and preserved experience in earthly materials otherwise seen as inert sediment, fostering a scientific ethos that moves beyond the geoindustrial practice of aggregating magnetic information of the Earth for extractive purposes. As Johanna Page emphasizes, projects such as these can powerfully subvert the "rationalizing, extractive, dissociative understanding of universalist European science with an experiential knowledge that is rooted in affect and social relations as much as in data and analysis."[60] Through the medium of sound, Armas enables the matter of pyrrhotite to become expressive, offering us a way to pay attention to the mineral world beyond its instrumental and commercial value. In her article "The Covenant of Reciprocity," Anishinaabe scientist and scholar Robin Wall Kimmerer characterizes paying attention as the active and focused investment of sensory awareness, an act that generates a deep exchange of energy and information between entities. [61] Kimmerer contends that we are inevitably called into a deep relationship with that which we pay attention to.[62] Through this cultivated attentiveness, we engage in an ongoing act of reciprocity that cultivates a praxis of care and response—a "response-ability."

Integration of Technology and Land through Ceremony

In this section, I wish to examine how Armas's project integrates scientific practice with geographic place through ceremony. As Kimmerer brings to light, ceremony becomes a powerful

[59] Connor, "Magnetic Maps Overview Maps and Profiles."
[60] Page, *Decolonizing Science in Latin American Art*, 58.
[61] Robin Wall Kimmerer, "The Covenant of Reciprocity," *The Wiley Blackwell Companion to Religion and Ecology*, ed. J. Hart, (2017): 374, doi:10.1002/9781118465523.ch26.
[62] Kimmerer, 374.

means to express reciprocity.[63] The eleven-minute video documentation of the ceremony Jairra and other members of the Wixárika community begins with darkness, during which the viewer hears the audible presence of footsteps.[64] This gives way to reveal Jairra and his family, dressed in traditional Wixárika clothing as they approach the ceremonial site, followed by Marcela Armas and her collaborator Diego lledo, who carries a large wooden crate harboring an instrument. The camera establishes the group against the great expanse of Tsinamekuta in the background. Once they arrive at their destination, Armas and her team unpack the three instruments and position them carefully on the dry desert earth. Close-ups reveal detailed markings of a DIY technological process; recycled, untreated, and discoloured wood; a small piece of black tape above a cable connection site; and a piece of beige masking tape with a penciled-in number "2." The set-up activity continues to unfold in close-up shots, spotlighting the movement of hands as they set the instruments on the ground, connect cables, and remove silver bolts from the wooden crate, evoking a notion of handmade technological instruments.

A shaky handheld camera gives way to a still establishing shot of the two instruments side-by-side with the small third instrument resting atop the first (Fig. 5). We see a close-up of the artist's hands holding a small ceramic chalice with burning herbs/incense, the dense smoke billowing in the wind. Armas's voice-over narration unfolds in Spanish as she walks over to the first instrument, expressing her gratitude to each family member for gathering on the sacred land of Wirikuta. Armas opens a small antique suitcase, revealing the sample of pyrrhotite. We see the pyrrhotite up close, showcasing its sharp edges and metallic luster. Armas holds the pyrrhotite up toward Tsinamekuta as the camera meaningfully aligns the mineral's triangular tip with the

[63] Kimmerer, "The Covenant of Reciprocity," 373.
[64] Marcela Armas, "Tsinamekuta by Marcela Armas," YouTube Video, 11:40, Mexico, uploaded March 12, 2023, https://www.youtube.com/watch?v=Xa4zA3ydY2o.

mountain's peak, overlapping momentarily in size and shape (Fig. 6). This image solidifies a notion that the pyrrhotite represents a literal piece of Wixárika territory that harbors a form of ancestral memory. Armas's narration describes Wirikuta as "the place that keeps the millennial echo of the footsteps you, of the Wixaritari, and your ancestors." The ancestral presence of footsteps is present throughout the video: as previously mentioned, the video commences with the sound of footsteps amidst darkness, which is soon after followed with a close-up of a Wixárika woman's feet walking the ground as her ancestors before her have done for more than ten thousand years, the sun casting stark shadows on the desert ground.

We follow Armas as she gently places the pyrrhotite upon the surface of the first instrument. A close-up of Armas's fingers ensues as she turns two small dials and presses a silver button, causing the circular plate to revolve slowly. We see the two instruments side by side once more, this time activated and working together. In the middle of the accordion's light-coloured bellows, a black panel begins to move slowly from one side to the other, slowly producing a steady hum of sound. Framed by the surrounding green brush, the ceremony members sit upon the rocky ground, listening silently to the sound of the accordion. As they bear witness to the sonic expression of earthly ancestral memory, the camera turns towards each of the Wixárika family members as they sit in contemplation. Armas's voiceover addresses them once more: "For you, the Earth is the union of ancestral entities, supernatural beings, that when the Sun was born, were transformed into rocks, plants, springs, hills." The accompanying sequence spans various shots of the surrounding natural landscape as she speaks: tree branches budding with new life framed against Tsinamekuta in the background; a landscape of low shrubbery and a foggy horizon broken up by tall stalks of brush; a close-up of a cactus growing from the ground with spikes arranged in a geometric spiral pattern; a plant with a quivering piece of pollen ready to

disattach; a branch covered in mossy growth; and lastly, a new, unobstructed view of Tsinamekuta and its various peaks and valleys. The emphasis these images place upon the natural landscape beckons the viewer to pay attention to the land that forms the material basis for Wixárika ways of knowing.

Afterwards, the camera establishes the entrance of the mine from where Armas extracted the pyrrhotite; a long dark tunnel carved into the side of the mountain with thick green shrubbery above the entrance. Armas's narration here contrasts the Wixárika worldview from the culture in which she was born, one that "holds the belief that rocks are dead territory and has created a planetary scale machinery that devours the earth, breaking from the depths the tissue that drives life." A thick black cord runs into the tunnel along the sandy walls, emerging from the power generator at the mine's entrance enclosed by a chain link fence. Inside the mine, Armas's flashlight pierces the darkness and illuminates the jagged wall as she runs a magnetometer alongside it. Her next narration speaks to the purpose of her art practice: "Through my work, I seek the contemplation of the silent murmur of time kept in the rocks. And through it, find means to heal the wounds of the earth. Means that remind us that we are part of an energy that by nature, moves in a circular way." With these words, the camera pans from Tsinamekuta down toward to the ceremony. Armas's voice-over continues: "Sacralise what is given to us, recover and recreate in our own way the sense of rituality as the basis of care and preservation." We understand here that Armas's project is motivated by an ethos of care through ceremony, technological inquiry, and sensory and affective experimentation.

As the bellows of the accordion continue to play the sonic expression of the pyrrhotite's magnetic registers, Armas takes Jairra's hand as they both clasp their hands around the third instrument, beginning the process of recording their heartbeat into the mineral via magnetic

induction (Fig. 7). Armas presses her index finger over a small software chip on the side of the sphere, while Jairra clasps his finger over the opposite end. As the video nears the end, the sound of a heartbeat starts to overlay the steady sound of the accordion, emphasizing the integration of the heartbeat and the Earth. We see Armas deep in the mine again, returning the transformed rock into the mountain. Back at the ceremony, Jairra closes with a song, singing overtop the superimposed heartbeat and the persisting, slow melody issuing from the accordion. Armas thus merges the electromagnetic information of the two heartbeats with that of the Earth's through the pyrrhotite, demonstrating how the energetic force that moves through her body is capable of forming alliance with mineral forms of existence and Indigenous communities.

The ritual activation of Armas's technological instruments within geographic place re-establishes, in the words of Lévy Leblonde, "a link between the concepts that science has elaborated and the reality from which it has isolated them."[65] Latour echoes this thought, contending that science speaks most truthfully and accurately when it is reconnected with the world outside the laboratory.[66] As Kimmerer emphasizes, ceremony "renews bonds between the land and people and focuses intention, attention, and action on behalf of the natural world."[67] Ceremony further provides a vehicle for Watt's Place-Thought, as it is reconnects scientific inquiry with geographic place in a potent expression of reciprocity with the Earth.

This project, titled *Tsinamekuta,* 2016-2021, is part of Armas's larger oeuvre that bridges the gap between scientific, spiritual, and ancestral relations to the Earth. Her work involves collaborative processes with other artists and communities that emphasize communal and ancestral knowledge.[68] *Tsinamekuta* demonstrates the potential for art practices to supplement

[65] Jean-Marc Lévy-Leblond, "Brief encounters: A physicist meets contemporary art," *Leonardo 27*, no. 3 (1994): 214, quoted in Johanna Page, *Decolonizing Science in Latin American Art,* 6.
[66] Page, *Decolonizing Science in Latin American Art,* 6.
[67] Kimmerer, "The Covenant of Reciprocity," 373.
[68] Marcela Armas, "Bio," *Marcela Armas*, artist website. Accessed May 2024. https://www.marcelaarmas.net/?page_id=43.

scientific and rationalist inquiry with radical ways of apprehending the Earth. Through fostering sensory relations with planetary forces that lie beyond our perception, Armas makes these forces more available to us as objects of care and attention. *Tsinamekuta* invites the viewer to pay attention and listen to the mineral world, through witnessing the symbolic sonification of ancestral presence latent within rocks. Armas's technological instruments resituate a technological practice within an ecology of (Indigenous) knowledges that are systematically excluded from extractive zones. In so doing, she amplifies Wixárika resistance efforts, creating a defense for the forms of existence that extractive industries deem to be unworthy of care or justice.

Esker/Lithium by François Quévillon

François Quévillon's *Esker/Lithium* is sculptural assemblage centered around a controversial lithium prospecting site in northwestern Québec and its impending ecological disruption (Fig. 8).[69] The artwork consists of (when viewed from top to bottom) an iPhone plugged into a charging cable, a silk cloth imprinted with a bird's-eye view landscape of the proposed open-pit mine, and a squared foundation of packaged spring water bottles upon a wooden pallet. The iPhone is at the center of the artwork, its white charging cord extending outward to plug into the gallery wall, where another image of the prospecting site is found. Further, Quévillon creates a digital interactive map of the landscape, as well as a video showcasing a 3D photogrammetric rendering of the site with an immersive natural soundscape of the local ecosystem. The artwork raises questions about how seemingly immaterial digital technology and "green" technological transitions depend upon lithium-ion batteries and perpetuate extractive logic and environmental devastation. I will explore the fundamental tension between land and (digital and "green") technology provoked by *Esker/Lithium* and examine the ways in which these technologies are dependent upon capitalist and extractive systems of power. In order to unpack the ways in which capitalism creates and upholds an oppressive notion of "Nature," I will build upon the work of Jason Moore which contextualizes capitalism as an "environment-making" world-praxis.

By placing the iPhone at the center of his artwork, *Esker/Lithium* provides an opportunity to discuss how capitalism works through humans-as-nature with respect to digital information and media technologies. Here I will rely on Franco Berardi's discussion of "semiocapitalism," the prevailing capitalist system of contemporary times characterized by "immaterial forms of

[69] François Quévillon, "Esker/Lithium," *François Quévillon*, artist website. Accessed May 2024. http://francois-quevillon.com/w/?p=2698&lang=fr.

labour and the explosion of the info-sphere."[70] At the heart of the concept of semiocapitalism is Jean Baudrillard's notion of "simulacra," which is useful here for the discussion of the digital environments that conduct flows of human power, energy and attention through the grid of capital accumulation. Lastly, I will explore how *Esker/Lithium* prompts a consideration of the ethical dimensions surrounding the relation between human, land, and iPhone. This line of inquiry can foster a kind of eco-technological thinking I believe is necessary in the precarious times of the Anthropocene.

Lithium Mining in Abitibi-Témiscamingue

As a response to the climate crisis, *Esker/Lithium* implicates the material dimensions of lithium mining practices and their relation to the production of digital technology and other supposedly "green" technofixes. Quévillon pays much attention to the representation of the natural landscape where a lithium mine is set to open, and emphasizes the presence of the Earth that is often rendered invisible in digital media culture and energy transition rhetoric. I will begin with a closer examination of the lithium prospecting site in question—The Authier Lithium Project proposed by the transnational corporation Sayona—along with the natural environment upon which it is located within Abitibi-Témiscamingue in northwestern Québec, the most prolific extractive zone in Quebec.[71]

As researchers Kingsbury and Wilkinson report, "lithium is currently in "a moment of intensified public and private sector interest, investment [and] prospecting" across Canada and the globe.[72] With respect to metals, lithium is the lightest and contains the greatest electrochemical potential, providing the largest energy capacity for high-power batteries

[70] Franco "Bifo" Berardi, *Precarious Rhapsody: Semiocapitalism and the Pathologies of Post-Alpha Generation,* (London: Minor Compositions, 2009), 109.
[71] Donald Kingsbury and Amalie Wilkinson, "'We Are a Mining Region': Lithium Frontiers and Extractivism in Abitibi-Témiscamingue, Canada," *The Extractive Industries and Society 15*, (2023): 2.
[72] Kingsbury and Wilkinson, 2.

employed in mobile electronic devices like smartphones, tablets, and laptops, electric vehicles, and other future technologies.[73] Presently, lithium deposits are extracted from salt flats or forms of igneous rocks called pegmatites in processes that consume significant amounts of water and energy, often generating long-term ecological damage.[74] Jussi Parikka classifies lithium as a "premediatic media material,"[75] emphasizing the fundamental reality of resource depletion and material sourcing of the Earth necessary for the existence of technological culture. With respect to digital and virtual environments, he urges us to consider the profound environmental and social implications that precede "this ubiquitous, but hardly ephemeral, realm of modern-day life."[76]

In both Quebec and Canada more broadly, Abitibi-Témiscamingue has been marked as an emerging frontier for lithium and other "critical and strategic" minerals as Canada plans to capitalize on the international shift toward "a green and digital economy." [77] Initiated in 2020, Canada's plan for this transition promotes the importance of securing a domestic supply of lithium and other minerals like copper, nickel, and rare earth elements necessary for decarbonization efforts, renewable energy initiatives, and clean technology applications.[78] Many scholars have argued that these so-called "green" technologies exist within a liberal imaginary of a "green capitalism:" As Ashley Dawson puts it, "green capitalism does not seek to and will not solve the underlying ecological contradictions of capital's insatiable appetite for ceaselessly

[73] Caitlin Stall-Paquet, "The hidden cost of rechargeable batteries: A burgeoning lithium-mining area in Quebec shows the complications of green tech," *The Walrus*, April 13, 2021, https://thewalrus.ca/the-hidden-cost-of-rechargeable-batteries/.
[74] Parrikka, *A Geology of Media*, 5.
[75] Parrikka, 12.
[76] Parrikka, 3.
[77] Kingsbury and Wilkinson, "'We Are a Mining Region,'" 2.
[78] The government of Canada states that critical and strategic minerals are essential for advanced manufacturing and clean technologies, such as advanced lithium batteries, solar panels, wind turbines, permanent magnets, small modular reactors, defence and security technologies, semiconductors, consumer electronics, and critical infrastructure. The global demand for these minerals is forecast to increase significantly in the coming decades, See Natural Resources Canada, *Canadian Critical Minerals Strategy: From Exploration to Recycling: Powering the Green and Digital Economy,* 2022, 3, https://www.canada.ca/content/dam/nrcan-rncan/site/critical-minerals/Critical-minerals-strategyDec09.pdf.

expanding accumulation on a finite environmental base. Instead, green capitalism seeks to profit from the current crisis."[79] Canada's response to the climate crisis hinges upon a rhetoric of technological advancement with "clean energy transitions" and "green technologies," but the plan paradoxically betrays the actual frontier of energy transition – extractive zones, environmental devastation, and the persistence and disavowal of ancestral catastrophe.

Furthermore, the controversial Authier Lithium Project entails a concerning proximity to the 170-kilometre long and 8,000-year-old Saint-Mathieu-Berry esker, which supplies pristine spring water to surrounding municipalities, including the town of Amos and its population of 13,000 that won recognition for the best tap water in the world.[80] The bottled-water company Eska derives its water supply at the northeastern edge of the esker; packages of which comprise the squared foundation of the assemblage in *Esker/Lithium.* While Sayona claims that the mine would only have 'temporary' or 'limited' effects on the esker;[81] underground water reserves within eskers are particularly vulnerable to the mechanical operations of open pit mine construction.[82] This includes the removal of vegetation and soil cover, the extraction of sand and gravel, the modification of natural surface slopes, and the high risk of spillage and pollution; all of these factors can profoundly compromise groundwater quantity, quality and temperature, as well as dependent ecosystems. Eskers are unique geological formations that filter significant quantities of water through stratified layers of sand and gravel deposits formed by meltwaters near glaciers.[83]

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[79]Ashley Dawson, "Climate Justice: The Emerging Movement against Green Capitalism," *South Atlantic Quarterly,* vol. 109, no. 2 (2010): 314.
[80] Kingsbury and Wilkinson, "'We Are a Mining Region,'" 10.
[81] Sayona Quebec, *Authier Lithium Project: Updated Definitive Feasibility Study*, October 2019, 10.
[82] Simon Nadeau, Eric Rosa, Vincent Cloutier, Robert-André Daigneault, and Jean Veillette, "A GIS-based approach for supporting groundwater protection in eskers: application to sand and gravel extraction activities in Abitibi-Témiscamingue, Quebec, Canada," *Journal of Hydrology: Regional Studies*, vol. 4 (2015): 534. https://doi.org/10.1016/j.ejrh.2015.05.015.
[83] Nadeau, et al, 536.

Despite the environmental concerns raised by the project, Sayona acquired several more mining concessions in the region, transforming Abitibi-Témiscamingue into a major lithium hub. The emergence of a new lithium frontier within an already established extractive zone implicates similar power structures, economic logics, and destructive relations to nature as pre-established practices of extraction and dispossession in the region. [84] Within Abitibi-Témiscamingue, extractivism has a long history of violently reorganizing pre-existing land uses and eco-social relations of the Indigenous peoples native to the region since the 1880s. This includes the deployment of containment practices against the Anishinaabeg (or Algonquin) peoples, the most prominent Indigenous group of Abitibi-Témiscamingue, who have called the region home for more than 8,000 years. The establishment of stationary reserves transformed the Anishinaabeg's previously highly mobile livelihoods of hunting, fishing, and trading across the territories of Quebec and Ontario, which subsequently opened up vast territories of land for colonial use and extraction.[85] Abitibi-Témiscamingue has operated as a region of "high mining potential" for its reserves of silver, copper, zinc, and gold since the turn of the twentieth century. Thus the emerging lithium frontier in Abitibi-Témiscamingue "should not be understood as a new source of conflicts, subject positions, and interests," but rather as an ongoing continuation of extractivism in the region. [86] Quévillon's artwork is a reminder of the complicated reality of resource frontier formation which require "new spatial fixes"—digging on "someone's else land," distributing waste in the peripheries, and violently disrupting Indigenous socio-ecological relations with land.[87]

[84] Kingsbury and Wilkinson, "'We Are a Mining Region,'" 3.
[85] Kingsbury and Wilkinson, 3.
[86] Kingsbury and Wilkinson, 6.
[87] Povinelli, *Between Gaia and Ground,* 47.

Quévillon features the specific geographic place near the esker in question, showcasing digital renderings of the landscape that aesthetically evoke the stratification of esker formations. In both the birds-eye image of the artwork upon which the iPhone is placed (Fig. 9) and the three-dimensional interactive map (Fig. 10), ghostly lines trace the landscape through a computer modeling technique called Digital Elevation Model (DEM) and photogrammetry. DEM is a technique that maps the relief of a surface between points of known elevation from sources such as ground surveys and data capture, while photogrammetry is a technology that delivers a three-dimensional image of a surface by obtaining reliable information and imagery of the environment derived from noncontact sensory systems.[88] Quévillon leaves the white lines of the model across the three-dimensional landscape, initiating an aesthetic of monitoring and documenting the area as a means to bear witness to any extractive markings and modifications.[89] Quévillon further provides various photographs that document the way the landscape slowly begins to betray signs of prospecting activity, land surveys, and the beginning stages of mine production (Fig. 11 and 12).

Technological Supremacy: Mastery over Nature

The "technofix" response to the climate crisis—where ecological issues can be fixed or bypassed through capital investment in technology—harbors a long-standing notion of human mastery and technological supremacy.[90] T.J. Demos observes that underpinning recent eco-engineering projects is a view of the anthropos as the god of techne: Man as the "ultimate self-creator, for whom no challenge— climate change, agricultural failure, artificial intelligence, planetary hunger, even death and extinction—will be beyond technological overcoming,

[88] James Aber, Irene Marzolff, and Johannes Ries, "Photogrammetry," in *Small-Format Aerial Photography*, *Principles, Techniques and Geoscience Applications*, ed. James S. Aber, Irene Marzolff, and Johannes B. Ries (2010), 3.
[89] Marie-Pier Bocquet, "François Quévillon," *Est-Nord-Est*, 2021, https://estnordest.org/en/record/francois-quevillon/.
[90] Joyce Huesemann and Michael Huesemann, *Techno-Fix: Why Technology Won't Save Us or the Environment,* (Gabriola Island, B.C.: New Society Publishers, 2011), xxiii.

especially when matched to Silicon Valley capital."[91] In this section, we might pause and consider how the ideological alliance of technological mastery and capitalism is closely tied to an exploitative view of "Nature." This will help unpack how the natural landscape in Quévillon's artwork is commodified as an extractive zone through the threatening presence of one of the most significant emblems of technological progress of our times—the iPhone.

Jason Moore observes that in our present moment, the capitalist project is finding it "increasingly difficult to get nature—including human nature—to yield its "free gifts" on the cheap."[92] He argues that we may not be experiencing merely "a transition from one phase of capitalism to another," but the very "breakdown of the strategies and relations that have sustained capital accumulation over the past five centuries."[93] Moore foregrounds the early emergence of capitalist and extractive processes in the seventeenth century and the subsequent massive reorganization of power and capital, urging us to rethink the early capitalist projects as "environment-making" practices, as opposed to solely economic processes.[94] For instance, the capitalist transition from feudalism constituted epochal transformations of extractive mining practices and other earth-moving shifts in farming, state-making, and mechanization.[95] He argues that capitalism's revolutionary character can scarcely be understood "absent the extraordinary scientific revolutions behind successive great leaps forward in labor productivity and capital accumulation."[96]

The liberal technological imaginary infiltrates all aspect of Western thought, and its long durée can be traced back to the seismic transformations of thought and the allied scientific

[91] Demos, T. J. "To Save a World: Geoengineering, Conflictual Futurisms, and the Unthinkable," *e-flux Journal*, no. 94 (2018), quoted in Povinelli, *Between Gaia and Ground*, 47.
[92] Moore, *Capitalism in the Web of life*, 3.
[93] Moore, 3.
[94] Moore, 9.
[95] Moore, 14.
[96] Moore, 6.

practices that emerged during the scientific revolution of the 16th and 17th centuries. The atomistic and mechanistic natural sciences of Isaac Newton and René Descartes produced a new worldview—one that viewed the universe as composition of inert matter in motion. According to this reductive view, all phenomena were no more complicated than complex machines.[97] For Descartes, one alien substance remained within the clockwork universe: the mind. In the words of Freya Mathews, "Mind [was] the theatre of reason and telos, the screen or sensorium on which colours, scents, sounds, tastes have their ghostly being."[98] Human bodies, on the other hand, were "the machines which serve[d] as transport for these spirit minds."[99] The organic matter of the body was cast as a dualized "Other" to the mind and regarded upon as a non-self, with no capacity for agency nor intentionality within itself. [100] This dualistic logic still informs our worldview today, through modern-day liberal ideas of technological progress: the human mind is still privileged and seen as the seat of technological innovation.

The notion of matter emerging from the scientific revolution had profound and exploitative consequences for the view of nature. Matter ceased to be an object of moral concern or interest, and nature became "the arena of blind matter in motion," indifferent to human interest.[101] This marked a significant departure from the view of nature in pre-scientific thought, one informed with principles of spirit, agency, and telos; where human beings existed "in an intricate web of spiritual and teleological relations with the natural world."[102] Furthermore, Moore observes that the philosophical and analytical modes of inquiry and worldviews emerging from Descartes's dualistic model would conceptualize society (mind) and nature (body) as

[97] Freya Mathews, *The Ecological Self* (London: Routledge, 1991), 11.
[98] Mathews, 11.
[99] Mathews, 14.
[100] Val Plumwood, *Feminism and the Mastery of Nature,* (New York: Routledge, 1993), 115.
[101] Mathews, 11.
[102] Mathews, 19.

ontologically discrete. When "Nature" becomes external and "Other," it "may be fragmented, quantified and rationalized to serve economic growth, social development or some other higher good."[103] This is what Moore describes as "Nature" with a capital "N" as a project: the capitalist remaking of Earth systems at all scales in order to facilitate the accumulation of capital.

As such, the new abstraction of "Nature" would create the basis for early extractive industries, and contribute to a massive expansion of the capitalist world-praxis. Descartes affirmed these exploitative implications for the new view of nature when he famously proclaimed, "the aim of philosophy/science was to make men the masters and possessors of Nature" ("maîtres et possesseurs de la nature.")[104] Of this famous proclamation, Bruno Latour has asked: "But what does it mean to be a master?" [105] Crucially, Latour illuminates that the achievement of true mastery "was supposed to require such total dominance by the master that he was emancipated entirely from any care and worry."[106] Historically and today, capitalist projects are aimed at mapping and quantifying the earth as a potential storehouse of wealth, which requires the perpetual proliferation of new technological horizons and repertoires of science, power, and machinery. [107]

The digital rendition of the landscape within *Esker/Lithium* pays attention to the land as itself, prior to the mine's construction. Quévillon depicts a natural environment with a vibrant ecological system, featuring an immersive soundscape of the local ecosystem in the interactive map. Larger than life in comparison to the landscape image, the iPhone in Quévillon's artwork feels imposing and threatening, and evokes a sense of its mastery over the environment. The

[103] Moore, "The Capitalocene, Part I," 7.
[104] Moore, *Capitalism in the Web of Life*, 14.
[105] Bruno Latour, "Love Your Monsters: Why We Must Care for Our Technologies as We Do Our Children," in *Love Your Monsters: Postenvironmentalism and the Anthropocene*, ed. Michael Shellenberger and Ted Nordhaus (Oakland, CA: Breakthrough Institute, 2011), 25.
[106] Latour, 25.
[107] Moore, "The Capitalocene, Part I," 12.

white cord almost serves as an umbilical cord in the artwork, evoking the iPhone's absolute dependency upon the materials of the land for its survival. The presence of the iPhone thus reduces the vibrant land to a zone for cheap materials. The screen of the smartphone displays an icon that signifies a depleted battery; this is the screen-image that signals the user must plug the cord into the phone to charge the battery (Fig. 13). Yet, the end of the charging cord is not plugged into a power outlet, but into an image of the landscape itself on the gallery wall (Fig. 14). Quévillon here draws attention to how the iPhone threatens to rip open the land and extract the lithium necessary to keep it in existence. In so doing, Quévillon emphasizes the way nature is deployed by the capitalist project for the creation of digital technologies and the virtual realities and environments they simulate.

Extraction of "Soul" within the Semiocapitalism and Simulacra

Thus far, I have demonstrated how natural environments are constructed as extractive zones; a process operationalized through the ontological rift of "Nature" and "Society." I now wish to explore another notion of extractivism that harnesses novel forms of human labour that has emerged within recent decades, characterized by information capital and corporatized digital media. Here I rely on the concepts of semiocapitalism and simulacra, as developed by Berardi and Baudrillard. This will shed light upon what is perhaps a more insidious, hidden dimension of capitalist extraction and accumulation tethered to digital environments. The way Quévillon displays the iPhone so prominently in his artwork leads me to ask: How is the human soul a project under modern-day capitalism? Where is our collective energy and attention captured?

In addition to the creation and exploitation of "Nature" as resource zone, Moore crucially highlights a second fundamental condition within the capitalist world-praxis: the assembly and organization of human bodies for labour. Significantly, the organization of human labour has

drastically shifted in our contemporary technological epoch. Berardi observes this transformation and names the prevailing late stage of capitalist "semiocapitalism"—in which digital technologies make possible the commodification of knowledge and information, merging "the productive use of signs and information with capital valorization."[108] The economy of semiocapital entails the production and circulation of signs, images, information, and communication technologies. Berardi argues that the shift away from Fordist modes of production and towards the systemic computerization of working processes in the last three decades of the twentieth century marked the emergence of semiocapitalism. For Berardi, this societal shift toward digitalization coincided with a neoliberal deregulatory ethos of unchecked growth.[109] Crucially, semiocapitalism "marks the entry of the soul itself into production."[110] With respect to early processes of proletarization and the attendant deployment of the worker's physical labour, "the body was disciplined and put to work while the soul was left on hold… What the workers wished to do with their souls, their thoughts, language and affects presented no interest of the capitalist of the industrial times."[111] Berardi maintains that the extraction of human "soul"—the psychic, cognitive, affective, and libidinal powers of the human body—now constitutes the fundamental means by which the flow of capital is sustained in our post-industrial society.[112]

Perhaps the most significant element emerging from the shift to digital networks is the creation of the Internet—the global system of interconnected computer networks. We can approach the hyperreal terrain of the Internet, or the realm of "cyberspace" (computer networks a

[108] Sotirios Bahtsetzis, "Semiocapitalism, Spectacle, Eikonomia, and the Function of Art." *View. Theories and Practices of Visual Culture*, no. 25 (2019), 366.
[109] Franco "Bifo" Berardi, *The Soul at Work: From Alienation to Autonomy*, trans. by Francesca Cadel and Guiseppina Mecchia (South Pasadena, California: Semiotext(e), 2009), 186.
[110] Berardi, *Soul at Work,* 10.
[111] Berardi, *Soul at Work*, 115.
[112] Berardi, *Soul at Work*, 13.

kind of environment or space) as a form of simulacrum, which Berardi argues is at the heart of semiocapitalism. The simulacrum is characterized by a simulation of reality: as the digital revolution makes possible video-electronic replication, "the sign proliferates endlessly," with every event, object, and commodity "symbolized, simulated, and replaced by information."[113] Berardi brings into view how the endless proliferation of the sign creates a type of simulation of the world that is (digitally) integrated with the physical world, where the collective lived experience engages with a simulation of reality.[114] In the domain of digital simulation, Berardi argues that the sign, as a bearer of meaning, loses its relation to "the external and objective existence of a referent."[115]

For Berardi, Baudrillard's simulacrum marks the disappearance of the first world—of the body and of nature—which is replaced by the synthetic domain of simulacra through the endless production and reactivation of the sign.[116] Berardi maintains that the kind of overproduction manifest in semiocapitalism is specifically semiotic: "an infinite excess of signs circulates in the info-sphere and saturates individual and collective attention."[117] The simulacrum at the core of semiocapitalism is thus the driving force of capital's development, extracting the collective libindal energy of the soul.[118] Importantly, Berardi argues that new forms of alienation emerge here. He writes, "Noah grouped in his ark all the creatures of the earth, in order to save them from the flood. Today in a similar way we can enter our air-conditioned arks and float on the waves of the digital deluge without losing contact with the cultural patrimony accumulated by humanity, keeping linked to the other arks, while at the same time, on the physical planet down

[113] Berardi, *Soul at Work*, 95.
[114] Berardi, *Soul at Work*, 177.
[115] Berardi, *Soul at Work*, 148.
[116] Berardi, *Soul at Work*, 149.
[117] Berardi, *Precarious Rhapsody*, 108.
[118] Berardi, *Soul at Work*, 158.

there, barbarian hordes swarm and make war."[119] Berardi does not favor the insolated ark; he observes a rise of psychopathogenic effects within semiocapitalism such as sensory overwhelm, depression, anxiety, panic disorders, and precarious social relations, leading him to name the affiliation between semiocapitalism and simulacrum "the factory of unhappiness."[120]

With respect to capitalism's environment-making praxis, Moore points out that "environments" are "not only fields and forests" but all manners of built environments.[121] We can thus approach an understanding of cyberspace and other virtual environments as a product of this environment-making praxis. Indeed, Alison Carruth emphasizes the actual materiality of the digital world. She illuminates a vast, underlying network of material infrastructures: "servers, wires, undersea cables, microwave towers, satellites, and water and energy resources that constitute networks."[122] Data centers—massive concrete warehouses of data storage which stretch for miles—further comprise the material basis for storage services such as iCloud, an essential feature of the iPhone and other Apple devices. These endless racks of servers and power generators store "the now zettabytes of data generated by our collective tweets, updates, e-mails, media streams, image and video captures, and file transfers."[123] These are the info-fragments of our times; circulating and forming the new information capital of semiocapitalism. If the very structure of the simulacrum is the swarming amalgamation of circulating info-fragments that recombine and coalesce endlessly, then the role of the smartphone is "to produce, elaborate, distribute and decode signs and informational units of all sorts."[124] The iPhone in Quévillon's artwork can thus be read as a key instrument of power that facilitates the extraction

[119] Berardi, *Soul at Work*, 104.
[120] Berardi, *Soul at Work*, 186.
[121] Moore, *Capitalism in the Web of Life*, 50.
[122] Alison Carruth, "The Digital Cloud and the Micropolitics of Energy," *Public Culture* 26, no. 2 (May 2014), 341.
[123] Carruth, 341.
[124] Berardi, *Soul at Work*, 89.

of soul-energy and human labour, and an integral facet of the semiocapitalist-simulacra-cyberspace assemblage.[125] Moreover, the virtual environment of cyberspace is another permutation of Descartes's privilege of the mind in the way that it severs our connection to the body and nature, and represents a celebrated marker of progress and technological supremacy.

Berardi names the cellphone as the most important article of consumption, one that constantly coordinates and localizes processes of info-production within semiocapitalism.[126] Since the publication of Berardi's book *Soul at Work* was published in 2009 (two years after Apple first introduced the iPhone into the market), the iPhone has become a ubiquitous handheld object in the Western world and across the globe. The iPhone has further become an emblem of transcendence of the perceived limitations of the "first world" of the body and of nature; a kind of technological antidote to Descartes's deficient and othered body. Sarah Jain has observed a certain discourse surrounding the mobile phone which promotes the idea that bodies may be "improved" or "enhanced" with smartphones.[127] For Jain, the cellphone is a "sleek, powerful, portable, overinscribed commodity" that "melds into the very epidermis of the user's anatomy as a hint… of a free, bionic future of integrated body and machine."[128] The iPhone, rather than being a new phenomenon, marks an evolution of the way the capitalist project mobilizes technology to uphold its project of labour extraction and capital accumulation.

Through the placement of the iPhone atop the piece of land under prospection for lithium mining, Quévillon estranges the iPhone from its familiar use (in one's hand or pocket) and from the habitual user experience of accessing the digital world of social media, short-form video content, online banking, gaming, and other services. Quévillon here confronts the viewer with a

[125] Berardi, *Soul at Work*, 89.
[126] Berardi, *Soul at Work*, 89.
[127] Sarah Jain, "The Prosthetic Imagination: Enabling and Disabling the Prosthesis Trope," *Science, Technology and Human Values,* vol. 24, no. 1 (Jan. 1999), 45.
[128] Jain, 45.

familiar device that it is beyond their reach—the iPhone is rendered inoperable, and as colloquial language would have it, "dead." Simultaneously, Quévillon's maneuver emphasizes how the iPhone transcends its objecthood in a very real way: the iPhone primarily acts as the intermediary or portal to the virtual environments that funnel flows of human energy, attention, and libindal forces through the grid of capital accumulation. In a sense then, we can read the artwork's first layers of wood, water, cloth, and landscape to represent "the first reality"—that of nature and materiality—whereas the iPhone, looming larger than life over the landscape, stands in for the "second reality"—that of technologically-mediated environments, immateriality, and simulacrum. Yet, the "second reality" is tethered to and dependent upon the first; the existence of the iPhone depends upon extractive mining practices; and capitalism cannot exist without the exploitation of Nature for cheap materials.

Esker/Lithium is part of Quévillon's larger body of work that blends installations, sound, images and technologies to addresses ecological concerns and planetary changes—investigating how technology alters the environment, culture, space, and our relationships to one another.[129] Quévillon's iPhone appears in a zeitgeist of highly interconnected transformations of energy, climate, labor markets, and implicit promises of technological progress and transcendence. As Anthropocene scholarship critiques the systems of power that cause ecological devastation, Berardi illuminates another side of this picture: the transformation of labour during the very epoch the concept of the Anthropocene has gained heed. *Esker/Lithium* features the iPhone connected to the landscape through its charging cable, emphasizing its inalienable dependency upon the materials of the Earth. In order for its existence to remain in place—in order for it to become reanimated and retain its function and use—the veins of the land must be pried open to

[129] François Quévillon, "À propos," *François Quévillon*, artist website. Accessed May 2024. http://francois-quevillon.com/w/?page_id=95&lang=fr.

supply the essential metals the iPhone requires. It is almost as if the title, *Esker/Lithium*, presents a duality of either/or: the viewer must decide which is to remain in existence—the esker, with its pristine supply of local water in a region likely far away, or the iPhone, a commodity that is, most likely, in their pocket.

Tsinamekuta and *Esker/Lithium* as Vibrant Assemblage

The artworks *Tsinamekuta* and *Esker/Lithium* take as their center focus two objects against a background of extractivism: Armas's pyrrhotite and Quévillon's iPhone. In *Tsinamekuta,* the sample of pyrrhotite represents devalued and neglected forms of existence, while conversely, Quévillon's smartphone is one of the most attention-consuming and collectively engaged-with objects in history. I have demonstrated how Armas makes a case for the mineral's liveliness. She subverts its subjugation as "Nonlife," regards it as a vital object worthy of moral consideration, care, and attention; amplifies its latent archival knowledge; and returns it to Wixárika territory imbued with memories of ceremony and the bioinformation of human hearts. The iPhone too is a vibrant, working assemblage of rare earth materials, digital media, and info-production which certainly possesses a kind of quasi-agency. I have situated the smartphone within the simulacra of soul-extracting information capital to understand its function within contemporary capitalist labour strategies and the ways its existence depends upon the exploitation of earthly materials in specific geographic places.

This thesis has brought into view new theoretical tools for apprehending the complex terrains of the Anthropocene. *Tsinamekuta* and *Esker/Lithium* engage with extractivism in a way that begins with capitalism's fundamental earth-moving praxis which understands that all institutions are tethered into the Earth and the land. Vanessa Watt's Place-Thought encapsulates how this notion is articulated in Indigenous perspectives, whereby thought and place form an integrated whole. When thought becomes severed from place, science becomes instrumentalized for capitalist profit, and "Nature" is universalized and abstracted as a commodified zone of resources. As Jason Moore has argued, the capitalist world-praxis is fundamentally environment-

making and earth-moving, and is itself tethered to the land through a violent and oppressive relation that shapes the dominant political, economic, and technological institutions of our times.

Furthermore, Armas and Quévillon engage with technology in ways that challenge how dominant technological practices reinforce the inequalities of corporate globalization and centralized strategies of power. Armas's speculative research demonstrates the importance of innovation beyond practical or commercial use, emphasizing the cultural and scientific value of experimental and speculative research.[130] As such, her work demonstrates the inseparability of questions of science and care necessary for a post-anthropocentric imaginary. The use of low-tech, custom-made, and recycled components presents a technological consciousness that re-integrates science with place. Armas's scientific ethos highly contrasts with the US tech and corporate practices that informs Quévillon's iPhone, which extracts hours of human engagement and attention on a daily basis and initiate processes of "becoming-with" our technologies in unexpected and unprecedented ways. I have argued that the way *Esker/Lithium* estranges the iPhone from the viewer prompts a critical reflection upon the way that these hegemonic institutions dictate the dissemination and use of technology in our society. In so doing, they operationalize human nature toward the accumulation of informational capital.

This brings me to highlight a question posed by Povinelli in her book *Geontologies: A Requiem to Late Liberalism,* which I believe is at the heart of my thesis. Povinelli asks, "What formations are we keeping in existence or extinguishing?"[131] She goes on to elaborate: "things exist through mutual attention. Things are neither born nor die. Things turn away from each other or change states. Things can withdraw care from each other. The earth is not dying. It is

[130] Page, *Decolonizing Science in Latin American Art*, 11.
[131] Povinelli, *Geontologies*, 28.

turning away from certain ways of existing."[132] The different arrangements of existence all around us can be conceived as assemblages, a term which provides "the potential for actualization, deactualization, and reactualization in any arrangement of existence."[133] We can thus approach an understanding of *Tsinamekuta* and *Esker/Lithium* as assemblages, as the artists intentionally bring together different technologies, materials, objects, geographic places, digital and video medias, and sculptural elements which implicate different ways of knowing, perceiving, and relating to the Earth and the strategies of power that shape the Anthropocene. These artworks offer ways to apprehend how diverse, vital, material, and immaterial assemblages generate effects and form alliances across varied topographies of power, extractive practices, and technologies.[134]

Berardi's concept of "soul" is provocative not merely for how it underscores new forms of labor subsumed into the capitalist machine, but for the ways it illuminates the fact that wherever one's libindal energy is directed marks the investment of one's soul-energy. Like attention, it is a currency that can be spent and depleted. We can apprehend the soul as a fundamental driver of which categories or forms of existence remain *in* existence. Likewise, "turning away" from certain arrangements of existence is the withdrawal of "attentiveness, the ability to address, care for and appeal to others"—the very seat of the soul.[135] *Tsinamekuta* has demonstrated how ceremony offers a potent vehicle for expressing reciprocity with the Earth, fostering a mutual attention and awareness through the pyrrhotite's ability to respond to its environment (demonstrating a kind of "response-ability" in and of itself). Quévillon emphasizes that things come into existence through process; the iPhone and other future "green"

[132] Povinelli, *Geontologies*, 28.
[133] Povinelli, *Geontologies*, 28.
[134] Bennett, *Vibrant Matter,* 24.
[135] Berardi, *Soul at Work,* 10.

technologies begin with the commodification of "Nature" for the extraction of cheap materials. Not only do these materials compose the iPhone, but they underlie the whole realm of digital, technological, media-saturated simulacra of cyberspace. Quévillon demonstrates an attentiveness to these processes in a way that fosters a deeper understanding of their relation to the viewer and their ethical implication in the assemblage. My thesis thus hopes to emphasize how agentic attentiveness wields certain modes of existence into creation, and its withdrawal leaves certain forms of existence vulnerable to oppressive, extractive practices.

Tsinamekuta, thus, is a working assemblage comprised of human actors, electromagnetic fields, rock, various technologies, sound, ceremony, a transnational corporation, sacred territory, vested care, geophysical practice, beadwork, and the ancestral echoes of Wixárika footsteps. The arrangement of Life and Nonlife becomes blurred through the uneven distribution of agency, energy, and vitality. Armas transforms magnetic information into acoustic energy, and merges the electromagnetic fields of herself, the Earth, and a Wixárika shaman through experimental forms of alliance-building. *Esker/Lithium* takes shape through the confederation of water, plastic, digital elevation modelling software, an extractive zone, cyberspace, an iPhone, lithium frontier formation, a charging cable, and virtual landscapes. As Quévillon focuses attention on the land surrounding the prospecting site through its various material and digital renderings, he beckons the viewer to "turn toward" the land, to care about its threatened destruction, and to witness the vibrant natural ecologies worthy of respect and ethical deliberation.

For Baudrillard (writing in the 1980s), the domineering zeitgeist was one of "spiritual desolation or existential emptiness,"[136] in which the rapid circulation of information leads to a depletion of the body's affective, libindal and cognitive capacities—or as Berardi would have it,

[136] Berardi, *Soul at Work*, 149.

the exhaustion of our soul. If we can view our energy and attention output as sacred—as indeed our very *soul*—then the ways we invest and direct our cognitive faculties would perhaps merit a deeper respect, care, and consideration. It further becomes more sinister the way our attention is extracted and kept locked in cycles of addiction in digital platforms. In times of ecological devastation, Marcela Armas's *Tsinamekuta* takes up the task of "becoming-with" different forms of existence and emphasizes the persistence of the ancestral over vast stretches of time. At the same time that this artwork encourages us to make-with neglected existents, François Quévillon's *Esker/Lithium* cautions the viewer to consider which worlds, environments, and realities are upheld and wielded into existence. This thesis has brought together these two artworks in ways that stimulate a deep reflection on the spiritual, material, and ontological inadequacy of the Anthropocene.

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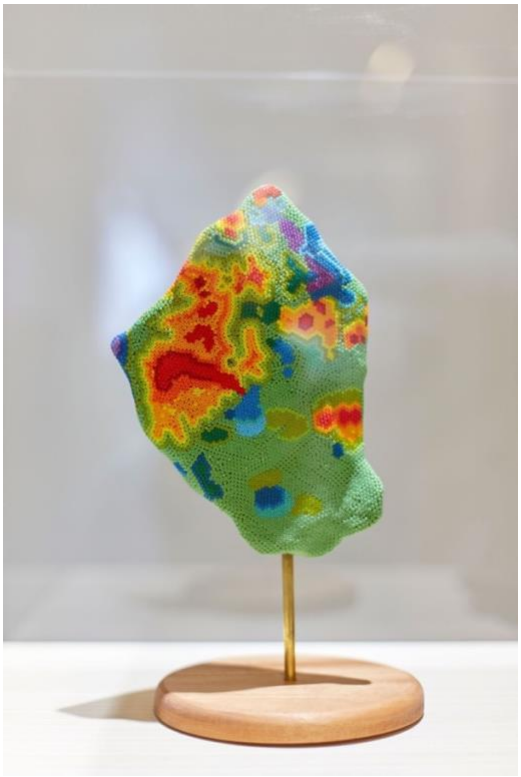

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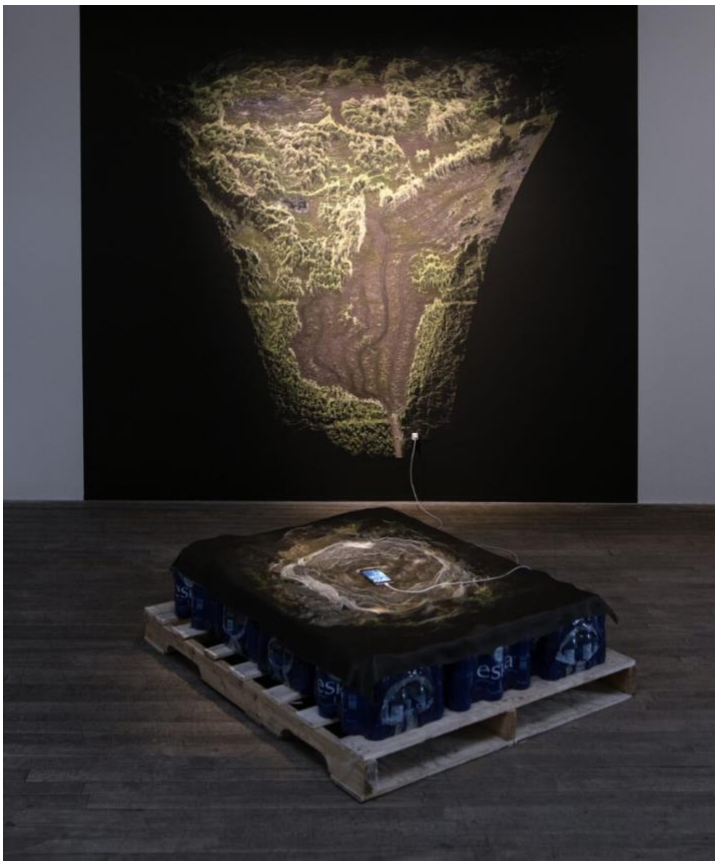

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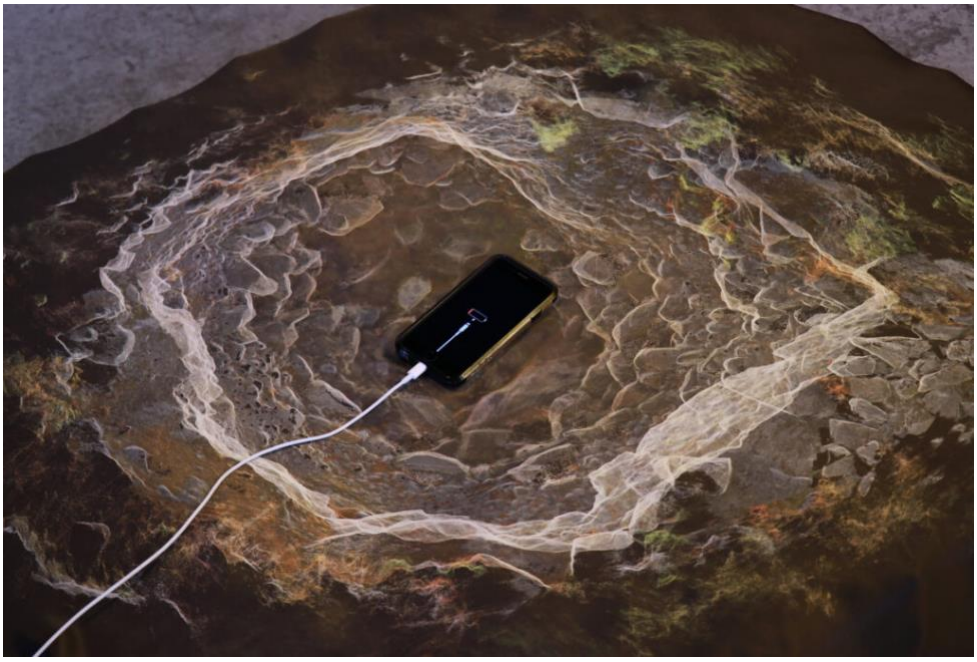

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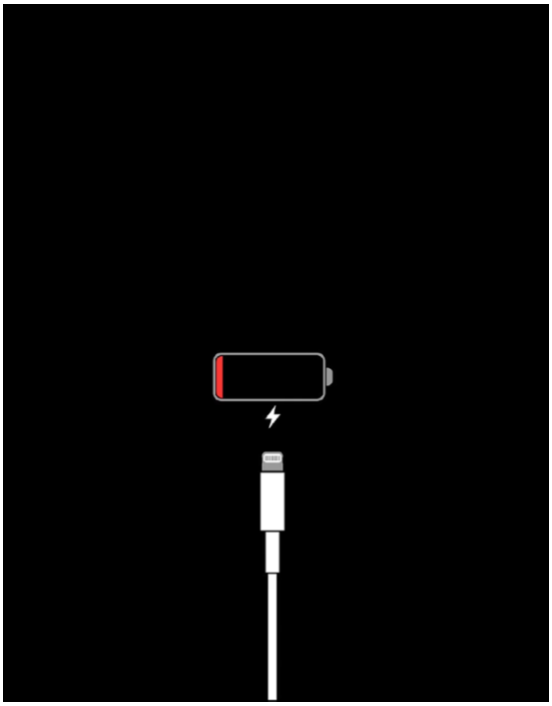
Figure 12: Photograph of the prospection markings. François Quévillon, *Esker/lithium,* 2019-2024.



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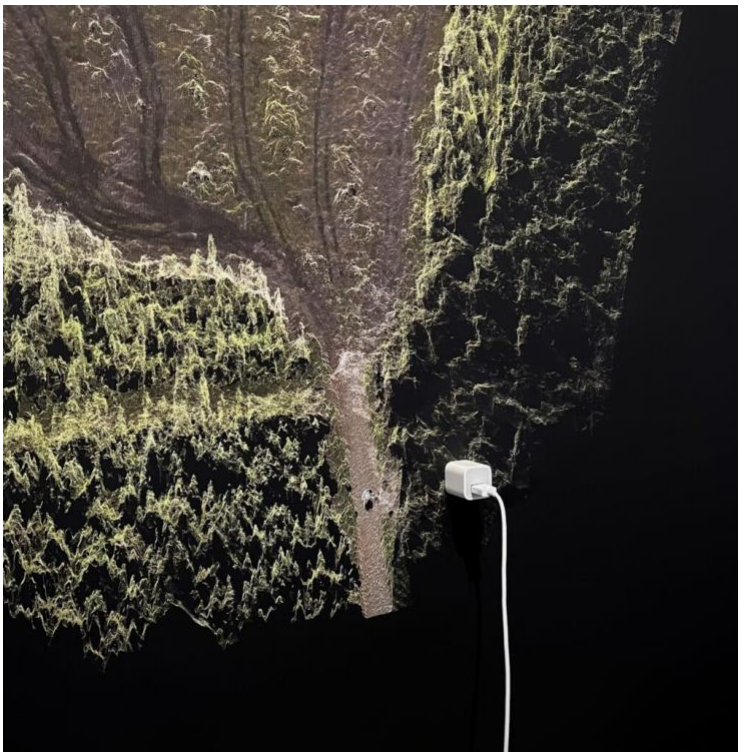

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