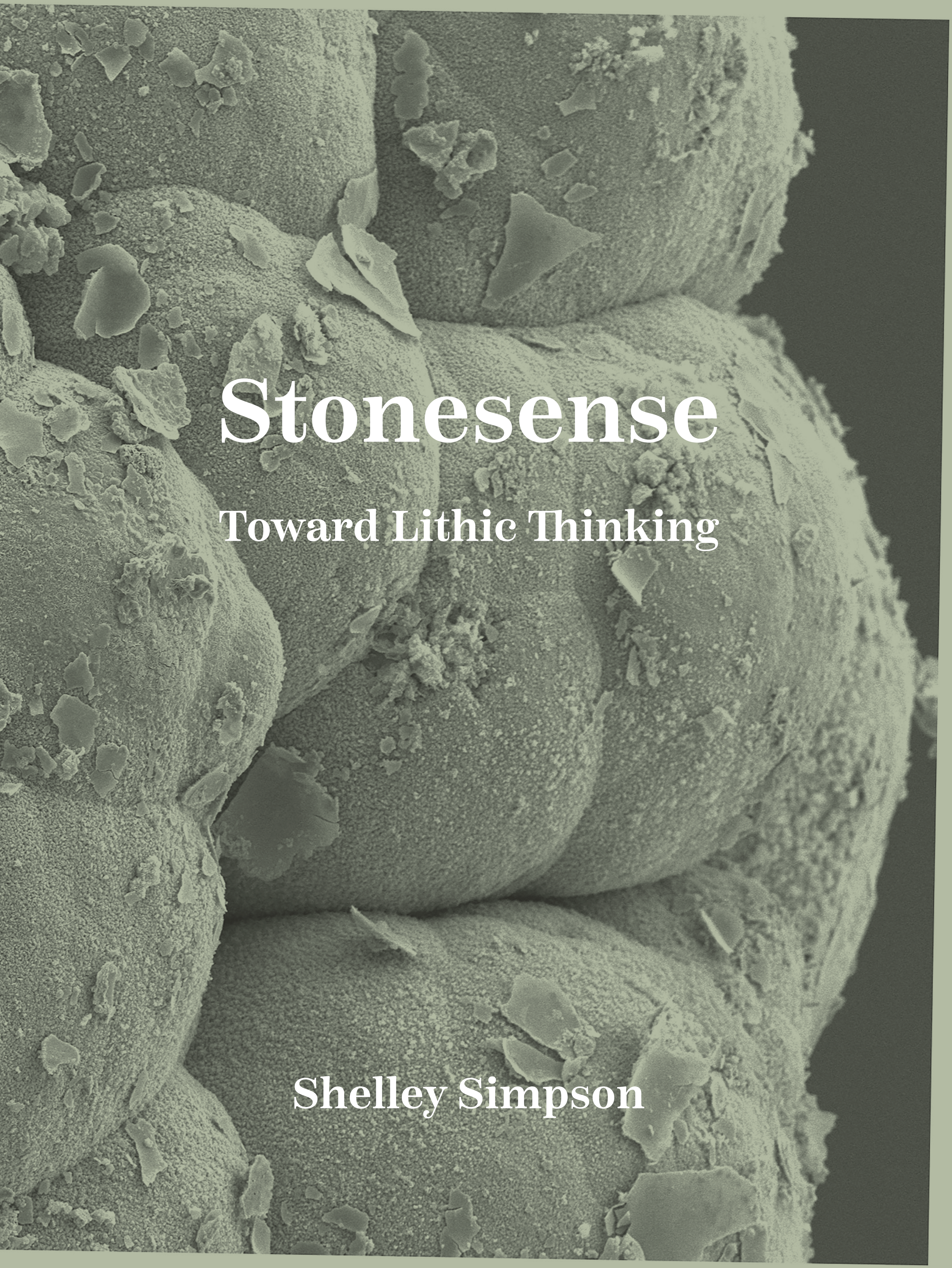
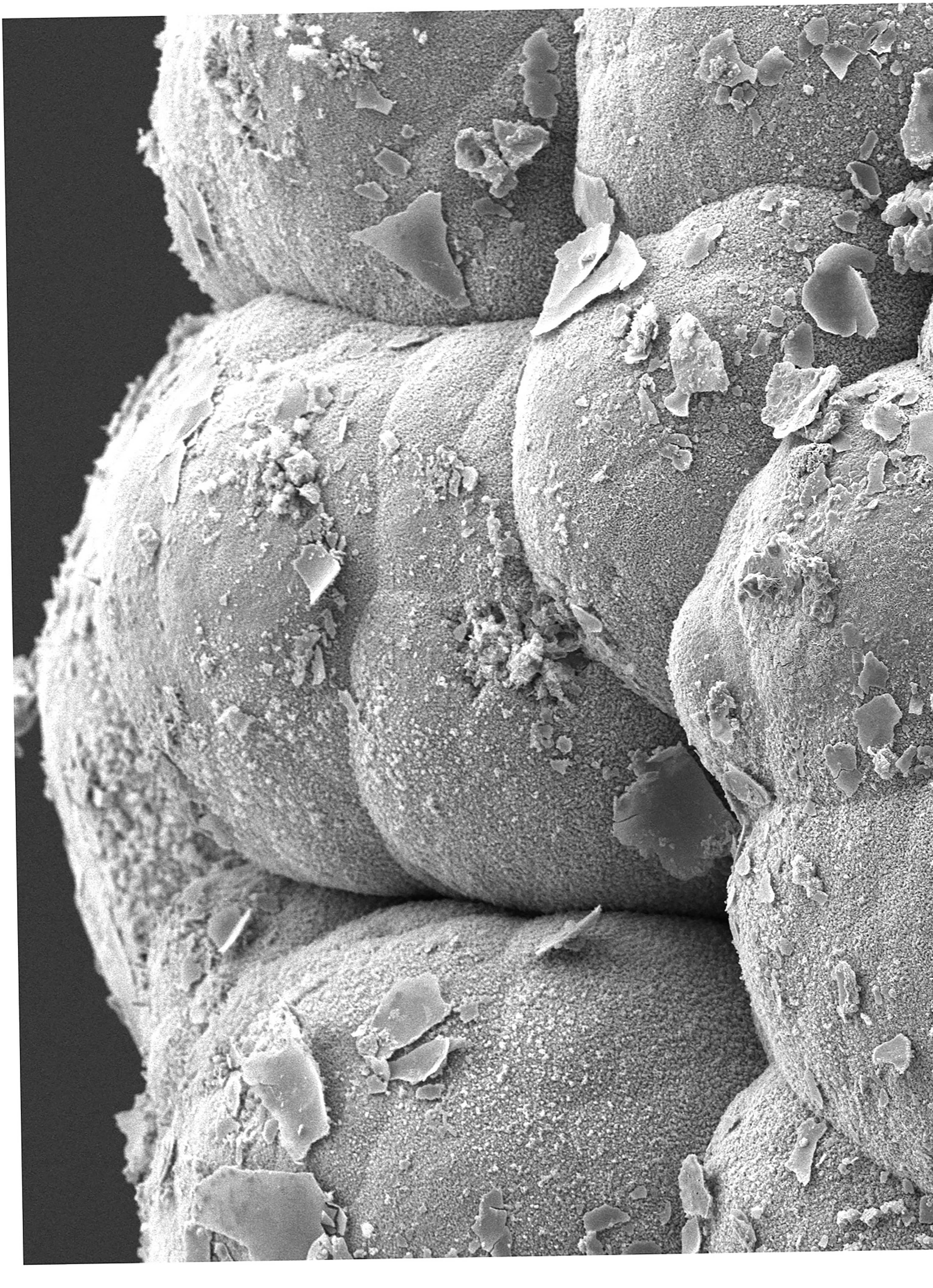


Stonesense

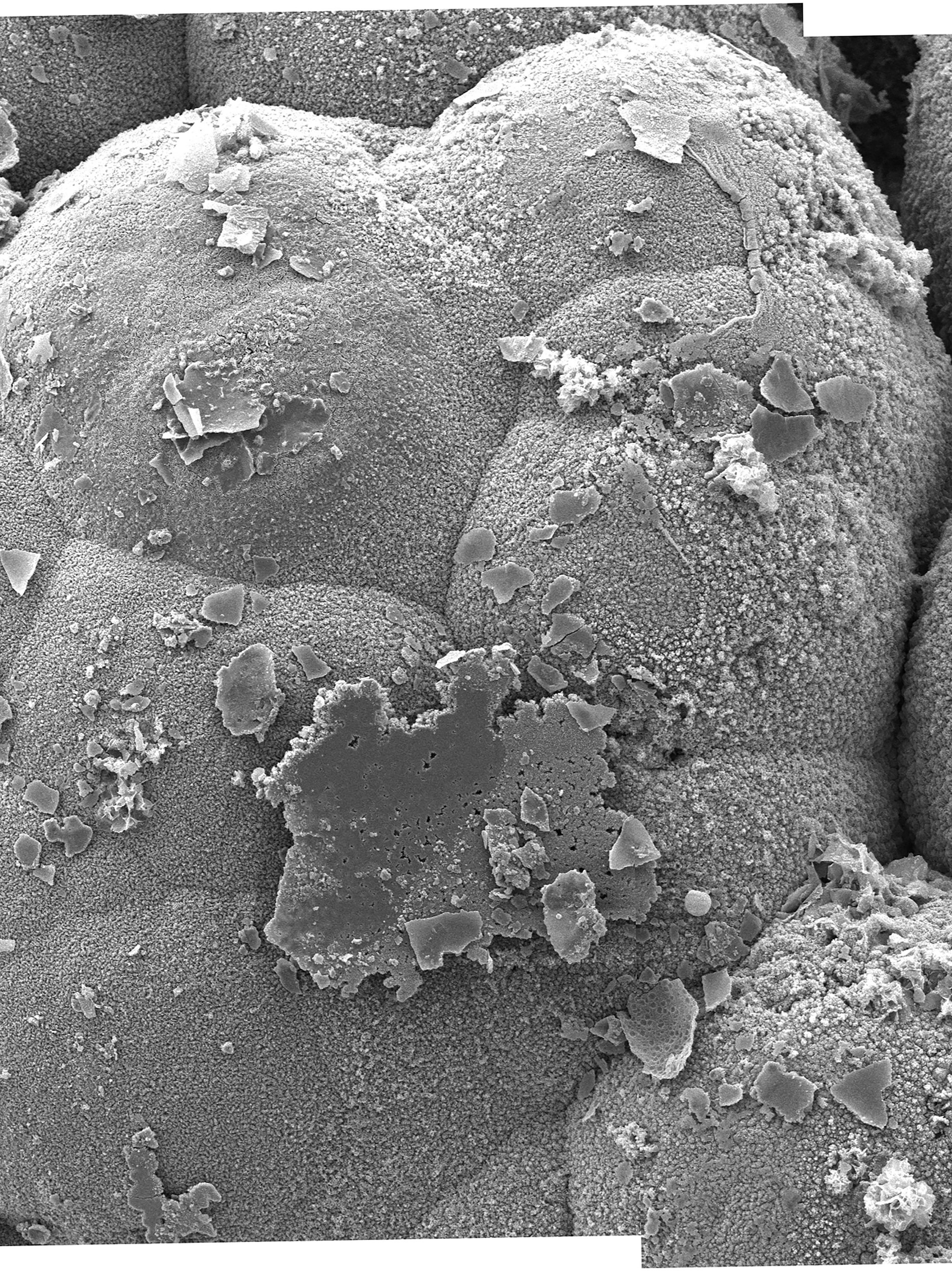
Toward Lithic Thinking

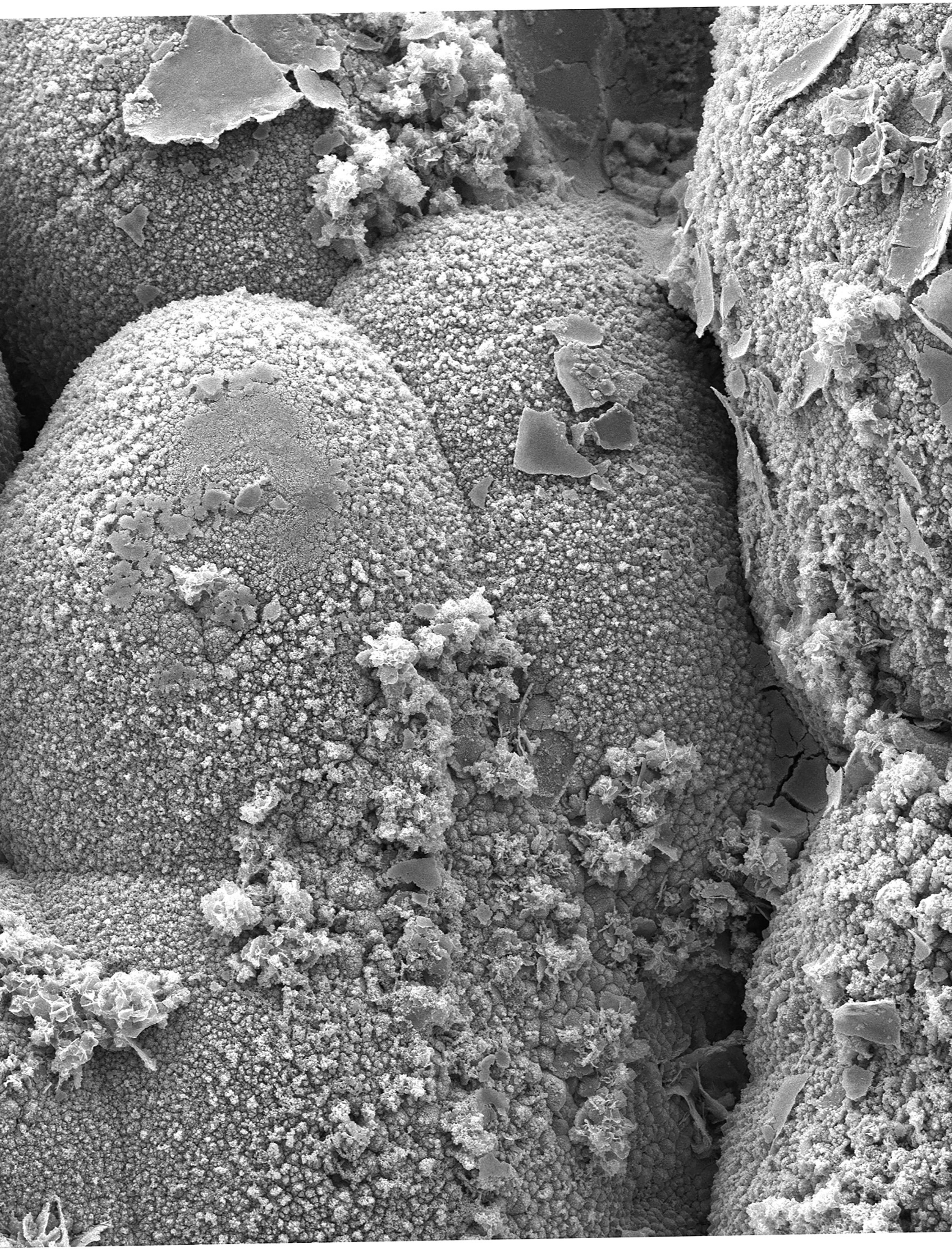
Shelley Simpson



Abstract

In this practice-led doctoral thesis I develop a methodology of lithic thinking, using the mineral as both a material and discursive tool. A posthuman and new materialist theoretical framework supports an art practice of attending to lithic materials and their dynamic processes through a sculptural and installation practice. *Stonesense* works primarily with metals such as copper and iron, as well as iron slag and other mineral materials, to build space for reimagining inorganic relationality. To do so, I employ three techniques of relation with these materials: holding/releasing, floating/sinking, and layering/wearing away. In my art-making I consider the materiality of minerals, their physical properties and tendencies, and the unseen forces at work within them. To define lithic thinking, I build on the bedrock provided by Rosi Braidotti, Stacey Alaimo, Astrida Neimanis, and others whose work seeks in part to soften the bounded human. Furthermore, I draw on those concerned more specifically with the petric, including Hugo Reinert, Jeffrey Cohen, and Kathryn Yusoff. Extending lithic thinking, I turn to the body and present lithic feminism, asking how a lithic body can inform new feminist subjectivities, and what a lithic feminist approach to materiality entails. Contemporary artists Anicka Yi, Nina Canell, Cecilia Jonsson, Raukura Turei, Te Ara Minhinnick, and Pauline Rhodes are presented in this exegesis as lithic thinking artists. I investigate the origins of the materials I work with, researching sites of extractive mining here in Aotearoa New Zealand, both historic and contemporary, specifically onepū (black sand) mining and steel making at Waiuku, iron quarrying and smelting at Onekaka, and copper and chromite mining at Whakatū Nelson. Layered through this exegesis is my position as Tangata Tiriti (Treaty partner) in Aotearoa and the responsibilities that this position entails. These responsibilities lead me to consider the role of sites in the landscape in my project and the ethics of using earthly materials in an art practice.





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Attestation of Authorship

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning."

Signed:

Date: June 12, 2024

Acknowledgements

A project such as a PhD is not carried out alone, alongside the solitary work there are many collaborators and co-conspirators.

Thank you to my supervisors, Janine Randerson and Chris Braddock. I felt as if you had your hands cupped around me as I made my way through this process, gently guiding me, nudging me this way or that, offering excellent insights, reflections and conversation. I cannot express how grateful I am for your generosity, attention, and kindnesses.

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Thank you to the AUT technical teams, especially Angus Roberts and his willingness to try my mad ideas in the metal workshop. Thank you to Harold Barton, Glenn Maxwell, Greg Thomas, Cornelius Geraets, Harriet Stockman, En Torng Sung, Sav Mattyasovszky, Sophie Sutherland, Suzie Gorodi, and Yuan Tao.

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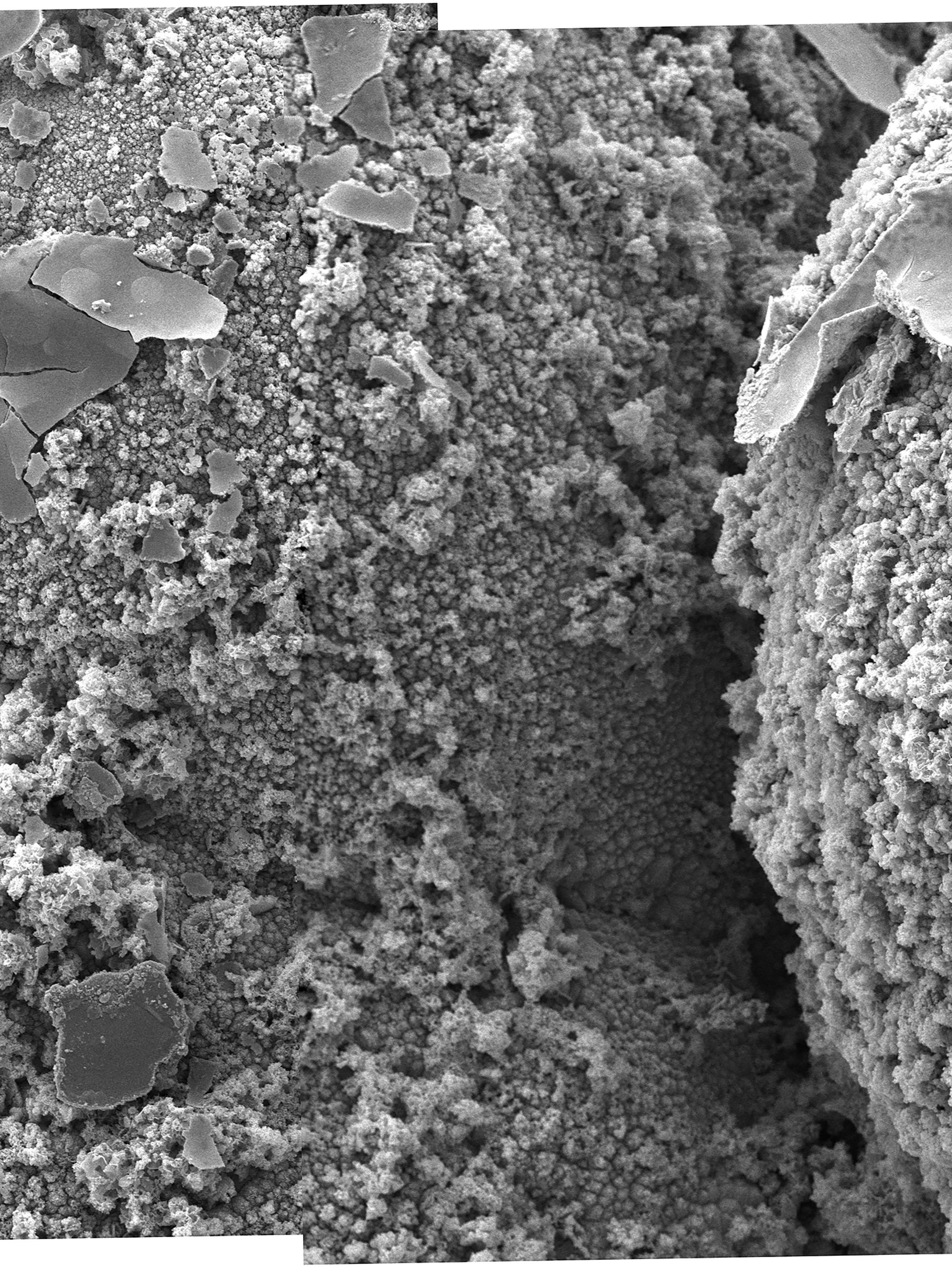
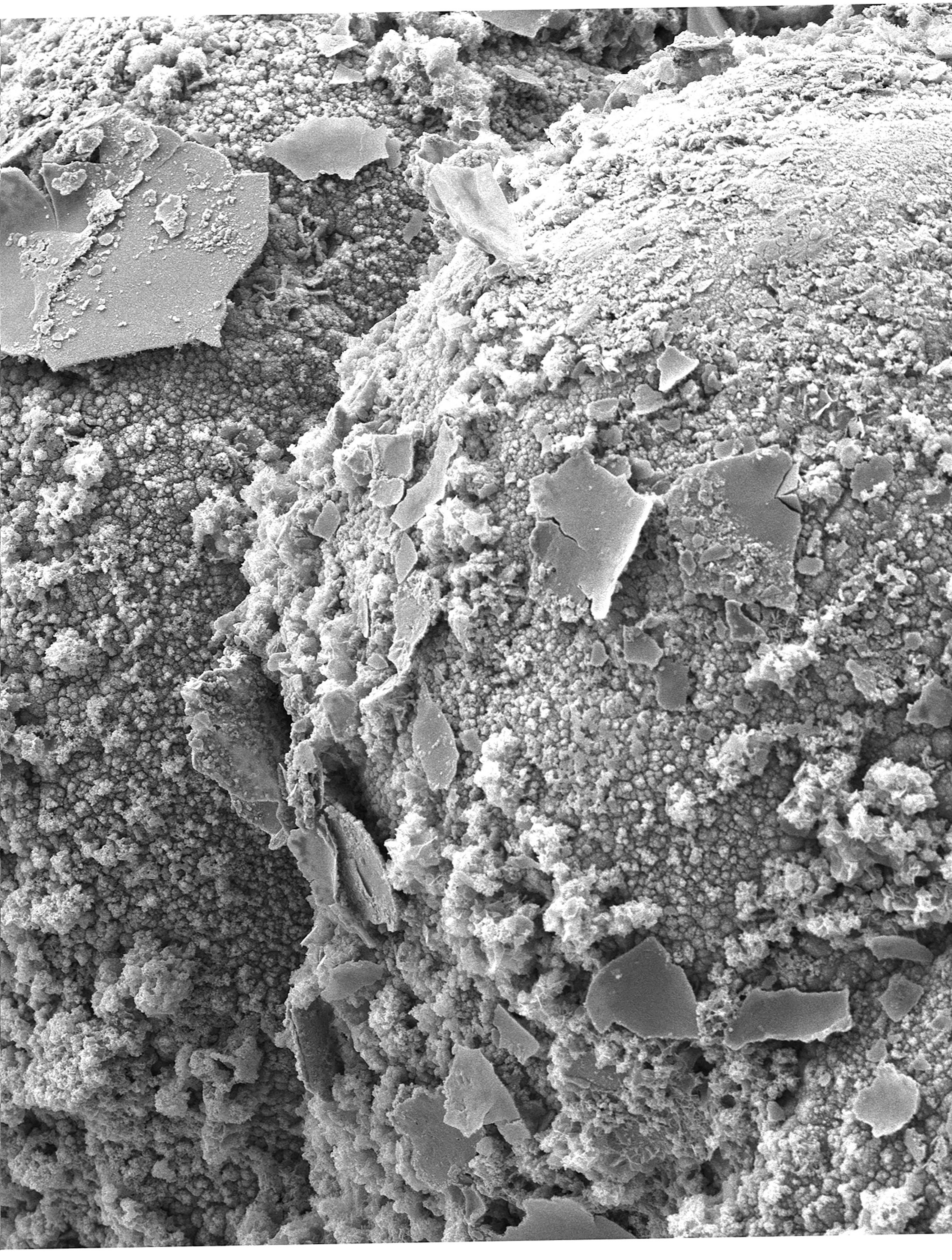
To those people in my family who have passed during the time I have been working on this project; David MacNamara, Patricia McNamara, Hans Eckhardt, John McNamara, and Holly Warland. Rest gently. To Krystina Kaza, I will remember you always.





Introduction
Lodestone

There was a word inside a stone.
I tried to pry it clear,
mallet and chisel, pick and gad,
until the stone was dropping blood,
but still I could not hear
the word the stone had said.

I threw it down beside the road
among a thousand stones
and as I turned away it cried
the word aloud within my ear
and the marrow of my bones
heard, and replied.

—Ursula K. Le Guin, "The Marrow"[1]

1 Ursula K. Le Guin, *Hard Words and Other Poems* (New York: Harper and Row, 1981).

Figure 1.
Chromite ore from the Whakatū Nelson mineral belt.
Photograph: Shelley Simpson.

In her poem "The Marrow," Ursula K. Le Guin offers the premise that the minerality of a stone calls to and is heard by the minerality of our human body. It is the marrow of our bones, the very essence of ourselves that hears the stony utterance.[2] We humans, along with everything else in this universe, are made (at least in part) of minerals. When I read "The Marrow" my attention is drawn to the interconnectedness of the entities of the world; an interconnectedness in which bodies such as our own are not bound by skin, but are open and porous. What we consider a bounded body—an individual—is in fact a conglomerate, a co-operation (here, intentionally used as a noun). It is the geology within us that connects our bodies with the geologic and mineral world.

In "The Marrow," Le Guin not only recognises that a stone can generate an utterance, but that for us to consciously hear this message requires a shift in the way we conceive of our senses. We cannot pry the story from the stone, but can approach the stone differently, widening and deepening the ways in which we can hear the story the stone tells. My doctoral project, *Stonesense: Toward Lithic Thinking*, is an attempt to conceive of and describe the potentialities of such a shift, through thinking with the mineral. As the earth and its inhabitants move through increasingly turbulent climatic shifts, this project considers whether giving careful attention to the more-than-human[3] can foster re-enchantment with the material world, inviting care and empathy, which may in turn offer pathways to existing on our damaged planet.

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2 Anna Tsing et al., eds., *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene* (Minneapolis: University of Minnesota Press, 2017). Anna Tsing writes that Ursula K. Le Guin, speaking at the conference "Anthropocene: Arts of Living on a Damaged Planet," at the University of California Santa Cruz, in May 2014, read this poem and other works. Tsing adds, "Le Guin urges us to listen to stones without forcing our will on them. Might such listening be necessary to know the Anthropocene?"

3 It is difficult to say who initially used this phrase *more-than-human*. It has become popular when referencing the broader ecological and sociological contexts and entities that humans are engaged with.

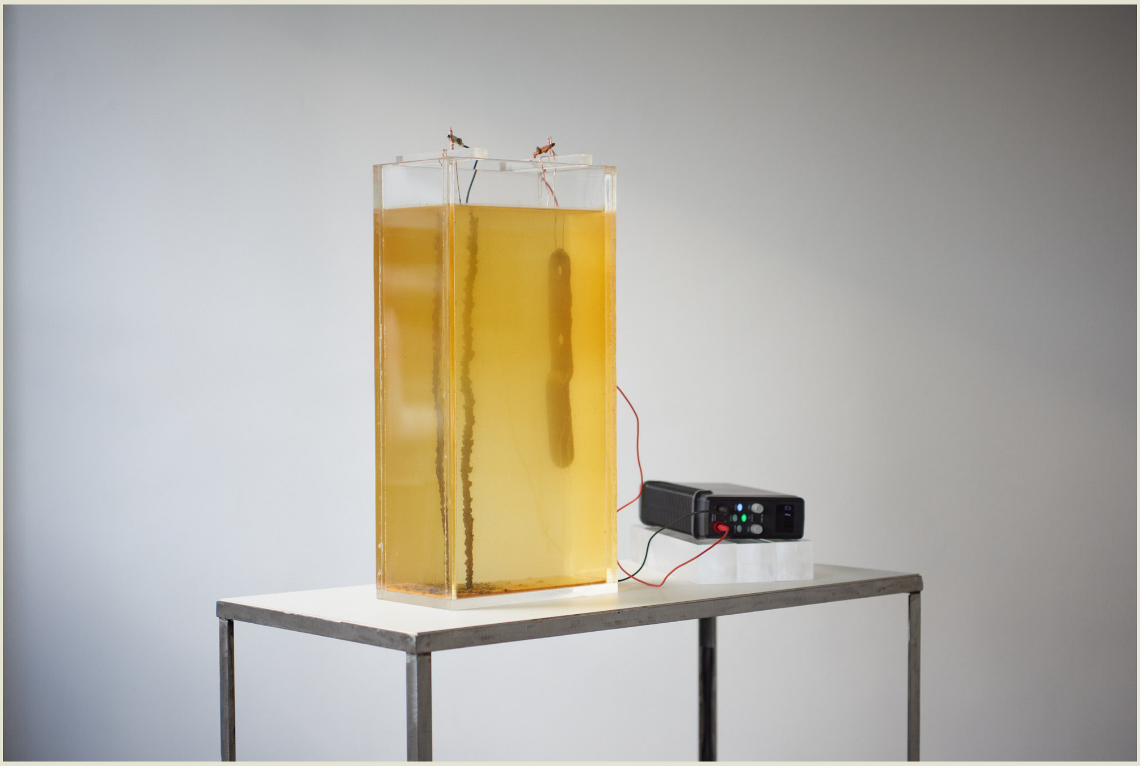

Figure 2.
Shelley Simpson, *From things flow*, 2021, Iron electroforming system,
Tāmaki Makaurau, RM Gallery and Project Space.
Photograph: Kate van der Drift.

0.1 Stony Senses

As the title of this project indicates, *Stonesense: Towards Lithic Thinking* is an active state of enquiry towards encountering the world; namely, lithic thinking. Through practice-led research, I use the mineral as both a material and discursive framework. This supports an art practice of attending, primarily with minerals; metals and rocks. I consider the materiality of these minerals, their physical properties and tendencies, and the unseen forces at work within them. My art practice involves workshop, studio, and laboratory experimentation; field trips; and exploring sites related to mineral extraction in the landscape. I also employ an expanded drawing practice and technologies such as electron microscope imaging, photography, and video and audio recording to enhance observation and investigation. Extending my understanding of materials, I investigate their origins, researching historic and contemporary extractive mining here in Aotearoa New Zealand.

Throughout my practice I have developed three methods to help catalyse my lithic thinking. They are holding/releasing, floating/sinking, and layering/wearing away. My research is located within feminist posthumanism, recognising that humans are entangled in constantly renegotiated relationships with others, including the more-than-human. I have introduced the term *lithic feminism* with which to think through the political, asking how the mineral inside our bodies and the connection to other mineral bodies might affect our wider relations, particularly in respect to the legacy and ongoing effects of colonial, extractive patriarchal activity. I ask, what does lithic feminism look like in artistic practice? What is a lithic feminist approach to materiality?

Figures 3-5.
My studio space, February and March 2024.
Photographs: Shelley Simpson.

The significance of this project is in part a result of my own position as a Tangata Tiriti[4] (person of the Tiriti o Waitangi[5]) artist-researcher here in Aotearoa. At a local level, I bring attention to the concept of lithic thinking, which, when folded with the specificity that my cultural position provides, might offer some useful reflections in relation to the use of earthly materials in an art practice and more generally. Lithic thinking involves an attention to materiality that is part of a contemporary turn to the material, and from an Aotearoa perspective, this turn necessarily folds in the political.

Beyond (and including) a specifically Aotearoa context, attention given to the lithic, both within bodies and without, could offer ways of reconnecting human bodies with the environment, providing pathways for alternative ways of thinking about the Earth and its minerality, and strengthening the connectivity of all entities that share this planet.

4 *Tangata Tiriti* are often defined as people of the Treaty, active Treaty partners, as opposed to the more passive descriptor *Pākehā*. Tina Ngata, "What's Required from Tangata Tiriti," accessed April 27, 2024, https://tinangata.com/2020/12/20/whats-required-from-tangata-tiriti/.

5 Te Tiriti o Waitangi (known in English as the Treaty of Waitangi) is an agreement made in 1840 between representatives of the British Crown and (ultimately) more than 500 rangatira Māori. It resulted in the declaration of British sovereignty over New Zealand by Lieutenant-Governor William Hobson in May 1840. Most Māori signed the te reo (Māori language) tiriti. The English treaty and the te reo tiriti held different meanings. Māori and Pākehā therefore had different expectations of the Treaty's terms. Ever since, resolution of these differences has presented New Zealand with challenges. Claudia Orange, "Te Tiriti o Waitangi: The Treaty of Waitangi," in *Te Ara—The Encyclopedia of New Zealand*, March 28, 2023, http://www.TeAra.govt.nz/en/te-tiriti-o-waitangi-the-treaty-of-waitangi.

Figure 6.
Shelley Simpson, *can't live without you*, 2022, Single channel digital video,
Tāmaki Makaurau, Te Wai Ngutu Kākā.
Photograph: Shelley Simpson.

0.2 Lithic Questions

Stonesense begins by asking how lithic thinking manifests in art-making and opens worlding pathways. This broad research question has become more nuanced throughout my research, with attention given more specifically to the body and relations between the body and the environment in which it is embedded. Lithic thinking in art, as I describe throughout this exegesis, is concerned with both materiality and process. This question expands to encompass relations between the body (that of the artist and of others), and the matter of the world. I then ask, while keeping the lithic in mind, how can we make space for reimagining inorganic relationality? In an art practice, what 'techniques of relation' extend the 'carbon imaginary'?[6] Alongside the discourse offered in this exegesis, my art-making practice explores these questions, offering techniques of relation that include paying attention to processes that might lie below the threshold of notice, such as atomic level activity; bodily relations with a material such as iron; and the movement of energetic states such as heat, as it passes from body to matter and back again. Energetic movement is evident in the sculptural work *Hand Held* (2023-ongoing) (fig. 7), in which the space between my cupped hands has been cast in iron, with the intention that the resulting objects are held and passed from person to person.[7] Focusing on states of energetic activity contributes to understanding a further question: how can we approach the concept of 'liveliness' differently, without imposing a concept of what it means to be alive on other ways of being? I first came to this question through the theoretical lens of new materialism, or material vitalism, and I consider the subsequent critique of that field of enquiry in Chapter One.

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6 The 'carbon imaginary' is a phrase introduced by Elizabeth Povinelli and referenced by Hugo Reinert, in Hugo Reinert, "About a Stone: Some Notes on Geologic Conviviality," *Environmental Humanities* 8, no. 1 (2016): 106, https://doi.org/10.1215/22011919-3527740.

7 I return to this project in Chapters Two and Four.

Figure 7.
Shelley Simpson, *Hand Held*, 2023-ongoing, cast onepū iron,
Photographs: Willa Langeveld.

As I focused more specifically on a feminist worlding,[8] beginning within the body and extending through and beyond into the wider world, another question began to emerge: what does a *lithic feminist* approach to materiality entail? Additionally, my position as Tangata Tiriti adds to the enquiry of this thesis, specifically in relation to the use of earthly materials in an art practice in Aotearoa.

8 Feminism here is accepted as intersectional, within which I recognise my position as a privileged, white woman. It is also important to note that I do not accept an essentialist, biological concept of 'woman' but rather a wider definition that includes any person who identifies as a woman.

0.3 Mātauranga Māori in *Stonesense*

As Tangata Tiriti in Aotearoa, I am committed to being an ally to Māori and a respectful, active Tiriti o Waitangi partner, learning about and acknowledging mātauranga Māori (Māori knowledge). There has been a tendency, particularly in the writings of new materialist and posthumanist theorists of the global North (the theoretical field in which my project sits), to either ignore the fact that many of their ideas already exist in Indigenous philosophies, or to use Indigenous ideas without proper recognition and citation. My own cultural identity is created alongside Māori as a result of Pākehā (non-Māori) and Māori relationships.[9] I am indebted to Rachel Shearer's doctoral research,[10] to philosopher Carl Mika, and to historians Manuka Henare and Anne Salmond for giving me an understanding of how Māori epistemology can be read alongside Western new materialist and posthuman theory.

Considering mātauranga Māori enables a rich and complex web of ideas, approaches, and differences with which to think about the ever-emerging entanglement of stories that all entities are part of. In relation to the mineral, I consider Māori use of kōhatu (stone and rock) and onepū (black sand),[11] the material and spiritual dimensions of whenua (land) and whakapapa (ancestral layering), and my own learning of te reo Māori (Māori language) throughout the period of my doctoral studies. In particular, I ask what my responsibilities are as Tangata Tiriti, not only in relation to research and citation, but also with regard to the material, specifically earthly materials in my art practice.[12]

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9 Huhana Forsyth, "An Identity as Pākehā," *AlterNative* 14, no. 1 (2018): 73–80, https://doi.org/10.1177/1177180117752479.

10 Rachel Shearer, "Te Oro o te Ao: The Resounding of the World" (PhD thesis, Auckland University of Technology, 2018), https://hdl.handle.net/10292/11712.

11 Although *onepū* is translated as sand, it is also often used to mean the black magnetic sand of the West Coast. For an example of this use, see Delilah Pārore Southon, "Artist and Architect Raukura Turei's Work Is an Ode to Her Whakapapa," accessed April 27, 2024, https://homestyle.co.nz/artist-raukura-turei/.

12 See Chapter Four.

Figure 8.
View from my father's house at Pohara with the quarry site visible.
Photograph: Shelley Simpson.

Figure 9.
Golden Bay Cement Co Ltd - Tarakohe Cement Works,
Nelson District: circa 1960 quarry and site, Fletcher Trust Archives,
P8002/23
Photograph: John Sharp.

0.4 The Journey to *Stonesense*: How Matter Came to Matter

Living here in Tāmaki Makaurau, Aotearoa (Auckland, New Zealand), I am reminded of the mineral landscape at every turn; this landscape with its many volcanoes, some now existing only in name, as the stone they were made from has been quarried away to form the roads and walls of this city. Quarries have played a role in my life from the beginning; I was literally conceived in the backseat of a car parked 'up the quarry' in the Maitai Valley,[13] in Whakatū Nelson. When I was an undergraduate studying anthropology, I went on a field trip to the pakohe (argillite) quarry, further up the Maitai Valley, to map out the Māori patu (adze) making activity there (see Chapter Three). Recently, at my father's house at Pohara in Mohua Golden Bay, he and I looked out over the valley to the gravel quarry that for many years provided stone for Golden Bay Concrete, and now crushes rock for roading (figs. 8,9). My father's house, on the hill side overlooking Pohara and the bay, sits on land that had previously been a clay quarry for the concrete making there, and the terraces that enable the land to have a house built and gardens planted are the result of the clay removal. The land now provides a fertile environment for growing various nuts, fruits, berries, and vegetables.

These mineral stories have affected my life in very concrete (pun intended) ways. The abandoned quarry, a sheltered spot away from the busy road where a car could be parked easily, provided my parents with a dark and safe place to play out their teenage passions, resulting in my coming to being. How thankful must I be to the quarrymen! My very existence is entwined with and enabled by the stone dug from the hillside. Equally, my existence is predicated on the settler activity of my ancestors.[14] On my

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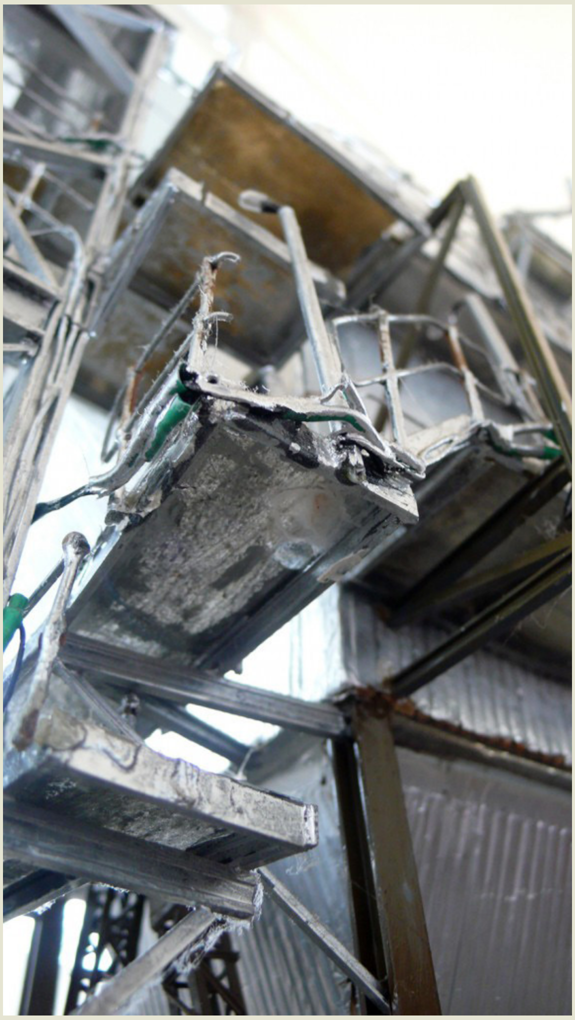
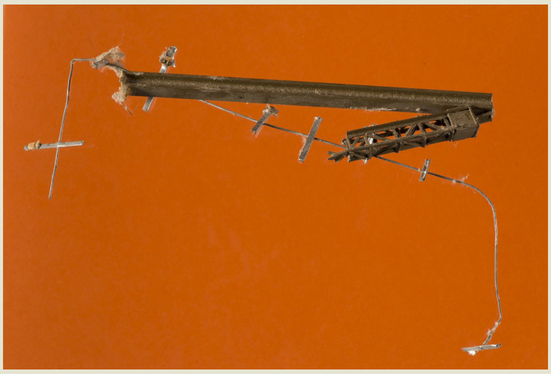
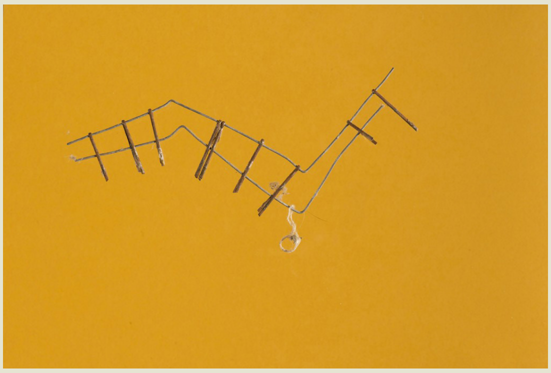
13 Maitai is a contraction of the original name, Mahitahi. One meaning of the name is 'of people working as one,' probably referring to local iwi (Ngāti Koata, Ngāti Rarua, Ngāti Tama and Te Ātiawa) quarrying on the pakohe. "Mahitahi River," The Prow, accessed April 19, 2024, https://www.theprow.org.nz/maori/maori-stories-of-whakatu/mahitahi-river/#Related_Stories.

14 I discuss the close relationship between my ancestors who settled in Whakatū and mining activity in Chapter Three.



Figures 10 - 13.
Shelley Simpson. Meremere model and pieces, 2015.
Photographs: Shelley Simpson





father's side, there are tin miners from Cornwall. And on my mother's side, hostelers provided hospitality for nineteenth century copper and chromite miners at The Miners Arms in Whakatū (see fig. 130). Perhaps there is a lodestone of lithic thinking, a nugget of connection buried deep in my DNA, which is manifesting in my art-making and research interests, although with a different emphasis to those of my ancestors.

Looking back through art-making projects in the period before I began my PhD, I can see a strong interest in the lithic emerging. In 2015, during my Master of Fine Arts study at Te Waka Tūhura, Elam School of Fine Arts, University of Auckland, I bought an old model of the Meremere power station on an online auction site. Meremere had been a coal fired power station on the Waikato River that opened in 1958 and was now decommissioned. This model was of one of the huge turbines. It had been in storage for years and was in bad shape. The structure was built on a purpose-built table and was created from a combination of homemade parts and techniques, such as aluminium foil covering balsa wood sections to simulate metal, as well as traditional model making materials. The model was wired with electricity, with tiny lights on long poles and lights along the main structure, although these no longer functioned. A couple of little plastic workers lay forlornly on their sides among the broken ladders and platforms.

Acquiring this model began a far-reaching inquiry into the Meremere power station. I photographed the model and the large number of broken parts that came with it (figs. 10-13), and exhibited it at John Kennedy's *Project Space* (2017). I created sculptural objects with the model parts, combining them in some cases with coal, exhibited in *By Then*, a group show with Krystina Kaza, Clare Fleming and Kathryn Tulloch, at George Fraser Gallery in 2015 (fig. 14). I visited the Meremere site, by then mostly demolished. The power station had been coal fired, and I drove along the aerial bucket line that bought the coal from the coal field at Maramarua. This project was my first experience of engaging deeply in this way with a site, researching both its contemporary situation and its history. I created

Figure 14.
Shelley Simpson, *It seemed to us that we were moving forward*, 2015
In *By Then* with Krystina Kaza, Clare Fleming and Kathryn Tulloch,
Tāmaki Makaurau, George Fraser Gallery. Photograph: Becky Nunes.

Figure 15.
Shelley Simpson, *Ancient Air*, 2016, digital audio.
Click to listen to this audio project

a small publication that accompanied the *Project Space* exhibition (available as Appendix A at art.shelleysimpson.co.nz/stonesense).

While I was engaging in material explorations of the Meremere model and coal, I created a work called *Ancient Air* (2016) (fig. 15). This audio work was a recording of the sound of air trapped inside a piece of coal being released when the coal was submerged in water.[15] At Meremere, the coal, 30-70 million years old, was stored underwater in a huge fan shaped pool, still visible on Google Maps. The coal was stored in this way to prevent it from combusting. *Ancient Air* was a seminal project for me; the first work in which I was aware of and participating in 'storied matter.'[16] *Ancient Air* was exhibited in my midpoint exhibition, during my master's degree study.

In *Ancient Air,* the coal, and the air trapped within, became a sonic fossil. As storied matter, air is the breath of ancient beings. The coal itself is the very bodies of these beings. In the popping and crackling of the escaping air I heard the stories the coal was telling, stories of the immense pressure required to compress the bodies of plants and animals into hard coal, of the darkness, the deep time, the slow shifting, the quiet energy being held. Stories, too, of the violence of mining, the burning, the releasing of oxygen and carbon dioxide, becoming airborne. *Ancient Air* also told of the toll of mining and fossil fuel use, the human loss, the environmental damage, stories of the Capitalocene.[17]

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15 https://vimeo.com/415787784

16 See Section 4.2 for further discussion of storied matter.

17 Rosi Braidotti, introduction to *Posthuman Glossary*, ed. Rosi Braidotti and Maria Hlavajova (London: Bloomsbury Academic, 2018), 4; Jussi Parikka, *The Anthrobscene* (Minneapolis: University of Minnesota Press, 2014); Donna J. Haraway, *Modest_Witness@Second_Millennium. FemaleMan_Meets_OncoMouse: Feminism and Technoscience*, 2nd ed. (New York: Routledge, 2018), https://doi.org/10.4324/9780203731093; Phillipe Rahm, "The End of the Anthropocene," *E-Flux Architecture*, February 2021, https://www.e-flux.com/architecture/confinement/376993/the-end-of-the-anthropocene/. The Capitalocene is one of several alternative terms—*anthropomemes,* as Rosi Braidotti calls them—to describe what has commonly become known as the Anthropocene. Anthropocene is a problematic term for this time of ecological crisis, as it suggests that all humans are equally responsible. We have not all equally caused this crisis, nor are we all suffering the effects in the same way. Also, the current crisis does

Figure 16.
Shelley Simpson, *78 Cubic Meters Between the Windows and the Steel Beam, 2017, Spathiphyllum*, string, moss, soil, microbes, aluminium, Tāmaki Makarau, RM Project Space and Gallery, Photograph: Becky Nunes.

My interest in foregrounding more-than-human materiality was further developed in a project in which I worked alongside plants. In 2017, I was part of a group exhibition titled *Hardly Working* with Deborah Rundle, Wendelien Bakker, and Clare Fleming at RM Gallery and Project Space, Tāmaki Makaurau (figs. 16-18). For the floor sheet, we wrote:

> Sharing an interest in labour and the ethics of work within contemporary society, the artists in this exhibition approach the subject from a diversity of perspectives. Mindfulness apps, baby induced exhaustion, prospecting for gold and peace lilies are co-opted to prompt new conversations. Invariably, each artist questions the nature of work and asks, 'who is working for whom, and on whose terms?[18]

My work in this exhibition, *78 Cubic Meters Between the Windows and the Steel Beam,* (2021, Spathiphyllum, string, moss, soil, microbes, aluminium), explored the question of ethical co-creation. In this work I used a 1989 study carried out by NASA[19] to find out whether plants could be used to clean the air of the space station. Being a sealed environment full of plastic materials, it was retaining high levels of chemicals such as formaldehyde. Peace lilies (*Spathiphyllum*) were tested, along with other

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not unify us, as the word Anthropocene might suggest. Capitalocene was first coined in 2009 by the Swedish human ecologist Andreas Malm, then a doctoral student at the University of Lund. Through private correspondence it spread to other scholars such as feminist Donna Haraway and geographer Jason W. Moore. Donna Haraway suggests Capitalocene as a term describing more accurately the cause of the current ecological destruction, as it references capitalism, an economic system based in part on resource extraction. Other terms suggested include Anthro-obscene (as used by Parrika), Plantationocene and Chthulucene (as used by Haraway), and, more recently, Covidocene (as used by Rahm).

18 "Hardly Working," RM Gallery and Project Space, 2017, https://rm.org.nz/hardly-working/.

19 BS Wolverton, Anne Johnson, Keith Bounds. "Interior Landscape Plants for Indoor Air Pollution Abatement." North American Space Agency, 1989. https://ntrs.nasa.gov/citations/19930073077.

Figure 17.
Shelley Simpson, *78 Cubic Meters Between the Windows and the Steel Beam, 2017, Spathiphyllum*, string, moss, soil, microbes, aluminium, Tāmaki Makarau, RM Project Space and Gallery. Photograph: Shelley Simpson

Figure 18.
Rehoming plants at the end of Hardly Working. On the back wall is Deborah Rundle, *Optimal Performance*, 2017, vinyl text, business shirt collars and placket, conference lanyards. Photograph: Shelley Simpson.

common house plants. In a very unscientific reading, I used the results obtained in the study to calculate that one average sized peace lily cleaned 0.75 cubic meters of air. Using this calculation, the seventy-eight cubic meters of air in the gallery between the steel girder and the windows was cleaned by the fifty-seven plants in the space. The three-dimensional drawing made from white metal bars describes four cubic meters and was cleaned by the five plants within it, acting as a key to the calculation (fig. 16).

The plants in the gallery space performed in ways that many visitors were able to sense. People found the gallery space restful, with a feeling of freshness and liveliness in the air. The plants extended into the space, both physically, with their beautiful large dark green leaves and occasional white flower, and chemically, as their leaves absorbed toxins and photosynthesised, releasing oxygen. The microbes in the soil were also cleaning the air (the NASA study concluded it is both the soil and the plants that remove toxins). Hung vertically from the ceiling, the plants and their moss-covered root balls were level with the human participants who moved through the space, and close examination of the plants was possible. Over the three-week duration of the exhibition the plants grew, extending into the space as plants do, maximizing their ability to photosynthesise. Working with living entities in this way necessarily evokes questions of ethics. The plants that provide the cleaning service in the gallery had their root systems wrapped in moss and were well cared for. At the conclusion of the show people were invited to adopt a plant, and many of these plants are thriving at the time of writing in 2024. My focus was on the ethics of the cooperative act, as the plants were ‘put to work,’ while simultaneously being cared for.

My engagement with Meremere, through making *Ancient Air* and other artworks, has led me to a deeper interest in extractive economies, particularly the activity of early European settlers here in Aotearoa. There had been tin mining in Rakiura, Stewart Island; my ancestors had been tin miners in Cornwall. I received a Wild Creations grant—a funding opportunity offered by Te

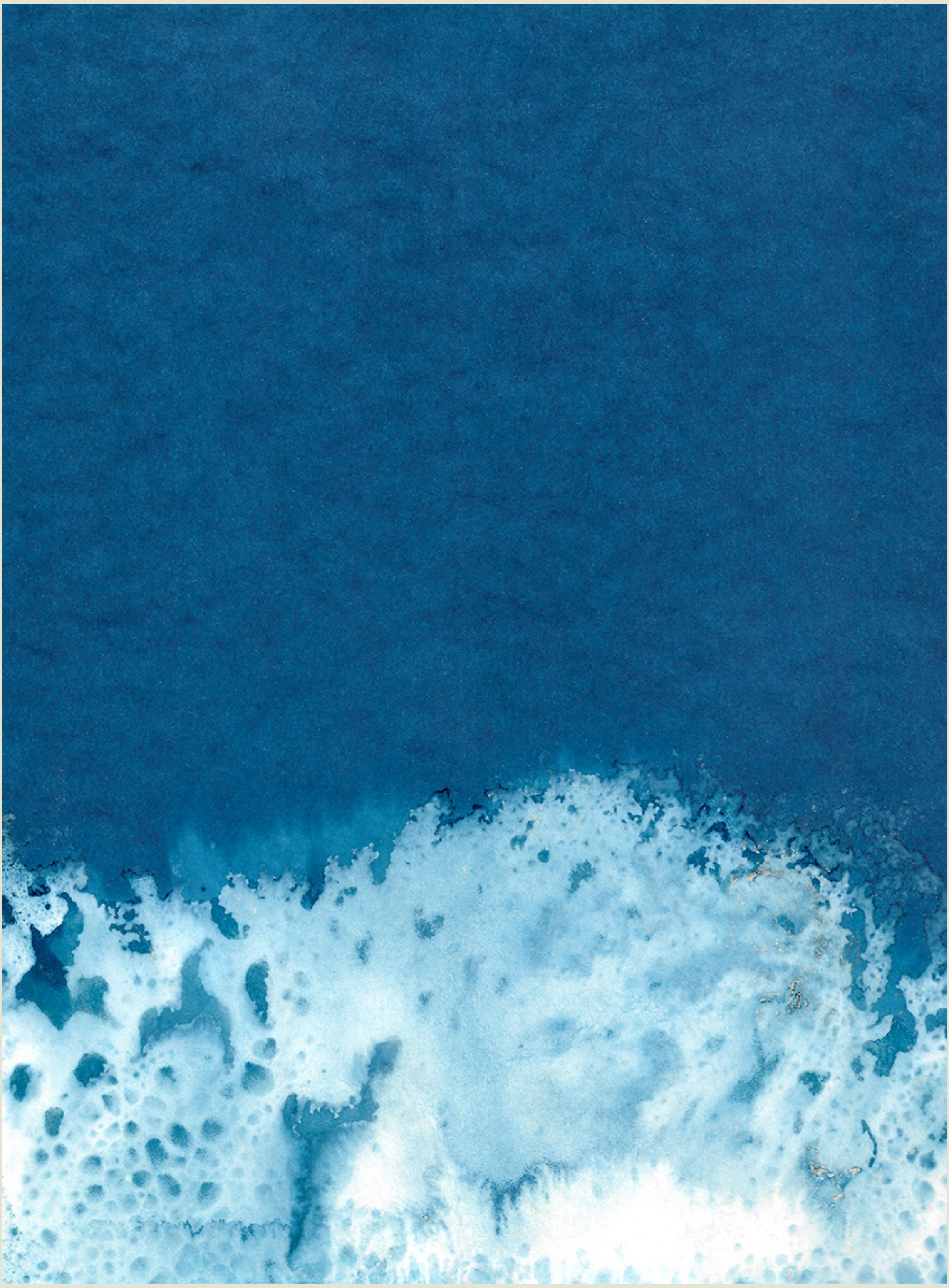
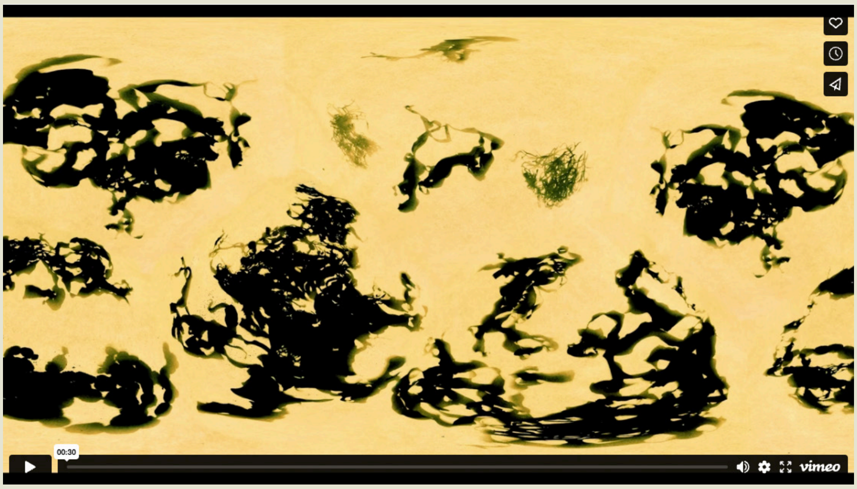
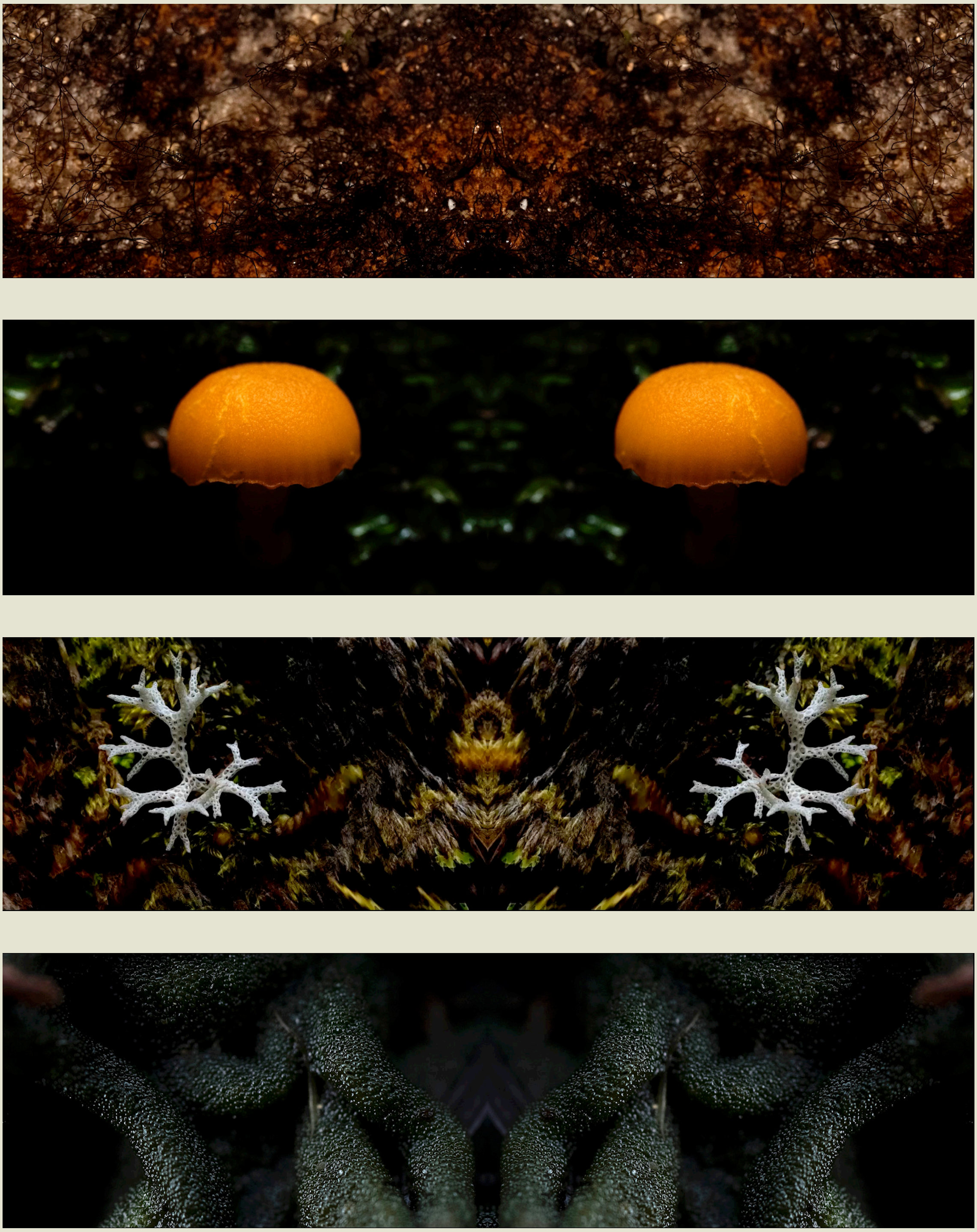


Figure 19.
Shelley Simpson, *Rakiura River Foam.* 2018, cyanotype print.



Figures 20-21.
Shelley Simpson, Rakiura VR digital video projects, 2018.
Please click to view these videos.



Figures 22-25.
Shelley Simpson, *The Entities*, 2018, 2 channel video, 4 channel audio.
Tāmaki Makaurau, RM Project Space and Gallery, with Sarah Callesen.

Whata Atawhai Department of Conservation and Toi Aotearoa Creative New Zealand—to visit the tin mining area at Pegasus Bay, on the southern coast of Rakiura. I travelled there in early 2018, exploring the environs and archaeological remains. My focus was on finding traces of mining activity in the landscape, attending particularly to land recovery after mining activity had ceased. I created a series of virtual reality (VR) videos (figs. 20, 21).[20] As the area is a National Park and therefore protected, my main methods of enquiry were noninvasive: video, photography, and audio recordings. I also made cyanotypes on location (fig. 19).

The imagery gathered during this trip became the visual element of *The Entities* (2018), a project I created with artist Sarah Callesen, exhibited at RM Gallery and Project Space in July 2018 (figs. 22-25). In this work, two channel digital video with four channel audio created an immersive environment in an exploration of the complexities of the relationship between human and the more-than-human, nature, and culture.[21]

In October 2019, I wrote in my notebook: "*Electroforming—exhibition idea—build narrow large tank—allow electroforming to occur over weeks.*" This was the beginning of a larger project, which would become one of the main interests of my PhD thesis.[22] Initially, I worked with copper, then with iron electroforming as my material focus shifted to iron, specifically that made from onepū at Glenbrook Steel Mill, in Waiuku. Metals became my main material, in various forms: as solid matter, as salts in solution, and as crystalline metal salts. I worked with casting, evaporation techniques, image making and moving image, as well as electroforming.

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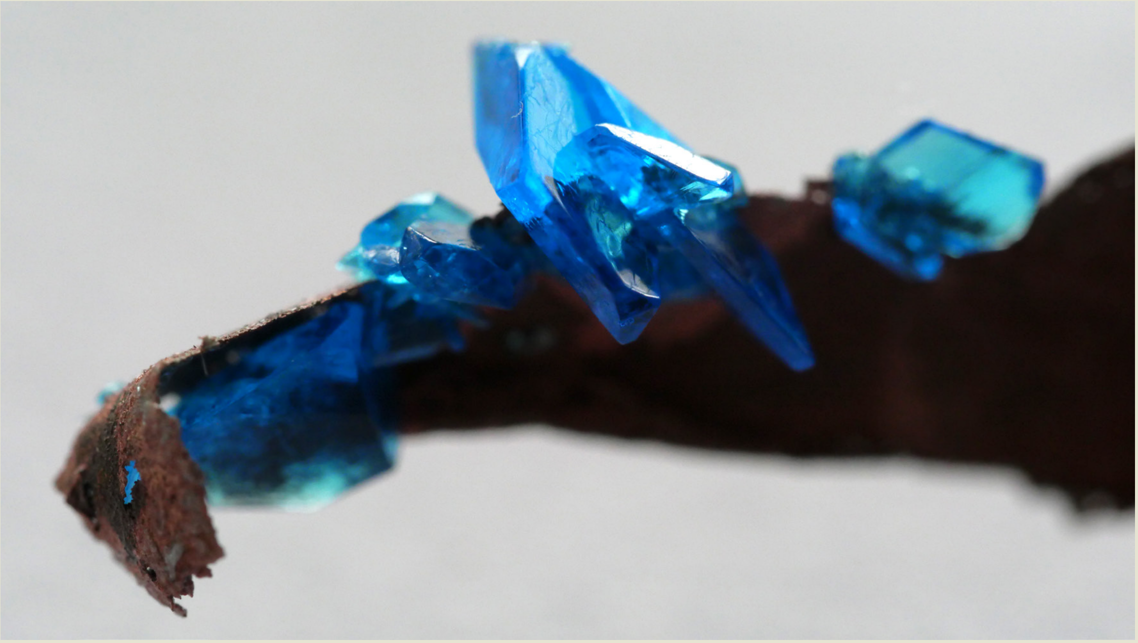
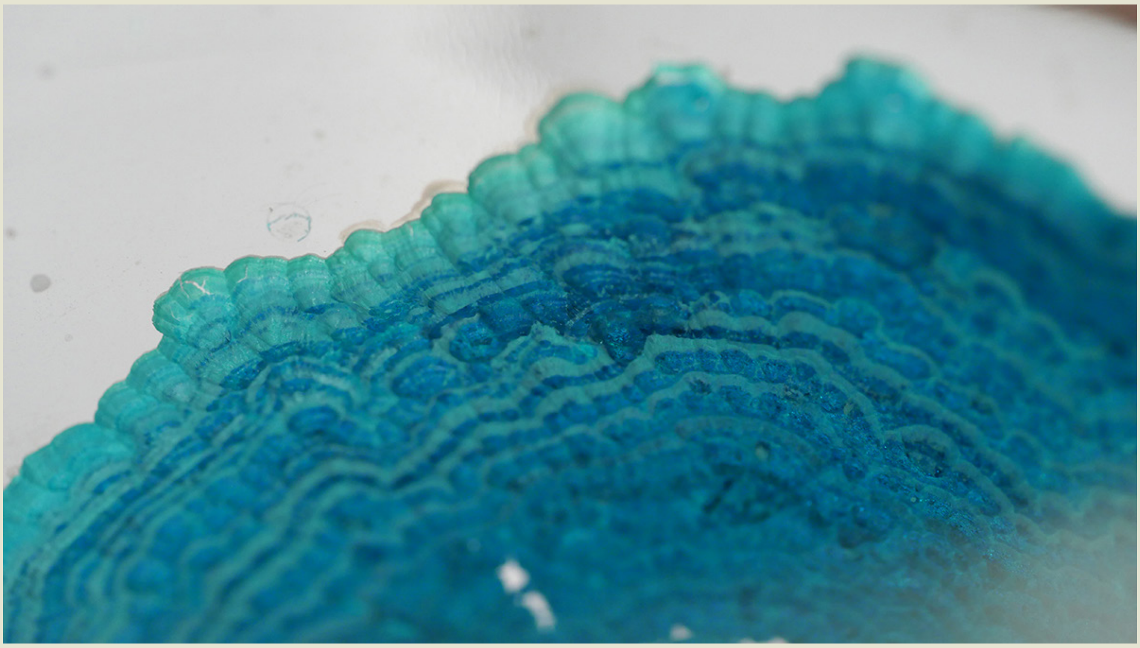
20 Some of this work is available at https://art.shelleysimpson.co.nz/stonesense.html.

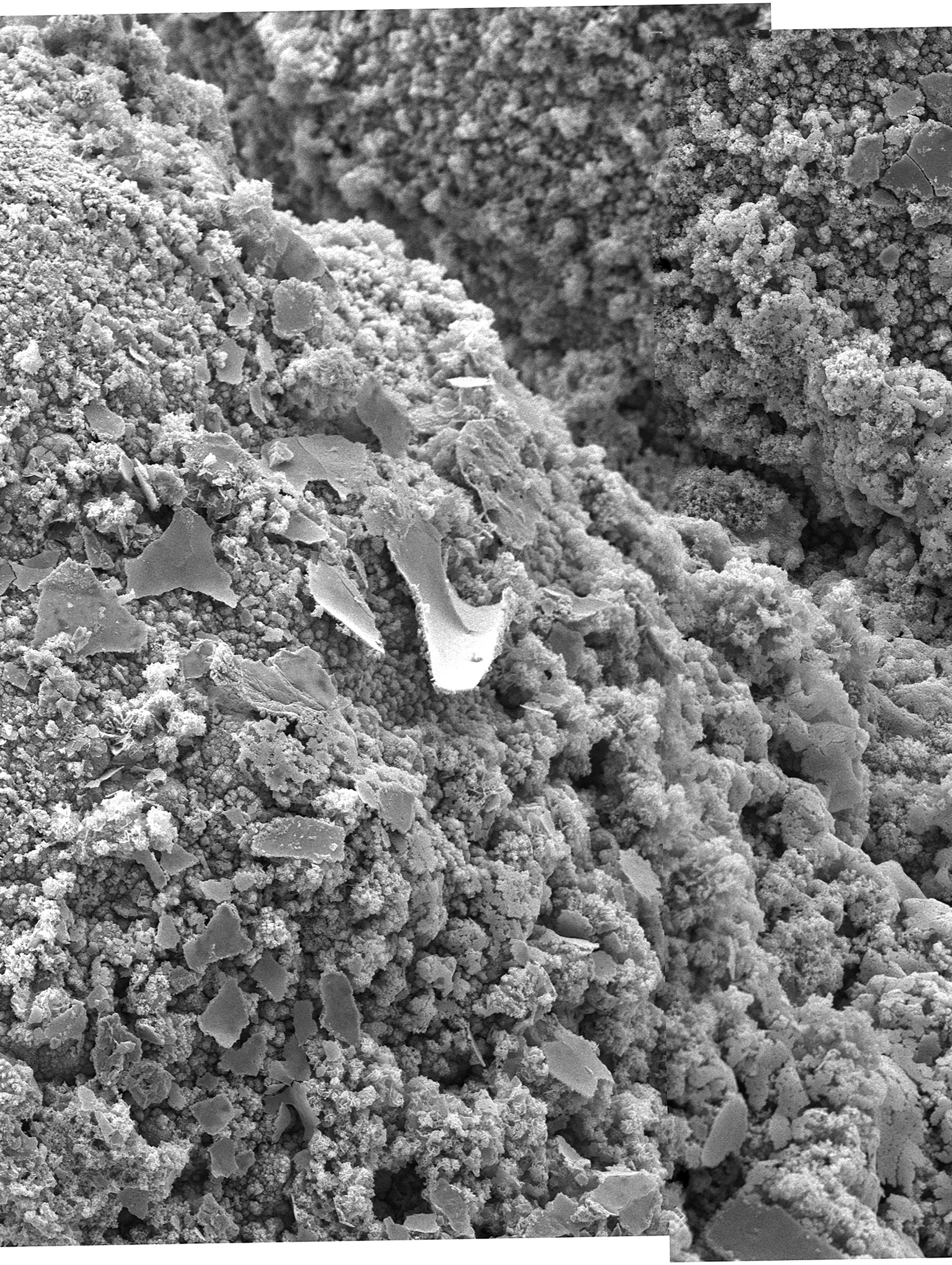
21 See Appendix B (at shelleysimpson.co.nz/stonesense) for the publication accompanying the exhibition.

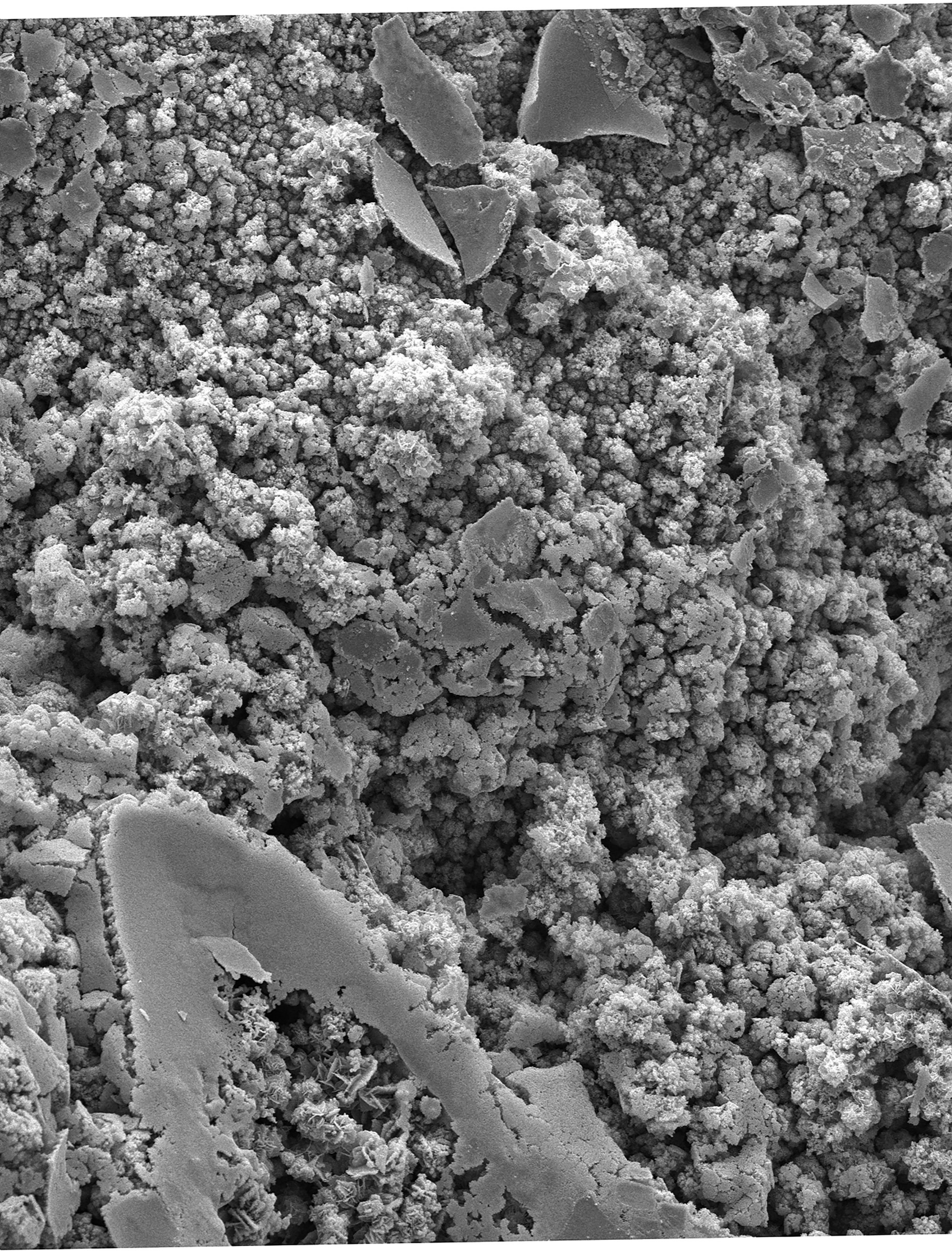
22 Electroforming is related to electroplating, a process often used in industry and craft to coat one metal surface with another. A copper object might be coated with gold, or a tin object coated with silver. Electroforming takes this process further, using the same method, but instead of coating an object, the metals form a new object. Both processes use a bath of electrolyte solution made up of salts of the metal being electroformed, a source for the metal (anode), electricity, and a base for the coating or new object (cathode).





Figures 26-29.
Experimentation with copper electroforming and copper suphate crystals, 2019.
From top left: copper sulphate crystals on copper anode; Copper sulphate growth on tank; copper electroformed on to lichen.
This page: the copper cathode (on left) and anode (on right) after electroforming.
Photographs: Shelley Simpson.





0.5 Stony Thoughts and Lithic Thinking

As my research questions became clear, so did the methodological approach. To begin with, *Stonesense* is a practice-led research and art-making project. At the beginning of my PhD studies, the methodology that I proposed was a diffractive approach that included practices from a variety of fields.[23] I wrote then, "I employ, borrow and enfold approaches and knowledge from other disciplines including history, chemistry, geology, biology, and industrial processes as well as traditional art-making practices of sculpture, painting, photography and moving image." Storied matter[24] was key to my methodology at that stage, and I was approaching materials within my art practice as collaborators in creative expression, with their own voice. As I continued to work with materials such as copper and iron, my research became focused more specifically on the mineral, and I began to see how a material-discursive approach to the mineral could provide an ontological framework for my project.[25] Astrida Neimanis' work with water was key in this development, most notably as an example of how one can 'think with' the more-than-human, and more specifically the more-than-human inside our human bodies.[26] Crucially, Neimanis positions art as a tool for helping us to think, writing:

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23 Haraway, *Modest_Witness@Second_Millennium*; Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007); Karen Barad, "Matter Feels, Converses, Suffers, Desires, Yearns and Remembers: Interview with Karen Barad," in *New Materialism: Interviews & Cartographies*, ed. Rick Dolphijn and Iris van der Tuin, 48–70 (Michigan: Open Humanities Press, 2012); Serenella Iovino, "(Material) Ecocritism," in *Posthuman Glossary*, ed. Rosi Braidotti and Maria Hlavajova, 112–115 (London: Bloomsbury Academic, 2018).

24 Serenella Iovino, and Serpil Oppermann. "Theorizing Material Ecocriticism: A Diptych." *Interdisciplinary Studies in Literature and Environment* 19, no. 3 (December 1, 2012) https://doi.org/10.1093/isle/iss087; *Material Ecocriticism* (Indiana: Indiana University Press, 2014); Serenella Iovino. "(Material) Ecocritism." In *Posthuman Glossary*, London: Bloomsbury Publishing, 2018.

25 Barad, "Matter Feels, Converses, Suffers."

26 Astrida Neimanis, *Bodies of Water: Posthuman Feminist Phenomenology* (London: Bloomsbury, 2017), 55; Astrida Neimanis, "Bodies of Water, Human Rights and the Hydrocommons," *TOPIA: Canadian Journal of Cultural Studies* 21 (May 2009): 161–82, https://doi.org/10.3138/topia.21.161.

Figure 30.
Plate iron piece from Glenbrook Steel Mill, made from iron made by smelting onepū, the black magnetic sand of the West Coast. Photograph: Shelley Simpson.

> I suggest that 'proxy stories' can be avenues for de-sedimenting our human-scaled perspective. These stories are not substitutes for embodied experience; they are its amplifiers and sensitizers. Art, for example, is an amplifier.[27]

My methodology of lithic thinking was emerging, extending to consider the body as a lithic entity and the lithic in the landscape, as well as the material aspect of this project: metal and stone.

My philosophical research journey began with an interest in posthumanism. In 2017, 2020, and 2021, I attended a summer school programme led by posthuman philosopher and feminist theoretician Rosi Braidotti at Utrecht University, the Netherlands.[28] Braidotti describes posthuman critical thought as the convergence of two areas of discourse: the first, a critique of humanism and the universalist patriarchal, colonial, and Eurocentric standard as a measure of all things human; and the second, anthropocentrism: the idea of human exceptionalism in the world. Important to the concept is the current convergence of the fourth industrial revolution and the sixth mass extinction event.[29] At the core of Braidotti's posthumanism is the idea of affirmative ethics, and she offers ways of living in this time with a focus on sustainable becoming. A posthuman ethical subject, Braidotti suggests, "practices a humble kind of hope, rooted in the ordinary micro-practices of everyday life; simple strategies to hold, sustain and map out thresholds of sustainable transformation."[30]

Because posthumanist thinking seeks to decentre the human, it sits comfortably with a turn towards the material, through new materialist

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27 Neimanis, *Bodies of Water*, 55.

28 In 2017 (Posthuman Ethics in the Anthropocene) I attended in person, while 2020 (Posthuman Convergences) and 2021 (The Posthuman & New Materialism) were delivered online due to COVID travel restrictions.

29 Rosi Braidotti, "Posthuman Convergences: Theories and Methodologies," (lecture, Summerschool Utrecht, Utrecht University, August 13, 2020).

30 Stacy Alaimo, *Exposed: Environmental Politics and Pleasures in Posthuman Times* (Minneapolis: University of Minnesota Press, 2016), 2.

discourse, including material feminism.[31] Material feminism is thinking with matter, not privileging matter over language and representation as tools of power, but rather adding the material, recognising that 'thinking' is always done with others. Feminist philosopher of science Donna Haraway emphasises the importance of recognising that all knowledge is situated, and that the binary of nature and culture must be challenged; that they are not separate but co-create the other. Feminist theorist and physicist Karen Barad's work on agential realism extends the entanglements that make up the world and recognises that agency is not held by individuals, but in relation to others, both human and more-than-human. Philosopher Michael Marder has been key for my understanding of empathy across species, particularly other animals and plants, and offers provocations about how far empathy can extend across realms of existence. These thinkers provided me with a language and framework for shifting my bounded human self, offering ways in which I could see myself as a relational being, embedded within a world of material and cultural creation. These realisations occurred alongside my growing sense of myself as Tangata Tiriti, interrogating my position as the descendant of colonisers, living in a colonised land. Māori scholars, including artist and researcher Rachel Shearer, academics Te Kawehau Hoskins and Alison Jones, Manuka Henare, Māori Marsden, and anthropologist Mere Roberts have all been crucial to my fledgling understanding of Māori epistemology and relations to matter.

With an art practice focused on minerals, the lithic realm offered posthuman and vital materialist frameworks, reaching across ontological boundaries. In my studio practice I was drawn to mineral materials such as copper, iron, and slag. These materials have primordial qualities: weightiness, hardness, and stillness, as well as processes that could trouble these perceptions; that might show them to be malleable, floaty, and in-motion.

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31 I recognise that the theoretical framing of my project could have been an enquiry into queer ecology, rather than intersectional feminism as a way to explore the diversity of the more-than-human, and to query the binaries that have been used in Euro-American concepts of nature and biology. As a cis-gendered, straight woman, the scope of this thesis is such that this approach is the more fitting for my enquiries.

Therefore I began to fold in the work of theorists who are concerned with a sense of lithic vitality, including English professor Jeffrey Cohen, whose work explores how stone has agency; humanities researcher Hugo Reinert, who calls for a more capacious understanding of mineral life; and anthropologist Kathryn Yusoff, who suggests a 'remineralisation' of human life. For an understanding of earlier philosophical thinking about minerals, I turned to philosophers Gilles Deleuze and Felix Guattari,[32] for whom metal is the exemplar of non-organic life, and writer, artist, and philosopher Manuel DeLanda's exploration of the externalisation of our bony skeleton in the walls and buildings we humans create.[33] I now (re)turn to the early theoretical grounding of my research, feminist posthumanism and the posthuman body.

32 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota, 1987).

33 Manuel DeLanda, *A Thousand Years of Nonlinear History* (New York: Zone Books, 1997).

0.6 Becoming a Posthuman Feminist Body

Posthuman feminism is a diverse response to our contemporary situation, encouraging alternative notions of political subjectivity, and moving beyond the vision of the autonomous individual.[34] Rosi Braidotti, in her 2022 text *Posthuman Feminism*, asks the age-old question of who counts as human.[35] Posthuman feminists recognise a nature-culture continuum, which challenges the opposition of nature and culture to enable a better understanding of the entanglement of human and more-than-human.[36] For the purposes of my thesis, posthuman feminism is a paradigm that shapes my worldview. The term encompasses a variety of feminisms, including ecofeminism, queer studies, Indigenous and Black studies, and material feminism.[37]

In the context of my research with its emphasis on the lithic, material feminism (as an aspect of a posthuman feminism paradigm) is fundamental.

Material feminism is in part a reaction to the uncoupling of nature and body in some feminist theory in past decades.[38] The significance of materiality was certainly diminished as 'nature' became a site for various

34 Rosi Braidotti, *Posthuman Feminism* (Cambridge: Polity Press, 2022), 6.

35 Braidotti, *Posthuman Feminism.*

36 Rosi Braidotti and Maria Hlavajova, eds., *Posthuman Glossary* (London: Bloomsbury Academic, 2018), 157.

37 Alaimo, *Exposed: Environmental Politics*; Stacy Alaimo, "Trans-Corporeality," in *Posthuman Glossary*, ed. Rosi Braidotti and Maria Hlavajova, 435–38 (London: Bloomsbury Academic, 2018); Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013); Braidotti, *Posthuman Feminism*; Donna J. Haraway, *Manifestly Haraway* (Minneapolis: University of Minnesota Press, 2016); Vicki Kirby, *What If Culture Was Nature All Along?* (Edinburgh: Edinburgh University Press, 2017); Neimanis, *Bodies of Water;* Anna Tsing, *The Mushroom at the End of the World* (New Jersey: Princeton University Press, 2015); Claire Colebrook, "On Not Becoming Man: The Materialist Politics of Unactualized Potential." *Material Feminisms*, 2008.

38 See Stacy Alaimo, "Trans-Corporeal Feminisms and the Ethical Space of Nature," in *Material Feminisms*, ed. Stacy Alaimo and Susan Hekman, 237–64 (Bloomington: Indiana University Press, 2008); Barad, *Meeting the Universe Halfway*, 381; Barad, "Matter Feels, Converses, Suffers."

Figure 31.
Slag in my sudio.
Slag is the byproduct of iron smelting at Glenbrook Steel Mill.
Photograph: Shelley Simpson.

feminist struggles. Professor of English Stacy Alaimo writes that because 'woman' had long been associated with 'nature' in Western thought, and therefore denigrated (along with people of colour, Indigenous peoples, queer and lower-class people), feminists sought to disentangle 'woman' from 'nature.' She uses, as an example, feminism's most radical concept—that gender is distinct from biological sex, predicated on a sharp opposition between nature and culture.[39] The idea of biology as destiny has been fought against by feminists on behalf of women and all others that suffered under this conceit. Recently, many feminist theorists have been shifting away from the linguistic turn and towards a reconceptualised understanding of the material world. Haraway, Barad, Alaimo, and others including Vicki Kirby, have extended feminist theory to account for the agency and dynamics of the more-than-human. Material feminism adds the material to language and representation as tools of power, recognising that 'thinking' is always done with others, both human and more-than-human. Material feminism is thinking with matter and concepts such as Alaimo's transcorporality, where bodies are entangled in a relational world. A feminist critique of deep power structures and oppression also considers the more-than-human within the broader field of the environmental posthumanities. Material feminism sees matter as lively, and in this way destabilises Cartesian anthropocentric privilege. The human body is recognised as fleshy and material; all bodies are affected by and affect all others.

39 Stacy Alaimo, and Susan Hekman, eds., *Material Feminisms* (Bloomington: Indiana University Press, 2008), 239.

For the purposes of research that moves towards a lithic body, I now briefly explore what a feminist posthuman body can be. My cartography of the posthuman feminist body in this thesis positions us as located, diverse, relational, an assemblage, material, and accountable.

> We do not know what a body can do.
> —Rosi Braidotti (paraphrasing Spinoza)[40]

The posthuman feminist body is located. Adrienne Rich, the feminist poet and writer, expressed the idea of the feminist politics of location, which insists that we must each begin by defining and recognising our position and speak from that position. This "begins with the geography closest in—the body."[41] Braidotti extends this idea to include the political and social layers of location.[42] Beginning with the body does not, however, flatten the political inequities that we are all layered within.

The posthuman feminist body is diverse. Posthuman feminism recognises that we are not one and the same; there are many different positions of power. In posthuman feminism the differences between us are recognised positively. Humanism is, as Braidotti points out, "a structural practice that affirms structural inequalities,"[43] only recognising a partial definition of the human—white, male, Eurocentric, heteronormative, and able bodied. Posthuman feminism critiques this by seeking to encourage different notions of subjectivity and the body, taking in to account the insights of LGBTQ+, ecofeminists, Black, decolonial and Indigenous feminisms. In my project, I am specifically concerned with how women artists approach questions of the body, particularly in relation to the lithic, and I discuss

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40 Braidotti, "Posthuman Convergences."

41 Rosi Braidotti, Emily Jones, and Goda Klumbyte, *More Posthuman Glossary* (London: Bloomsbury, 2022), 64.

42 Braidotti, The Posthuman; Rosi Braidotti, "Posthuman Ethics in the Anthropocene," (lecture, Summerschool Utrecht, Utrecht University, 2017); Rosi Braidotti, "'We' Are in This Together, But We Are Not One and the Same," *Journal of Bioethical Inquiry* 17, no. 4 (December 2020): 465–69, https://doi.org/10.1007/s11673-020-10017-8.

43 Braidotti, *Posthuman Feminism*, 7.

the work of a number of women artists throughout this exegesis, including Anicka Yi, Nina Canell, Cecilia Jonsson, and Pauline Rhodes.

The posthuman feminist body is relational. Agency is not something that a being or object implicitly has, but something that is being constantly created in relation to others. Following Haraway, to be 'one' is to be many, in a constant, active state of relationality with a multiplicity of 'things' that act on their own terms.[44] For Barad, the way in which the understanding of what it means to be agential needs to be reconsidered, so that the place of humans in the material world can be renegotiated—agency is a collaborative action.[45] My research is concerned with new ethical frameworks that can attend to more-than-human agents so that open approaches to possible futures can be crafted. This expanded view of agency has, at its core, the decentring of the human as the only being allowed to possess true agency in the world. The perception that the rest of the world is inert has underwritten the transformation of the world into a passive repository of resources available for human use.

The posthuman feminist body is an assemblage. As we are now aware, the human body is comprised of much nonhuman material, including bacteria, viruses, and DNA from other organisms. It is difficult to retain the idea of the human as a discreet individual. At the Posthuman Summer School in 2020, I asked Rosi Braidotti the following question, 'What would you say is important to keep in mind when defining an ethical framework for interacting with the nonhuman, so they don't end up doing all the grunt work, as Donna Haraway says?' Her answer has much to reveal about the posthuman body as an assemblage. She answered (and I paraphrase from my notes), *it is for us to ask—where is the 'other' in your assemblage? There are traces of animality, of genes in our own bodies—we need to decolonise our own bodies. Many parts of us are nonhuman, colonies of bacteria. The body is a set—to be undone. Think about how the nonhuman has been codified—we only join the nonhuman when we are dead. In*

44 Haraway, *Manifestly Haraway.*
45 Barad, *Meeting the Universe Halfway.*

pre-Socratic thought we live and die constantly, in constant transformation.[46]

The posthuman feminist body is material. Rather than seeking to separate the body from its materiality, the posthuman body is grounded in matter. The mind and body are embedded within each other. It is the materiality of the body that connects us to the world beyond our porous skins, as our external and internal states affect and are affected by each other. Thinking about the material nature of the body is part of a larger body of thought that can be called elemental feminist materialism. If material feminism is concerned with the agency of the other-than-human, elemental feminist materialism concerns itself with the natural elements of fire, water, earth, and air. This is the intersection of ecofeminism and material feminism, and cuts across bio (human life) and zoe (animal and nonhuman life).[47] Various feminist materialists focus on each of these: Yusoff on fire; Alaimo on air; Povinelli on geos; and Neimanis on water. The emphasis in this thesis is on Braidotti's "elemental bodies as transversal assemblages,"[48] in which human bodies are linked, through their elemental materiality, to plants, animals, the earth, and other kinds of matter.

The posthuman feminist body is accountable and therefore ethical. Key to posthuman ethics is the recognition of our connectedness with others, including the more-than-human. Braidotti offers the concept of posthuman affirmative ethics. In *The Posthuman*, Braidotti lists criteria for posthuman ethics, including a central role for creativity in linking theory and practice, and experimenting with actualising potential and virtual options. It is through creativity that we can explore possible futures. Braidotti argues, "The future is an active object of desire … The future is the virtual unfolding of the affirmative aspect of the present, which hon-

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46 Braidotti, "Posthuman Convergences."

47 Rosi Braidotti often refers to the realms of bio, zoe, and techno to delineate the areas of posthuman study. Braidotti, *Posthuman Feminism*, 126.

48 Braidotti, *Posthuman Feminism*, 131.

ours our obligations to the generations to come."[49] In Braidotti's posthuman theory, an ethical ethos is key to shifting the theoretical into the lived experience.[50] Posthuman theory is a way to engage affirmatively with the present, to actualise "cognitive, affective and sensorial means to cultivate higher degrees of empowerment and affirmation of one's interconnectedness to others in their multiplicity."[51] In this way, one increases ones' *potentia* (the desire to endure).[52]

This cartography of the posthuman feminist body provides key foundational understandings of the development of ideas within this exegesis, which is why I have outlined these in some detail here in the Introduction. When considered alongside lithic thinking as a methodology, the posthuman feminist body becomes, in this project, a lithic feminist body, explored at length in Chapter Two, The Lithic Body.

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49 Braidotti, *The Posthuman*, 192.

50 Braidotti, *The Posthuman*; Braidotti, "Posthuman Ethics in the Anthropocene"; Braidotti, "'We' Are In This Together."

51 Braidotti, *The Posthuman*, 194.

52 Braidotti uses *potentia*- (empowerment, the desire to endure) and *potestas* - (restrictive forces), when discussing power relations and subjective becoming. Rosi Braidotti, *Posthuman Knowledge* (Cambridge: Polity Press, 2019).

0.7 Sediments and Accretions: The Structure of This Exegesis

Earlier in this Introduction, I identified three methods that have become key to *Stonesense*: holding/releasing, floating/sinking, and layering/wearing away. In this exegesis, I discuss specific artworks and projects, exploring how these methods are significant to each of them. In addition, I use the method of layering to organise each chapter, employing the language of sedimentation to define the structure. The word sediment, from the Latin *sedēre*, means to settle or to sit.[53] Sedimentation is an active state, even in geology, as layers remain porous, and it is my intention that as I layer sections with others they inform and are informed by each other. I now turn to the structure of this exegesis.

In the first layer, Chapter One, Introducing Lithic Thought, I describe tools for lithic thinking, including approaches to the vitality of matter and how this question can be approached from an Aotearoa perspective. Within a feminist posthuman and material feminist methodology, I have outlined three theoretical spheres that form the bedrock of this project. They are material vitalism, Māori knowledge from a Tangata Tiriti perspective, and a matter-based liveliness. I describe the three methods that have become part of my art-making toolbox: holding/releasing, floating/sinking, and layering/wearing away. I explore an exhibition from the beginning of my PhD candidature, *Unthought* (2020), to situate the ways in which these methods are at work in my practice.

In the layer Chapter Two, The Lithic Body, I focus on the minerality of a (human) body. Thinking of the body as lithic, I ask what this means for our ethical relations with the world, and with other lithic bodies. I explore Alaimo's transcorporeality: seeing all bodies as in relation with all others, affected by and effecting all others. I define my concept of *lithic feminism*,

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53 *Merriam-Webster Dictionary*, s.v. "sediment," accessed March 6, 2024, https://www.merriam-webster.com/dictionary/sediment.

asking how such a body engenders a feminist subjectivity.

The next layer, Chapter Three, The Lithic Field, discusses my approach to an expanded sense of field work and site, exploring sites in the land using a diffractive approach, and as Tangata Tiriti. I explore the way in which lithic thinking has drawn me to types of places, those nodes of activity where human lithic bodies and the lithic of the earth interact—quarrying, mining, and industrial landscapes, both historic and current. I explore the ways in which sites like these are material-discursive nodes of meaning making.

In the final layer, Chapter Four, Lithic Matter, I present a definition of matter as it relates to my art-making, and discuss the concept of storied matter, tracing the development of the idea from its origins in ecocriticism. I look at how storied matter can inform visual art, including my art practice, and specifically my work with locally forged iron. I explore an approach to the use of earthly materials in an art practice that takes into account the responsibilities of a lithic feminist approach, combined with that of Tangata Tiriti. I turn to the work of contemporary Māori artists Raukura Turei and Te Ara Minhinnick, who are working with onepū, and consider the responsibilities that necessarily inform working with such a material, as Tangata Tiriti. This discussion of the material in my project leads into the planning and creation of work for my examination exhibition, *Stonesense*, and how my three methods will be present in the exhibition.

0.8 Notes for the Reader

This thesis contains multiple voices, including the academic, as I attempt to ground my practice in a contemporary philosophical field. As I write about the practicalities of field trips and art-making, the tone of this text shifts to a more personal, reflective style. Some short sections operate as side papers, delineated by shifts in paper and typeface colour. In addition, I have used different paper edge colours for chapters to strengthen the sense of sedimentation of ideas.

Images are deployed in this exegesis in several ways; as a record of process, as a way to fix moments in time on field trips, as images of installations, and as image-based artworks. Images are placed within the text to illustrate a moment or concept that is described in words, intended as an augmentation or addendum. In my practice I often create image essays to contextualise a situation, or as a tool to think with, and these are placed throughout the text. I have also included archival images, specifically when writing about historic mining practices in Aotearoa.

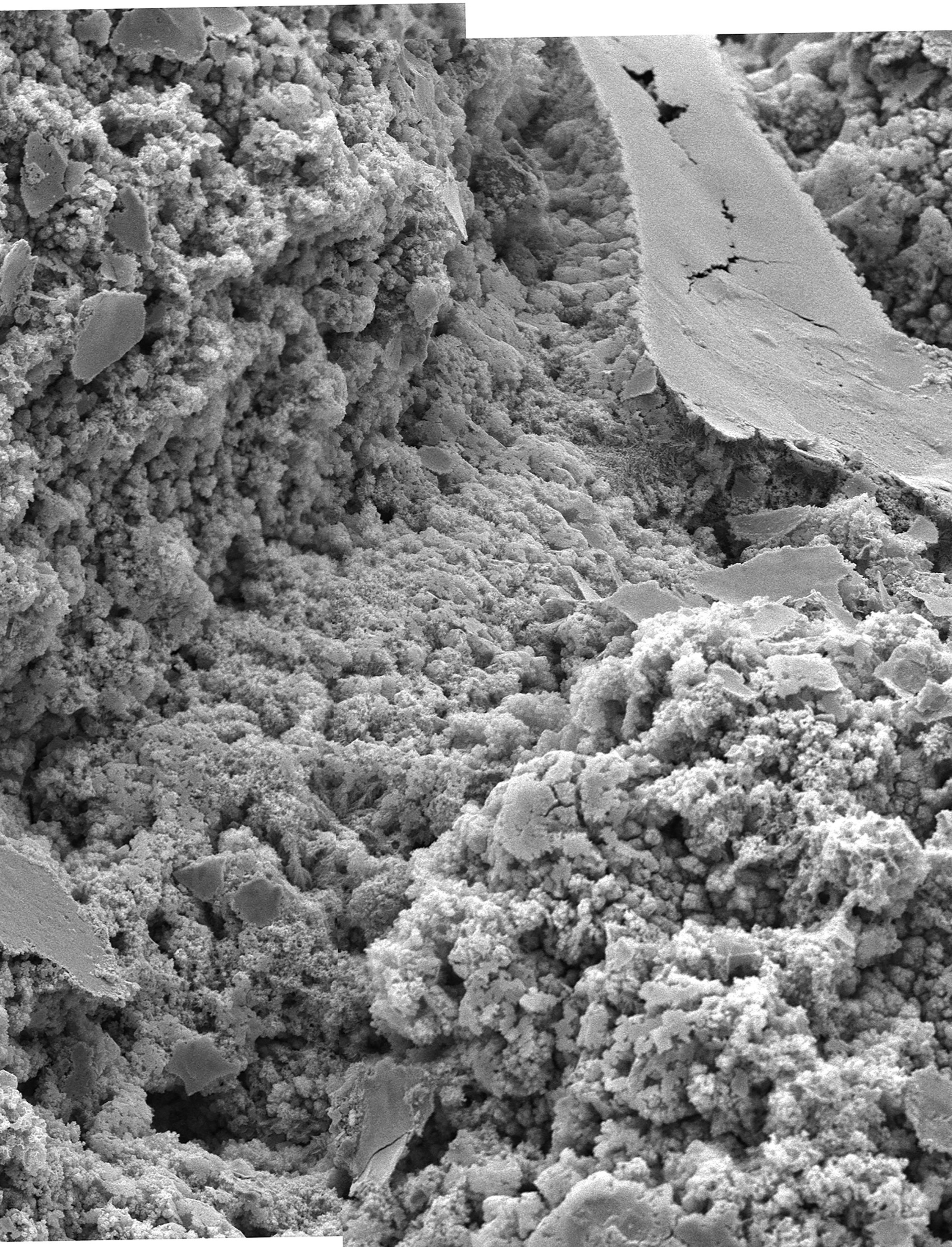
I have used Māori words throughout this exegesis, and I provide a Glossary of English translations. Te Reo Māori is an official language of Aotearoa, and therefore I do not italicise Māori words in this text.

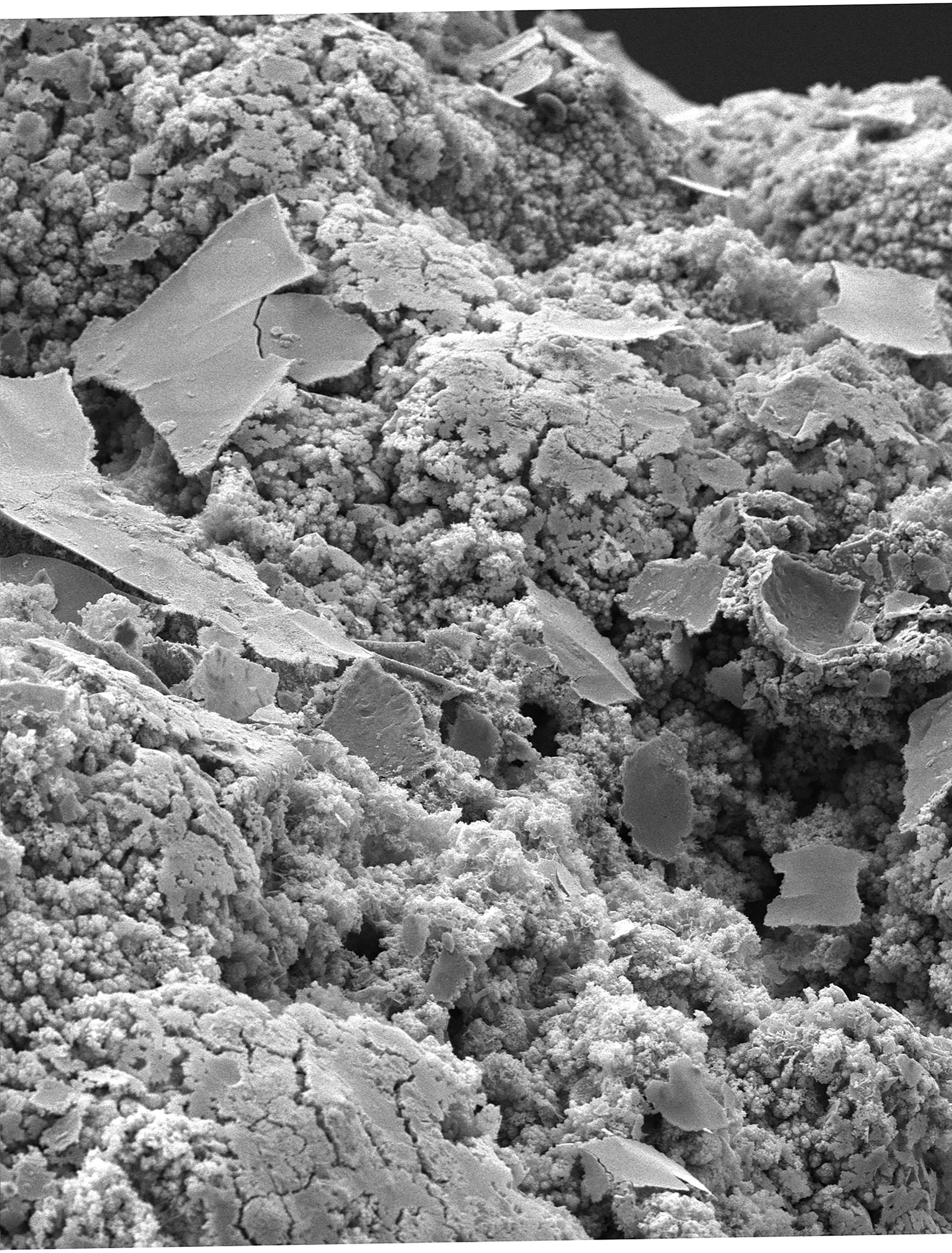
Figure 32.
The choice of paper edge colours for this exegesis originate with the colours of the iron sulphate crystals as they accrete in studio experimentations.
Photograph: Shelley Simpson.

> What if thought is not born within the human skull, but is a creativity proper to the body as a whole, arising spontaneously from the slippage between an organism and the folding terrain that it wanders? What if the curious curve of thought is engendered by the difficult eros and tension between our flesh and the flesh of the earth?[54]

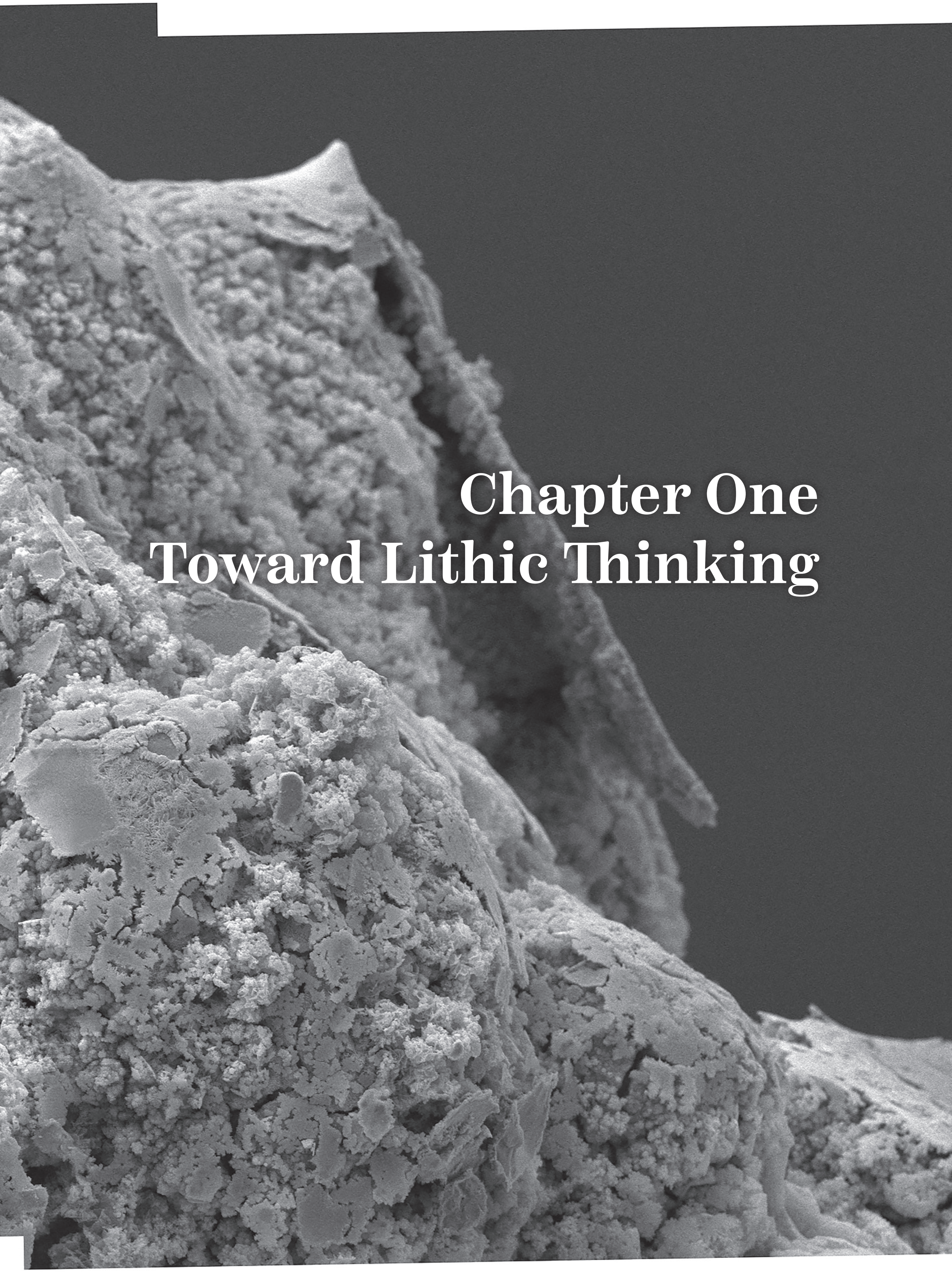
These words from ecologist and philosopher David Abram act as an invitation to consider our relationship with earthly materials; to engage in ways of thinking that extend beyond our mineral skulls, through our bodies with their stony structures of bone and out into the mineral world. *Stonesense* follows this invitation, considering what might be learnt though lithic thinking.

54 David Abram, *Becoming Animal, An Earthly Cosmology (*New York: Pantheon, 2010), 4.





Chapter One
Toward Lithic Thinking



Not everything is metal, but metal is everywhere.

—Gilles Deleuze and Felix Guattari[55]

55 Deleuze and Guattari, *A Thousand Plateaus*, 454.

Lithic (Thinking)

As an overarching word, the 'lithic' is the material realm that I am engaged with in this project. In the context of this exegesis, 'lithic' encompasses not just rocks, but also, according to the Cambridge Dictionary, "relating to or made of stone."[56] Stone, minerals, and metals are all lithic. 'Lithic' also relates to concepts such as sedimentation, and to lithic movement, such as erosion.

(Lithic) Thinking

In this exegesis, the phrase *lithic thinking* suggests that thinking is a way of engaging with the world as an artist and maker, including with material processes, rather than a cerebral, analytical process. At the 2017 summer school programme *Posthumanism and the Anthropocene*, in the context of an expanded definition of thinking and cognition, Rosi Braidotti spoke of the site of cognition as expanding, as the old Vesuvian duality of brain and body collapses, and we consider that the whole body gathers, stores, and retrieves knowledge. This is the posthumanist and post anthropomorphic subject—the brain is embodied, and the body is embrained.[57]

56 *Cambridge Dictionary*, s.v. "lithic," September 20, 2023, https://dictionary.cambridge.org/dictionary/english/lithic.

57 Braidotti, "Posthuman Ethics in the Anthropocene."

Part 1

From the iron and copper in our cells, to the molten cores of stars and every place in between, metal is indeed everywhere. All entities and geologies enfold minerals within their systems. The intellectual milieux grounded in a Cartesian taxonomic framework based on the Great Chain of Being, with humans at the top under God and the angels, then animals, then plants and minerals at the bottom, has provided a way of thinking about the world and its inhabitants as separated into distinct categories. Yet, minerals trouble these distinctions, moving across the boundaries between them, questioning the very definition of 'living' and 'nonliving.' This pervasiveness, this malleability, is at the core of what I describe in this exegesis as *lithic thinking*.

Metal as a resource has driven, and continues to drive, significant extractive activity globally, as miners go to any length to wrest useful metals from the Earth. This exigency to extract is in response to the undeniable value of metals of all kinds to human life. Today, many of us carry in our pockets an object filled with the most remarkable metals, the rare earths with their mind-bending abilities such as lithium, as well as more pedestrian metals like copper, silver, and gold.[58] However, the violence of mineral extraction on both people and the environment is often ignored or brushed aside and extraction sites become 'shadow places.'[59] The impact of the Capitolocene is most visible when considering mineral extraction and its effects on land and the climate. The environmental, human, and more-than-human suffering associated with mineral extraction seems to

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58 The iPhone contains base metals, including an estimated 33 grams (1.1 oz) of iron, 6 grams of copper, 2.7 grams of nickel, and 0.7 grams of tin. Rare earth metals, typically linked to conflict mining, including tungsten (900 mg or 0.03 oz) and cobalt (70 mg), have also been detected, as well as small amounts of precious metals like gold and silver. A hefty 10 to 15 kilograms of ore would need to be mined to produce a single smartphone. Adam Rasmi, "Scientists Put an iPhone in a Blender to Find Out What Mobile Phones Are Really Made of," *Quartz*, March 21, 2019, https://qz.com/1576186/scientists-shredded-an-iphone-to-find-out-what-its-really-made-of/.

59 Val Plumwood, "Shadow Places and the Politics of Dwelling," *Australian Humanities Review*, no. 44 (March 2008), https://australianhumanitiesreview.org/2008/03/01/shadow-places-and-the-politics-of-dwelling/.

be a price many are willing to pay for the conveniences and ease of modern life.

Lithic thinking is not only thinking about stones, minerals, metals, and their associated environmental and socio-political contexts, but a way of *approaching the world*, an ontology. I will argue in this chapter that lithic thinking means taking into account vast ranges of scale and temporality and understandings of material liveliness and stoniness. Lithic thinking asks us to consider our relational existence, with minerality as the pathway that enables connections to be traced. Lithic thinking is the shift in focus that Le Guin calls for in her 1981 poem "The Marrow." As Le Guin places the reader in an imaginary world of mineral being, she stretches the bounds of the relation of humans to the 'other.' As an ontology, lithic thinking is central to my PhD project, providing the bedrock that holds steady both the art-making process and the contextual research. In this chapter, I work through the concept of lithic thinking in both literature and in my making process; and the way they leak into each other, modifying and informing each other, and troubling perceived boundaries.

The mineral is a vast category of matter, spanning a breathtaking scalar modality. These scales stretch from the sub-atomic level (the deeply difficult to understand, wriggly world of the unseen) to the geologic and astronomical scale (planet, star, and Universe-sized realities), and every scale between. As well as scalar, mineral thinking is also a temporal exercise, with processes and timeframes that are both too fast to see and too slow to notice. From a human perspective, reorienting to these alien scales and times requires some mental and physical twisting and turning. To achieve this reorientation, we might welcome the minerals within us and without, and explore what those connections mean.

The first part of this chapter investigates philosophical paradigms from both Aotearoa New Zealand and Euro-American contexts, to unfold the conceptual layers of strata that inform my lithic thinking. As a visual artist, I find it useful to think of the theoretical cartography as a layering, a sedimentation. I turn to the Māori concept of whakapapa (genealogy),[60] connected to the notion of kete o te wānanga (baskets of knowledge),[61] as a layering of genealogical knowledge that resonates with my practice, as a Tangata Tiriti artist and researcher. As my research develops, theorists' ideas accumulate, sediment, and seep into each other, sometimes reinforcing, sometimes questioning, but always building up, accreting. There are three main philosophical strata that I investigate in relation to lithic thinking: firstly, material vitalism; secondly, Māori approaches to matter from a Tangata Tiriti perspective; and thirdly, how we might approach the question of liveliness of matter differently. The second part of this chapter explores how my methods for lithic thinking—holding/releasing, floating/sinking, and layering/wearing away—inform an art project from the beginning of my PhD candidature, *Unthought* (2020).

60 Shearer, "Te Oro o te Ao," 17. Rachel Shearer explains: "The particle 'whaka' means to cause something to happen, to cause to be. 'Papa' describes anything broad or flat and is also an abbreviation of Papatūanuku, the primordial earth mother. Whakapapa, in a literal sense, means to lay out flat or to place in successive layers … Whakapapa is an analytical tool used to understand phenomena and their connections and relationships to other phenomena, locating phenomena in space and time."

61 See Section 1.1.4.1 for a definition of kete tuatea.

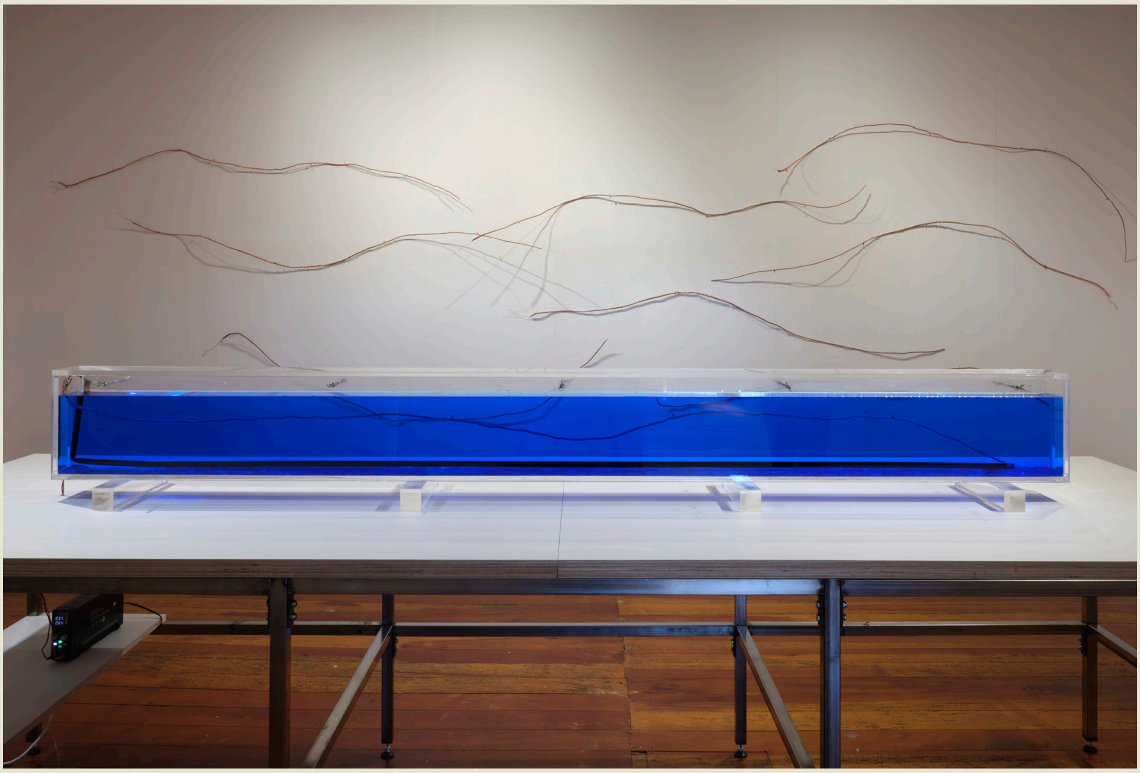

Figure 33.
Shelley Simpson, *Unthought : tank*, 2020, copper electroforming system, Tāmaki Makaurau, Corban Estate Art Centre.
Photograph: Sam Hartnett.

1.1 Bedrock, Brain and Body

As I have previously stated, feminist posthumanism and material feminism provide the theoretical bedrock for this project, which both builds on and questions strands of new materialism. A key tenet of posthumanism is to query the mind/body split that has underpinned much of Euro-American thought since the Enlightenment. Reconsidering where thinking occurs within the body, and how thinking occurs in relation to those outside the bounds of the body, expands our understanding of what cognition is. Neuroscientist and philosopher N. Katherine Hayles, in her book *Unthought, The Power of the Cognitive Nonconscious*, works to expand notions of cognition, asking who thinks and how. She describes the complex relationships between cognisors and noncognisors, looking closely at how material processes form the scaffold for cognition to occur. She writes that, rather than a binary definition of thinkers and nonthinkers, it is more useful to consider cognition as "interpenetration, continual and pervasive interactions that flow though, within, and beyond the humans, nonhumans, cognisers, noncognisers and material processes that make up our world."[62] Within the phrase *lithic thinking*, I am using the word *thinking* to refer to this complex ecology of relations. Thinking is less something that a human/animal does in her brain, and more an engagement between many different things, within and without the body, including the material, cognisors, and non-cognisors. In relation to an art-making practice, thinking expands to a material thinking, *thinking through making*, as Tim Ingold posits.[63] The title of my 2020 project and exhibition *Unthought* (December 2020 – January 2021, Corban Estate Art Centre, Tāmaki Makaurau) was taken from the title of Hayles' book, and I now turn to this project to explore how it contributed to the development of lithic thinking in my art practice.

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62 N. Katherine Hayles, *Unthought: The Power of the Cognitive Nonconscious* (Chicago: University of Chicago Press, 2017), 32.

63 Tim Ingold, *Making, Anthropology, Archaeology, Art and Architecture* (London: Routledge, 2013).

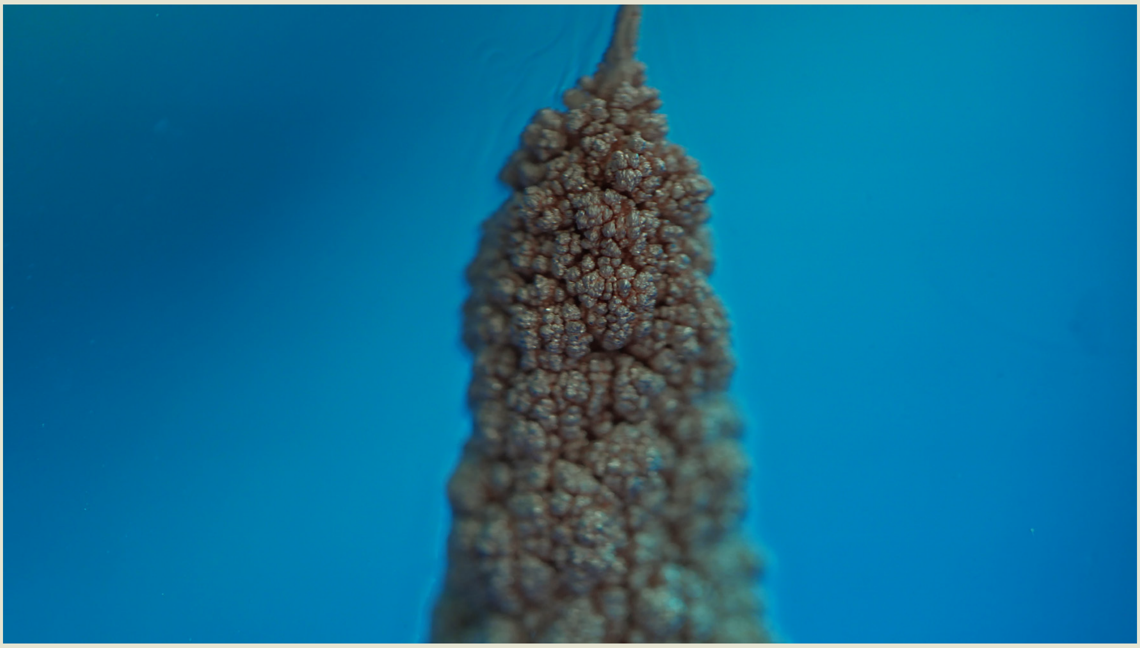

Figure 34.
Copper electroforming on to copper wire, studio experimentation, 2020.
Photograph: Shelley Simpson.

Figure 35.
Iron electroforming. The colour of the liquid is the red of iron sulphate, while the blue in the image above is copper sulphate.
Photograph: Shelley Simpson.

1.1.1 Lithic Thinking in *Unthought* (2020)

The making process toward the exhibition *Unthought* was key to the evolution of lithic thinking in my artistic making process, and part of a broader methodology that I describe in Chapter Two as 'lithic feminism.' Later in this chapter, I discuss in detail how the works that make up *Unthought* relate to the methodologies of *Stonesense*. First, I note how Hayles' expanded view of cognition was core to the project. She refers to the constant stream of decisions our bodies and brains make without our awareness. This unconscious activity provides the scaffold for our conscious thought. This type of background cognitive activity is present in all living organisms, beginning with the simplest single celled entities, and including plants and bacteria, as well as animals like us. My exhibition *Unthought* was a study of the process of electroforming, specifically of copper, and gestured towards the myriad of processes occurring below the threshold of notice. One of these unnoticed activities is that of minerals in living systems and their processes occurring at temporal and scalar levels that we are not conscious of. This level of activity has processual similarities to that of unconscious thought. These similarities happening within us help us to see how we are part of the world, not separate. This reminds us that our high-level intelligence does not separate us from the world but rather links us to processes that occur all around and within us, all the time. Recognising the common activity occurring below our notice can work to lessen the gap between us, reaching across ontological divides.
I discuss the activity of minerals in our own bodies in Chapter Two, The Lithic Body, in which I work to promote a sense of connection, along the mineral pathways that connect us to all else. I now turn to the writers and theorists who have informed my lithic thinking.

1.1.2 Approaches to Lithic Thinking

I invite the reader to imagine themselves at a conference, listening to the President of the Therolinguistics Association present their report. This is a speculative scenario, created by Ursula K. Le Guin in 1974. In the story "The Author of the Acacia Seeds, and Other Extracts from the Journal of the Association of Therolinguistics,"[64] Le Guin brings us a report on the work of the therolinguist of the future, who understand the languages of penguins, fish, dolphins, and weasels, but are yet to unlock the language of plants. As the President of the Therolinguistic Association reports:

> It will be immensely difficult. That is clear. But we should not despair. Remember that so late as the mid-twentieth century, most scientists, and many artists, did not believe that Dolphin would ever be comprehensible to the human brain—or worth comprehending! Let another century pass, and we may seem equally laughable. "Do you realise," the phytolinguist will say to the aesthetic critic, "that they couldn't even read Eggplant?" And they will smile at our ignorance, as they pick up their rucksacks and hike on up to read the newly deciphered lyrics of the lichen on the north face of Pike's Peak.
>
> And with them, or after them, may there not come that even bolder adventurer—the first geolinguist, who, ignoring the delicate, transient lyrics of the lichen, will read beneath it the still less communicative, still more passive, wholly atemporal, cold, volcanic poetry of the rocks: each one a word spoken, how long ago, by the earth itself, in the immense solitude, the immenser community, of space.[65]

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64 Ursula K. Le Guin, "The Author of the Acacia Seeds and Other Extracts from the Journal of the Association of Therolinguistics," in *The Compass Rose* (London: Gateway, 2015), Kindle.

65 Le Guin, "The Author of the Acacia Seeds," 13.

What can we learn by positioning ourselves as a geolinguist? A lithic thinking geolinguist, attentive to the musings of stone, the creaking and crunching of rocks, the silent movement of mineral atoms? In his article "About a Stone: Some Notes on Geologic Conviviality,"[66] humanities researcher Hugo Reinert imagines more inclusive research methods that "do justice to other modes of being, to an independent richness of experience."[67] Reinert references a phrase that was coined by Elizabeth Povinelli: the 'carbon imaginary,' in which the world is parsed through the lens of organic life.[68]

Povinelli proposes the carbon imaginary as a 'propositional hinge' with which we can consider the common frameworks or attitudes, anxieties, and desires towards the lively and the inert that have persisted, even as natural and cultural sciences have separated them. She writes, "The Carbon Imaginary is the homologous space created when the concepts of birth, growth-reproduction, and death are laminated onto the concepts of event, *conatus/affectus*, and finitude."[69] Povinelli suggests that, because we extend our way of existing onto everything else and refuse to acknowledge any other way of being than our own, we are, in part, reasserting the binary that allows for exploitation of the 'nonliving.'

Communicating across the animal-mineral divide is much more of a leap than communicating within this carbon imaginary. Our limitations

66 Reinert, "About a Stone"; Jeffrey Jerome Cohen, "Feeling Stone," *SubStance* 47, no. 2 (2018): 24, https://doi.org/10.1353/sub.2018.0016. Cohen also speaks of the convivial, writing that to see stone as a lively substance, not just a "spur to human feeling," one must discover "those interspaces where humans and stones show themselves convivial."

67 Reinert, "About a Stone," 106.

68 Kathryn Yusoff and Mat Coleman, "On Biopolitics and the Anthropocene: Elizabeth Povinelli, Interviewed by Kathryn Yusoff and Mat Coleman," *Science and Space*, 2014, https://www.societyandspace.org/articles/on-biopolitics-and-the-anthropocene.

69 Elizabeth A. Povinelli, *Geontologies: A Requiem to Late Liberalism* (Durham: Duke University Press, 2016), 37.

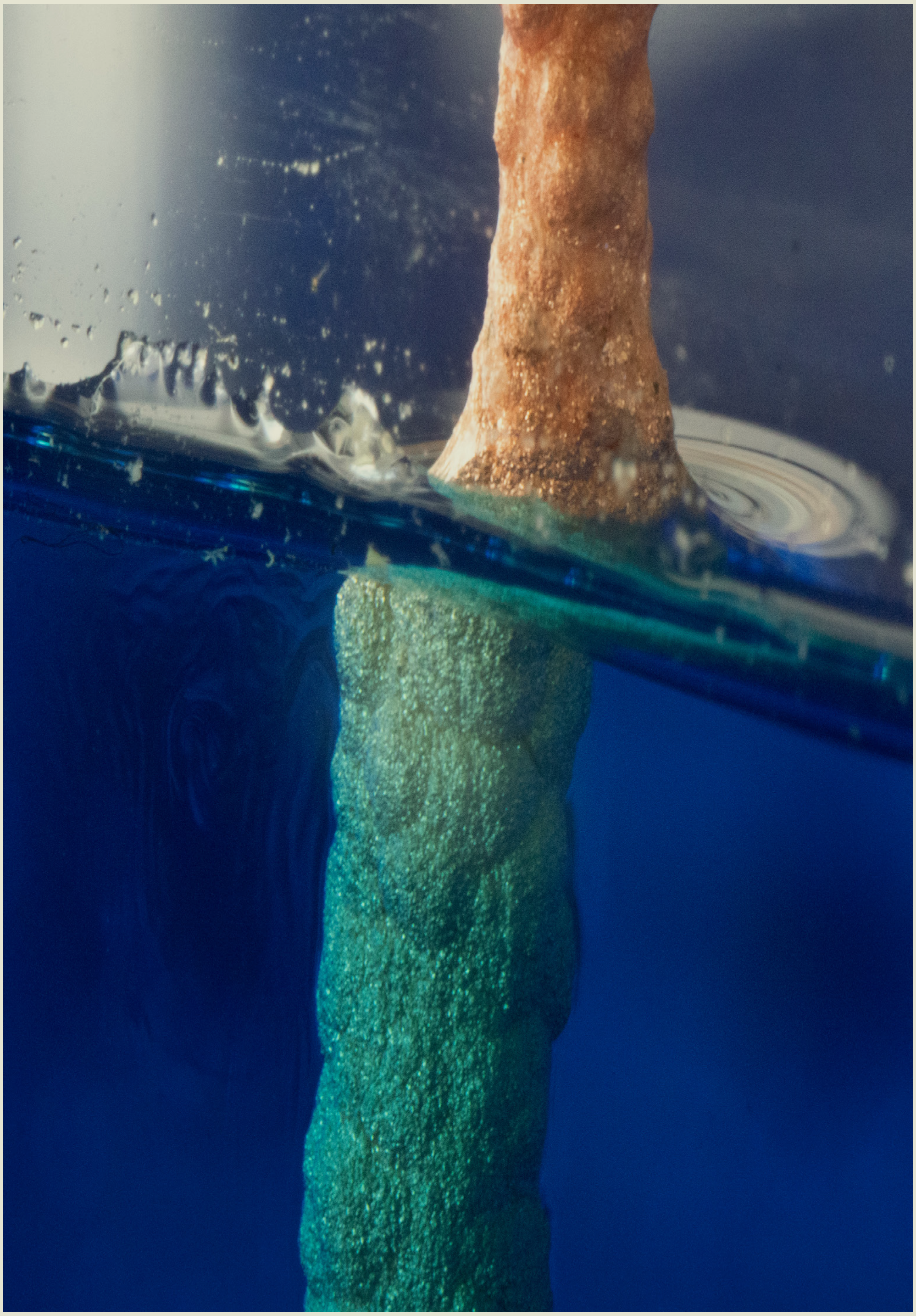

Figure 36.
Copper electroforming. In this close up image, the activity in the liquid around the growing copper object can be seen.
Photograph: Shelley Simpson.

here are a restriction, or a paucity of imagination and experience. Reinert offers several techniques of relation, which can be "involved in gaining particular knowledge, not so much *of* the stone as *with* it"[70] (emphasis in the original). Specifically, Reinert issues a call to "slow down," suggesting that, in these times of planetary crisis and critical urgency, slowing down can allow space for questioning. He continues, "to slow down is to make space for other questions, other arrangements, other possibilities of existence."[71] Slowing down also provides, he suggests, "space for thinking inorganic relationality otherwise … to explore some of the ways in which stone-human relations might move across scales (and kingdoms)."[72]

In 2021, for the symposium Ngā Tohu o te Huarere: Conversations Beyond Human Scales in Te Whanganui-a-Tara/Wellington, Australian curator Perdita Phillips curated an online exhibition titled *Tectonics: Bringing Together Artistic Practices United by Lithic Thinking Beyond Human Scales.* Phillips brought into conversation a group of artists whose work reflected an interest in geologic timescales, referring to this framing as "tectonic thinking" and "lithic thinking." Phillips proposes that, for these artists, "Tectonic thinking looks at social, ecological, political, and human issues through the lens of 'deep time', particularly recognising forces causing change at different scales: from the local and structural to the significant or considerable. It reverses the polarity of human-centred reasoning."[73] With a focus on geologic deep-time, the artists in this exhibition offer various 'techniques of relation,' which might, as Reinert suggests, allow space for questioning.

There are three strata of discourse that inform my thinking through art-making practice for building lithic techniques of relation. Firstly, I

70 Reinert, "About a Stone," 107.
71 Reinert, "About a Stone," 112.
72 Reinert, "About a Stone," 111.
73 Perdita Phillips, *Tectonics: Bringing Together Artistic Practices United by Lithic Thinking beyond Human Scales* (Fremantle: Lethologica Press, 2021), 3.

work with the philosophies developed over the last two decades by post-humanist thought and strands of material vitalist thought. As a response to the social and ecological crisis humanity finds itself in the 21st century, the attribution of vitality to all matter has provided a paradigm of hope; that, by ascribing a liveliness to all, a more empathic and ethical way of being in the world might arise. For authors such as Deleuze and Guattari, Jane Bennett, and Cohen, a material vitalism includes assigning ‘life’ to the lithic, exploring the ways in which the lithic is ‘like’ us. Secondly, I consider Māori concepts of mauri (life essence), wairua (spirit), and hau (vital essence) which offer a framework for situating the human as one aspect of a universe filled with lively others. In mātauranga Māori, the lithic and the human both inhabit a universe where one is not hierarchically above another. And thirdly, I explore alternatives to materialist vitalist approaches that critically consider the material relationships between our bodies and the earth, positioning ‘life,’ including humanity, as part of the earth’s deep history. These views, drawing on the work of Yusoff, DeLanda, and Nail, approach the question of our existence from a material perspective—we are *of* the earth.[74] Rather than assigning ‘life’ to matter (and matter’s movement), it is matter itself that, as philosopher Thomas Nail says, “created life, and not vice versa.”[75] I now turn to exploring these three strata in more depth, beginning with lithic vitality.

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74 Kathryn Yusoff, “Geosocial Strata,” *Theory, Culture & Society* 34, no. 2–3 (May 2017), https://doi.org/10.1177/0263276416688543; DeLanda, *A Thousand Years*; Thomas Nail, “What’s the Matter with Life?” in *Life in the Posthuman Condition*, ed. S. E. Wilmer (Edinburgh, Edinburgh University Press, 2023), https://doi.org/10.1515/9781399505291-016.

75 Nail, “What’s the Matter with Life?” 247.

1.1.3 Lithic Vitality

I began this chapter with a quote from Deleuze and Guattari, "Not everything is metal, but metal is everywhere."[76] In *A Thousand Plateaus*, Deleuze and Guattari give metal a primary role in the concept of a non-organic life. They argue that the machinic phylum, or the flow of matter, is essentially metallic or metallurgical. The quality of metals is different to other materials used to make things (like wood and clay), because of the continuous variations that metals undergo. They write, "in short, what metal and metallurgy bring to light is a life proper to matter, a state of matter as such, a material vitalism that doubtless exists everywhere but is ordinarily hidden or covered, rendered unrecognisable, disassociated by the hylomorphic model."[77] Metallurgy, they suggest, is the "consciousness or thought of the matter-flow." Metal is everywhere: "even the waters, the grasses and varieties of wood, the animals are populated by salts or mineral elements." As such, "metal is the conductor of all matter."[78] They highlight the activity in metal as that which is not quite body and not quite spatial, and argue that it is better imagined as a quivering, an effervescence, an indefinite or non-purposeful suspense. This quivering, or vital force of metal is not immediately apparent to us, because we need to perceive the world at a certain speed and scale, otherwise we cannot survive.

As a reaction against the dualism between passive matter and a divine 'life force,' Deleuze has interpreted the work of earlier philosophers, including Baruch Spinoza and Henri Bergson, and concluded that concepts such as 'vitality,' 'striving,' and 'force' are "immanent to reality" rather than a metaphorical substance, separate from bodies in motion.[79]

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76 Deleuze and Guattari, *A Thousand Plateaus*, 454.

77 Deleuze and Guattari, *A Thousand Plateaus*, 454. Hylomorphism (from Greek hylē, 'matter,' and morphē, 'form') is, in philosophy, a metaphysical view according to which every natural body consists of two intrinsic principles, one potential, namely, primary matter, and one actual, namely, substantial form.

78 Deleuze and Guattari, *A Thousand Plateaus*, 455.

79 Nail, "What's the Matter with Life?" 242.

This material vitalism resonated deeply with a generation of posthuman philosophers (Braidotti, Haraway, Barad, Bennett, and others) who were reacting against the anthropocentrism of much post-Kantian philosophy. From a material vitalist position, the sense that metal has a type of 'life' extends to all matter. As political theorist and philosopher Jane Bennett writes in *Vibrant Matter, a Political Ecology of Things*, we need to "rattle the adamantine chain that has bound materiality to inert substance and has placed the organic across a chasm from the inorganic."[80]

But what is this vitality, this aliveness, particularly as it is ascribed to the lithic? Considering this question is core to defining what lithic thinking might be. English professor Jeffrey Jerome Cohen writes that we are impoverished in the criteria that we use when we decide whether something is alive or not. Cohen calls for a more capacious way of inhabiting our world, one that might widen the way we think of what 'life' is. Cohen has written extensively on stone.[81] He asks, might stone possess a kind of life? Stone moves, exerting relentless force. Stone transforms itself into strange new forms. Stone penetrates organic life by providing hard structures. Cohen suggests, "we reveal our own stoniness in the lithic urban exoskeletons we construct."[82] In what other ways can we be more capacious in our regard to considering the vitality of the other, especially those that are not easily recognisable as *alive like us?* Next, I turn to the second strata of discourse, how mātauranga Māori approaches the vitality of matter.

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80 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010), 57.

81 Jeffrey Jerome Cohen, *Stone: An Ecology of the Inhuman* (Minnesota: University of Minnesota Press, 2015); Jeffrey Jerome Cohen, "Feeling Stone," *SubStance* 47, no. 2 (2018), https://doi.org/10.1353/sub.2018.0016.

82 Cohen, "Feeling Stone," 34.

1.1.4 Mātauranga Māori and More-Than-Human Others

In 2023 I enrolled in a yearlong Te Reo Māori class at Te Wānanga o Aotearoa. I was able to complete two terms of the course where I learnt correct pronunciation, greetings, counting, pronouns, and the beginnings of tenses and other grammar. I also began to understand some key ideas such as whakapapa and pepeha (introducing oneself). This basic introduction has enriched my engagement with Māori researchers such as Rachel Shearer and Manuka Henare, while at the same time reinforcing my understanding that there is a lot of work for me to do. As Tangata Tiriti, I do not wish to engage in recolonisation in relation to Māori knowledge in my research, but to respectfully recognise kaupapa Māori (Māori principles) as they relate to the field I am engaged with. I work with earthly materials, which can have their origin as sacred whenua (land) in Aotearoa and hold significance for tangata whenua (Indigenous people). My position as a descendant of European settlers dictates my engagement with these materials, which I discuss further in Chapter Four of this exegesis. Without a whakapapa connection or comprehensive understanding of mātauranga, my intention is to acknowledge the value of Māori scholarship from my position of location as Tangata Tiriti in Aotearoa. In my research, located as it is in Aotearoa and being completed by a Tangata Titiri researcher, allowing a more capacious consideration when considering vitality invites an engagement with Māori scholarship. In "Non-Human Others and Kaupapa Māori Research," Te Kawehau Hoskins and Alison Jones offer a possible pathway for this engagement, specifically in relation to the vitality of the material.[83]

Hoskins and Jones explore Hongi Hika's moko (facial tattoo), which he used as a drawn signature on paper as an "organic speaking subject." (fig.37) Hongi Hika signed a land deed at Kerikeri in 1819, by drawing his

83 Te Kawehau Hoskins and Alison Jones, "Non-Human Others and Kaupapa Māori Research," in *Critical Conversations in Kaupapa Maori*, ed. Te Kawehau Hoskins and Alison Jones, 48–59 (Wellington: Huia, 2017).

Image redacted due to copyright.

Figure 37.
Hongi Hika drew his moko to sign a land deed in 1819 at Kerekere.

moko to seal the sale of a parcel of land to the Church Missionary Society for forty eight axes.[84] Hoskins and Jones consider the ways in which the materiality of the moko reveals a vitality, a vibrancy that is difficult to describe in English, but in Te Reo Māori is easily expressed and understood through the mauri (life force) and the hau (cosmic power/breath) of the drawn moko itself. They discuss challenges in working across Māori ontology and Euro-American concepts of posthumanism and new materialism,[85] adding, “Indigenous and new materialist ontologies come face to face, recognising the other, engaging maybe in an exchange of hau breath. We recognise the politics of this situation: the power dynamic at work between western and indigenous thought systems.”[86] Yet they also describe their uncertainty about how to proceed methodologically: “Maybe this does not matter. Maybe the provocation is to encounter uncertainly the object world. This suggests method as an ongoing struggle and as constant attempts at connection rather than a set of rules for procedure.”[87] As an artist working with a sculptural practice that uses materials which have their origin in the earth, and with a desire to recognise the liveliness of these earthly materials, I engage with a multiplicity of knowledge systems, recognising the ways in which I am embedded within this ‘power dynamic.’ To some people in Aotearoa, my artistic practice might act as a provocation, bringing complexities around my right to explore politics of sacred earthly whenua (land) into focus. With this uncertainty of how to proceed in mind, I now turn to Manuka Henare and his explanation of the Māori concepts of mauri, hau, tapu, mana, and wairua, and, as Hoskins and Jones suggest, to avoid collapsing or even comparing mauri and hau with “thing power.”

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84 New Zealand Ministry for Culture and Heritage Te Manatu Taonga, “Grant of Land at Kerikeri,” Web page (Ministry for Culture and Heritage Te Manatu Taonga), accessed April 23, 2024, https://teara.govt.nz/en/zoomify/27994/grant-of-land-at-kerikeri.

85 Hoskins and Jones, “Non-Human Others,” 55.

86 Hoskins and Jones, “Non-Human Others,” 55.

87 Hoskins and Jones, “Non-Human Others,” 53.

Manuka Henare introduces Māori epistemology in his article "Tapu, Mana, Mauri, Hau, Wairua: A Maori Philosophy of Vitalism and Cosmos." He describes how at the heart of the creation process is an understanding that humanity and all things in the natural world are "always emerging, always unfolding."[88] All things, whether material or non-material, have a life that is independent of the thing itself. Furthermore, he writes that Māori do not see themselves as separate from the earth; rather, humans *belong to* the earth.[89] Henare provides definitions of the key terms tapu, mana, mauri, hau, and wairua, describing how each of these contribute to a Māori view of vitalism. Although there is difficulty in translating these ideas into English, we can understand these terms as aspects of a life force that animates and imbues all forms and things in the cosmos.
Henare defines the following terms:

> *Tapu* – a cosmic power imbued in all things at the time of creation, and is the understanding that once a thing is, it has within itself a real potency, or mana. There are many types of tapu. Ecosystems and the environment are tapu and need to be treated with respect in order to maintain balance and harmony, so that potentialities can be fulfilled.
> *Mana* – religious power, authority and ancestral efficacy.
> *Mauri* – a life essence, a life force, a vital principle originally possessed by Io, the Primary Life Force and Supreme Cosmic Being. Everything has its own mauri that permits these things to exist within their own realm or sphere.
> *Hau* – a cosmic power and vital essence embodied in all persons and things – the very essence of vitality.
> *Wairua* – a spirit akin to a soul.[90]

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88 Manuka Henare, "Tapu, Mana, Mauri, Hau, Wairua: A Maori Philosophy of Vitalism and Cosmos," in *Indigenous Traditions and Ecology: The Interbeing of Cosmology and Community*, ed. John Grim (Cambridge, MA: Harvard Press, 2001), 198.

89 Henare, "Tapu, Mana, Mauri, Hau, Wairua," 207–12.

90 Henare, "Tapu, Mana, Mauri, Hau, Wairua," 202.

Henare writes, “according to Māori, all things in creation have had a tinana (body), a wairua, a mauri and a hau. This fundamental assembly of life forces give ‘form and energy to all matter.’”[91] It is important for this research to include these terms and their definitions, recognising the complexity of mātauranga Māori in relation to questions of the vitality of matter.

How is the lithic considered in mātauranga Māori? In her PhD exegesis “Te Oro o te Ao: The Resounding of the World,” artist and researcher Rachel Shearer (Te Aitanga ā Māhaki, Rongowhakaata, Ngāti Kahungunu) considers “the role of sonic practices in listening to the earth.”[92] Shearer examines what happens “when questions asked in context of Pākehā knowledge frameworks are also asked within Māori knowledge frameworks.”[93] In particular, she brings attention to the tension between new materialist scholarship and Māori epistemology, specifically the difficulty in translating Māori concepts, such as mauri, into English in order to compare them with vitalism.

As part of her research considering the materiality of the earth, she synthesises the work of Pākehā ethnographer Elsdon Best (1856-1931) in regard to the whakapapa of kōhatu (rock). Best records that Tāne, (atua of the forest), and Hinetūparimaunga, (atua of cliffs and mountains), were the grandparents of rock, stones, ocean reefs, grassland, and sand. Tāne was also the progenitor of Hinemoana, the ocean maid who was personification of the ocean. Hinemoana was endlessly attacking Papatūānuku, the earth mother. Rakahore, (creator of all rock forms), Hinetuakirikiri (personification of rock and gravel), and Hineone (personification of sand) are appointed to protect Papatūānuku from the ceaseless assaults by Hinemoana.[94]

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91 Henare, “Tapu, Mana, Mauri, Hau, Wairua,” 210.

92 Shearer, “Te Oro o te Ao,” 3.

93 Shearer, “Te Oro o te Ao,” 15.

94 Elsdon Best, *The Māori* (Wellington: Board of Maori Ethnological Research and The Polynesian Society, 1923), 163, quoted in Shearer, “Te Oro o te Ao,” 20.

It is in relation to the whakapapa of kōhatu that Shearer suggests a way of navigating between two worldings, or epistemologies: mātauranga Māori and vitalist thought. She writes,

> Here, relationships between water, rock and stones are established as is the role of kōhatu as a protective shield for the land. Post-anthropocentric and new-materialist philosophies make connections between the sciences and humanities through notions of energy and affect. Indigenous 'beliefs' can equally be symbolic or allegorical references to 'scientific fact' and the energetic relationships between entities. Affective relations between entities, between humans and non-humans, are fundamental to perceptions of a processual, immanent, vital, and connected universe expressed in whakapapa as it is for a vitalism re-positioned in metaphorical terms as a 'tool' of theoretical and social analysis.[95]

Māori knowledge of the lithic is a layer in the sedimentation of theoretical and felt cultural knowledge in my project. While recognising the difficulties and sensitivities in working with concepts from a culture that is not my own, and to which I have no whakapapa (genealogical) connection, I believe there is a role for me as Tangata Tiriti. This includes correctly citing Māori published scholarship, bringing to the fore cross-cultural understandings, and recognising that there is complexity in how to proceed when working with rocks and earth, and to sit with uncertainty with openness.

95 Shearer, "Te Oro o te Ao," 21.

1.1.4.1 Kōhatu and Whakapapa

Whakapapa (see Glossary) is a layered Māori concept of the genealogy of all living and non-living things; it encompasses the layers of the earth's strata and all kōhatu (stones and rocks). In "Revisiting 'The Natural World of the Māori'",[96] Mere Roberts traces the development of the nature-culture divide in Western thought and offers aspects of Māori epistemology from many Māori scholars that challenge scientific thought. Roberts describes whakapapa as "a series of coordinates arranged upon a collapsed time-space genealogical framework."[97] She shows how key principles of whakapapa function, specifically in the more-than-human world, by using two examples, the whakapapa of kūmara (sweet potato) and of lizards. Firstly, whakapapa acts to ascribe the origins of each known thing, tracing back to one of the children of Ranginui or Papatūānuku. Secondly, more-than-human whakapapa provides a "'taxonomic framework' for ordering and classifying things, and thereby 'making sense of the world'."[98] The relational ontologies that describe the relatedness of things in more-than-human whakapapa can cross scientifically defined species and kingdom groupings, so plants and animals can inhabit the same whakapapa as non-biological things like stars. Roberts writes, "The rationale for this appears to be based on the fact that non-human whakapapa represents a temporal as well as a spatial 'mind map' of terrestrial ecosystems and cosmological relationships relating to particular species and objects within a particular tribal area."[99] She quotes anthropologist Grant Gillett, who suggests that this way of understanding the world reveals a subjective *engagement with the world*, rather than an objective *looking at the world.*[100]

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96 Mere Roberts, "Revisiting 'The Natural World of the Māori,'" in *Huia Histories of the Māori: Ngā Tāhuhu Kōrero*, ed. Danny Keenan (Wellington: Huia, 2012).

97 Roberts, "Revisiting 'The Natural World of the Māori,'" 40.

98 Roberts, "Revisiting 'The Natural World of the Māori,'" 41.

99 Roberts, "Revisiting 'The Natural World of the Māori,'" 41.

100 Roberts, "Revisiting 'The Natural World of the Māori,'" 44.

Whakapapa is not only held by people, entities, and objects. Knowledge itself has a whakapapa. The whakapapa of knowledge is represented in the genealogical chants of the supernatural being Tāne who, in some traditions, ascended to the heavens to obtain the three kete o te wānanga, or baskets of knowledge. "These are the three baskets of knowledge obtained for mankind by the god Tāne, known primarily as the god of the forests and all that dwells within them. To acquire the baskets of knowledge, Tāne had to ascend to the twelfth heaven, to Te Toi-o-ngā-rangi, and there be ushered into the presence of the Supreme God, of Io-matua-kore himself, to make his request."[101] The baskets he brought back are te kete tuauri (basket of sacred knowledge, karakia and ritual), te kete tuatea (basket of the knowledge of war, agriculture, woodwork, stonework, and earth work) and te kete aronui (basket of peace, goodness and love).[102]

It is tempting to see a relationship between the sedimentation or layering of research that I have spoken about in this chapter and the concept of whakapapa. I can see that this exegesis is itself a container holding a sedimentation of ideas. I wonder if cartography is a kind of whakapapa, a tracing of ideas back to their origin. To be able to define the parameters of this project, both theoretically and in practice, I felt I needed a construction, a container for holding, a way of placing all the parts of the project together in a way that enabled a sense of cohesion but didn't lock it all down too tightly. I was excited when I read about the concept of te kete tuatea,[103] the basket of knowledge that, among other things, holds knowledge of stonework and earthwork. Could I use the framework of te kete tuatea as a way of structuring or holding the lithic thinking of my exegesis? As a researcher, I am accustomed to being able to approach concepts and ideas from any reputable source. It may be that I do not have the capability to fully appreciate or enfold such knowledge into my worldview, due to my own

101 *Te Aka Māori Dictionary*, s.v. "kete o te wānanga," accessed May 16, 2023, https://maoridictionary.co.nz/word/38698.

102 Elsdon Best, *Maori Religion and Mythology Part 1* (Wellington: Te Papa Press, 2005), 103. First edition published 1924.

103 *Te Aka Māori Dictionary*, s.v. "kete tuatea," accessed May 16, 2023, https://maoridictionary.co.nz/word/15882.

lack of resources (intellectual or spiritual). As Tangata Tiriti, however, I am aware and accept that not all knowledge is automatically mine to use, regardless of my abilities. After consulting with artist and academic Layne Waerea (Te Arawa, Ngāti Kahungunu), I understand that a concept like te kete tuatea is part of a much larger interconnected body of mātauranga Māori that is too vast for the scope of this thesis to delve into. Nonetheless, it is important for me to describe in this chapter the relevant Māori concepts as they relate to me, as a Tangata Tiriti researcher.

Kōhatu (rock) holds specific cultural significance in a Māori worldview, both historically and in contemporary Aotearoa. When Tāne brought the kete o te wānanga from the heavens, he also carried two small, sacred stones with him: a white stone named Hukatai and a red stone named Rehutai.[104] Best writes that these stones were to be placed in the whare (house), one to the east of the rear post of the whare and one to the west.[105] Scholar Māori Marsden describes a ritual that occurred at the Wānanga (place of learning), when tauira (students) began and ended their study. When a selected tauira arrived at the whare Wānanga, they would place the white stone Hukatai in their mouth and pretend to swallow it. The white stone is the sea foam in the wake of a canoe moving through the ocean, representing the pursuit and accumulation of knowledge. This action was a reminder that knowledge was sacred and to be nurtured and treasured. Once a tauira graduated, they repeated the ritual, this time with the red stone Rehutai, symbolising sea spray, glowing red in the sunset. Swallowing the red stone represents the centering and organisation of learnt knowledge. Describing this process of knowledge integration, Marsden writes, “by mediation in the heart, the centre of one’s being, illumination comes suddenly in a moment of time, and the unorganized set of ideas suddenly gel together to form an integrated whole in which the tensions and contradictions are resolved. Knowledge is transformed into

104 Māori Marsden, *The Woven Universe: Selected Writings of Rev. Māori Marsden*, ed. Te Ahukaramū Charles Royal (Ōtaki: Estate of Rev. Māori Marsden, 2003), 56.

105 Best, *Maori Religion and Mythology*, 104.

wisdom."[106] Best also records the use of rongo stones in food cultivation, particularly at harvest times, when these stones, which Best describes as mediums or abiding places for the atua Rongo, God of cultivation and peace, would be buried in the fields to ensure a good harvest.[107]

The idea that stones hold powerful energies such as mana and mauri is an active proposition in contemporary Aotearoa, as evidenced by our national sporting teams, who are presented with and hold mauri stones. The Silver Ferns netball team have a large pounamu (greenstone) which holds the mauri of the team and acts as a kaitiaki, giving the members of the team spiritual protection.[108] The All Blacks men's rugby team also have a pounamu mauri stone, which encompasses the team's mana and travels with them on overseas tours.[109] Stones are also placed in the foundations of public buildings, such as museums, during new builds and renovations. In 2005, a mauri stone was buried under the foyer entrance to Tāmaki Paenga Hira Auckland Museum. The Museum state on their website that the stone provides the life-force of the museum, and that, "silently and invisibly, it regulates the energy flowing in, out and around the building and whenua, providing guardianship to all who are in the Museum—people and taonga."[110] A mauri stone might also be placed in the foyer of a building, such as Te Papa Tongarewa Museum of New Zealand, for people to touch as they enter.

I now turn to the third approach to the vitality of matter, which begins with an attempt at understanding what rocks and minerals are from a scientific perspective, and how the difficulty of assigning life or non-life to these entities spurs alternatives, such as a matter-based liveliness.

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106 Marsden, *The Woven Universe*, 59.

107 Best, *Maori Religion and Mythology*, 179.

108 "Silver Ferns Presented Mauri Stone," Silver Ferns, July 3, 2023, https://www.silverferns.co.nz/silver-ferns/news/latest-news/silver-ferns-presented-mauri-stone.html.

109 "The All Blacks Mauri Stone," All Blacks Experience, accessed March 13, 2024, https://www.experienceallblacks.com/contact-us/news-and-blog/mauri-stone/.

110 "Tikanga," Auckland War Memorial Museum, accessed March 21, 2024, https://www.aucklandmuseum.com/your-museum/South-Atrium/Tikanga.

1.1.5 Our Heads Are Made from Rocks

It is difficult to ascribe vitality to the lithic if we are thinking of liveliness from our side of Povinelli's carbon imaginary. How does a Euro-American scientific tradition deal with the question of liveliness, and particularly the 'affective relations between entities,' human and non-human? I turn here to the work of biologist Lynn Margulis to offer some thoughts on what the (un)limits of life might be from a scientific perspective. It turns out that it is not easy to scientifically define 'life,' versus non-life.

In their 2001 book *What Is Life?*, biologist Lynn Margulis and philosopher of science Dorion Sagan trace the development of the concept of life. They write that defining life definitively is impossible, that life is:

> …a material process, sifting and surfing over matter like a strange slow wave. It is a controlled, artistic chaos, a set of chemical reactions so staggeringly complex that more than 80 million years ago it produced a mammalian brain that now, in human form, composes love letters and uses silicon computers to calculate the temperature of matter and the origin of the universe.[111]

For Margulis and Sagan, life is a verb; it repairs, maintains, recreates, and outdoes itself. Life is an interconnected web of various bodies and processes. Organisms are, they argue, "less self-enclosed, autonomous individuals than communities of bodies exchanging matter, energy and information with others."[112] They illustrate this interconnectedness with the example of breath: each breath connects us directly to the biosphere, which itself breathes, marked by carbon dioxide increasing on the dark side of the globe and increasing on the light side.[113] Furthermore, the difficulties of assigning life to some categories and not others is evidenced

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111 Lynn Margulis and Dorion Sagan, *What Is Life?* (Oakland: University of California Press, 2001), 22.

112 Margulis and Sagan, *What Is Life?*, 28.

113 Margulis and Sagan, *What Is Life?*, 28.

by the role of the mineral. Margulis and Sagan write that, "contrary to popular belief, minerals and animals do not belong to separate kingdoms. Many minerals are produced in and by life, sometimes in crystalline form."[114] Indeed, animals, plants, fungi, and bacteria all produce various minerals. Irons such as magnetite are produced by anthropods, molluscs, and vertebrates; geothite and lepidocrocite are produced by chitons, and ferrihydrite by mollusks. Additionally, Margulis and Sagan observe that, over time, more and more inert matter literally *comes to life*. Minerals of the sea, like calcium phosphate, initially a nuisance or toxic to cellular life, was eventually incorporated as protection and support, as bone and shell.[115] Life, as far as it can be defined, is for Margulis and Sagan, a material process. It exists at different scales and seems to cross kingdom boundaries, working relationally.

My third and final layer of the question of liveliness is one that looks critically at the material vitalism offered by posthumanists over the last two decades, who follow Deleuze's "vitalist ontology of forces."[116] Rather than the liveliness of the mineral, metal or stone itself, can we think of the stoniness, or affecting lithic qualities, or conditions as aliveness? As affecting beings like us? Historian of science Sophie Roosth, in an interview with artist Nina Canell, reflects that, "in my work, I often ask, what are the politics of expanding our notion of vitality? Movements like New Materialism have been attacked from a number of sides in academia, and this has been a big issue in my work … As I try to write about lively rocks, I feel haunted by the possibility that New Materialism and its efforts to ascribe liveliness to nonliving things can brush against problematic politics. I'm still grappling with this."[117] I am also concerned with how we can we approach the concept of 'liveliness' differently, without imposing a biocentric concept of what it means to be alive on other ways of being.

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114 Margulis and Sagan, *What Is Life?*, 31.

115 Margulis and Sagan, *What Is Life?*, 29.

116 Nail, "What's the Matter with Life?" 242.

117 Nina Canell, "Geobiology," interview by Sophia Roosth, *ARTnews* (blog), November 18, 2022, https://www.artnews.com/art-in-america/interviews/geobiology-1234647255/.

Many theorists have also asked: why do we feel the need to find liveliness everywhere? For instance, in 2017, art historian Amelia Barikin discussed this question in her chapter "Sound Fossils and Speaking Stones: Towards a Mineral Ontology," in the book *Animism in Art and Performance* (see further discussion in sections 1.1.5 and 2.2.4).[118] In "What's the Matter with Life,"[119] philosopher Thomas Nail provides a critical analysis of the strand of thought he calls neo-vitalism, and offers an alternative approach to considering the agency of matter, a *philosophy of movement*. Nail identifies several areas in which he sees neo-vitalism as problematic. Firstly, it is politically insufficient. By offering a flat ontology, in which everything has equal agency, there is the danger that we do not recognise power imbalances in political struggles. Nail questions the idea that making everything alive necessarily results in a more ethical world, pointing out that political optimism is a core feature of many versions of vitalism, but that there is no reason why this would happen. Secondly, Nail says that neo-vitalism is historically suspect. He questions the motivations of applying the notion of life to passive matter, seeing it as a kind of valourisation of life. He writes, "I worry that vitalism is the posthuman theory of choice because it secretly assumes a model of agency based on human and living agency projected onto inorganic matter and non-vital motion."[120] Critical questions for my research are raised in this argument, including the question of why is it that matter has agency *like* us, and not us who are moving and agential *like* matter? It is a "biocentric chauvinism"[121] to say that matter is like life and not vice versa. Additionally, Nail sees neo-vitalism as unnecessarily metaphysical. For Nail there is no reason to ascribe anything more than indeterminate motion to matter.

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118 Amelia Barikin, "Sound Fossils and Speaking Stones: Towards a Mineral Ontology of Contemporary Art," in *Animism in Art and Performance*, ed. Christopher Braddock (Cham: Palgrave Macmillan, 2017), 254.

119 Nail, "What's the Matter with Life?"

120 Nail, "What's the Matter with Life?" 247.

121 Nail is paraphrasing Manuel DeLanda here, who comments that the privileging of vital biopolitics is a form of "organic chauvinism." DeLanda, *A Thousand Years*, 103.

As a response, or alternative, Nail offers his concept of a philosophy of movement. Everything is in motion (as far as we know), and all matter is movement. Movement is scalar, without a hierarchical scale of being. Movement is identical to agency. Being is doing. He suggests, "The agency of matter is not *like* life nor *like* human agency. Life and human agency is a tiny subset or region of indeterminate matter in motion. This conceptual framing puts life and humans in their actual scale in the broader material cosmos."[122] For me, this alternative to material vitalism offers an illuminating way to consider the relationship between the lithic and the living, one that does not impose a carbon centric perspective on to the mineral, but allows for, as Reinert suggests, "other arrangements."[123]

Thomas Nail is not alone in offering alternatives to material vitalism that consider the ontological closeness between 'living' and 'nonliving.' Anthropologist Kathryn Yusoff argues for a "geological turn," suggesting a "remineralization" of the human. She writes that our mineral origin story is rarely acknowledged, "a forgotten stratum in our becoming," while a vital or social body is seen as the mover and shaker of matter.[124] Yusoff calls for consideration of what she calls *geologic life*, "a mineralogical dimension of human composition that remains currently undertheorized."[125] It is through looking both at fossils (specifically fossilised bone) and at fossil fuels that we can theorise the complexities of these relationships. Fossils remind us both of our inhuman mineral origins and of a fossilised end. Yusoff follows Manuel DeLanda, who, in *A Thousand Years of Nonlinear History,* describes how, 500 million years ago, life suddenly underwent a mineralisation, as soft tissue animals developed bone. DeLanda explains:

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122 Nail, "What's the Matter with Life?" 255.

123 Reinert, "About a Stone," 112.

124 Kathryn Yusoff, "Geologic Life: Prehistory, Climate, Futures in the Anthropocene," *Environment and Planning D: Society and Space* 31, no. 5 (2013): 788, https://doi.org/10.1068/d11512.no. 5 (October 2013

125 Yusoff, "Geologic Life," 779.

> It is almost as if the mineral world that had served as a substratum for the emergence of biological creatures was reasserting itself, confirming that geology, far from having been left behind as a primitive stage of the earth's evolution, fully coexisted with the soft, gelatinous newcomers.
> [...]
> And yet, while bone allowed the complexification of the animal phylum to which we, as vertebrates, belong, it never forgot its mineral origins: it is the living material that most easily petrifies, that most readily crosses the threshold back into the world of rocks.[126]

When considering the role of fossil fuels, Yusoff draws forth the complexities of the matter, not that fossil fuels are 'alive,' but that they offer another path into the "work of mute matter.'"[127] This is a non-vitalist materialism, a passive vitalism, in which there is 'patience' between fossil fuels and bodies that allows life to expand, to take up and transform matter, but also to be transformed by it.[128] A geologic life takes into account the way in which we underestimate the "vitality of the processes of self-organisation in other spheres of reality." She argues that we "forget that, despite the many differences between them, living creatures and their inorganic counterparts share a crucial dependence on intense flows of energy and materials."[129] These forces need, as philosopher Elizabeth Grosz suggests, "to be understood in its full subhuman and superhuman resonances: as the inhuman which both makes the human possible and at the same time positions the human within a world where force works in spite of and around the human, within and as the human."[130]

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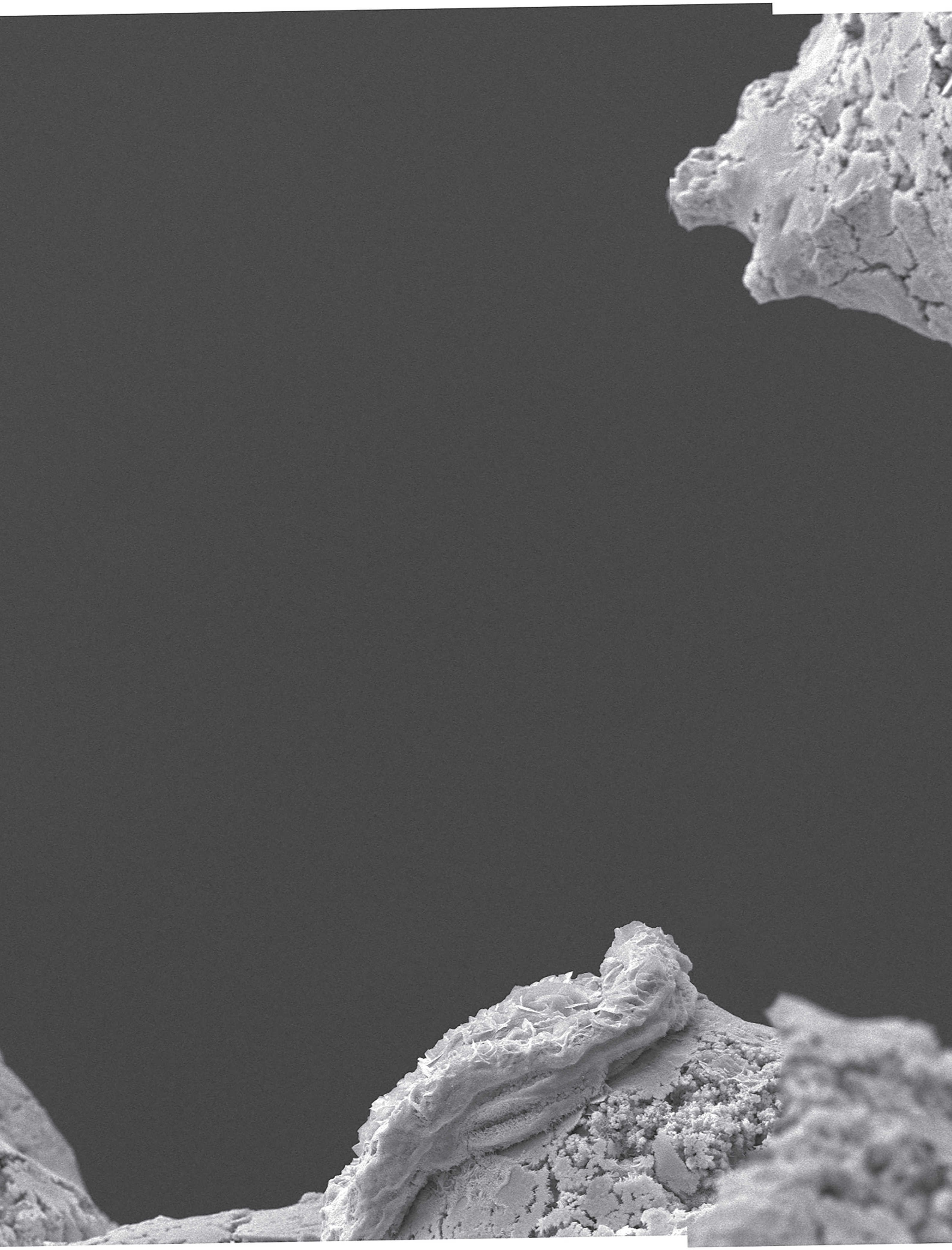
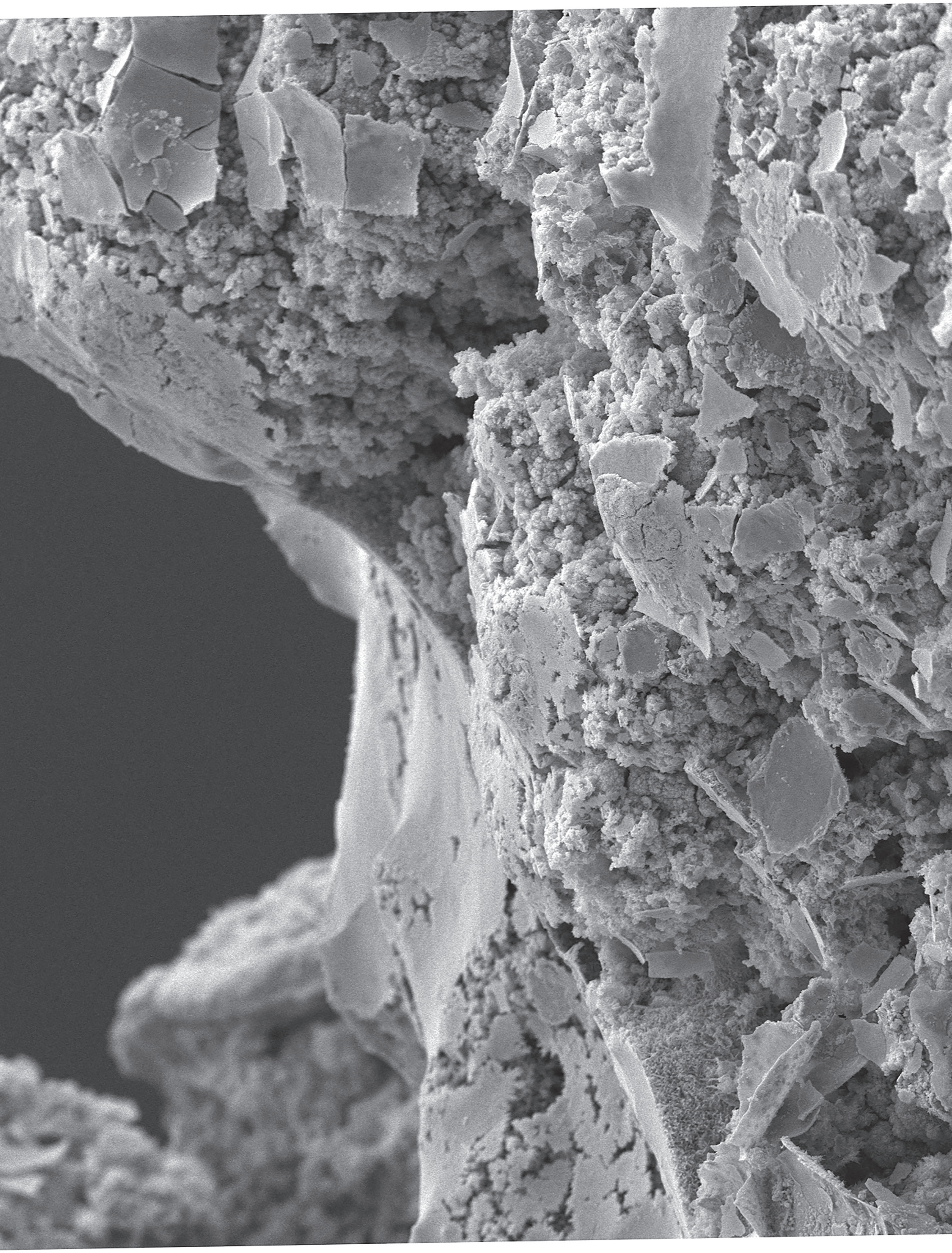
126 DeLanda, *A Thousand Years*, 26.
127 Yusoff, "Geologic Life," 790.
128 Yusoff, "Geologic Life," 790.
129 DeLanda, *A Thousand Years*, 103.
130 Elizabeth Grosz, *The Nick of Time: Politics, Evolution and the Untimely* (London: Allen & Unwin, 2004), 130.

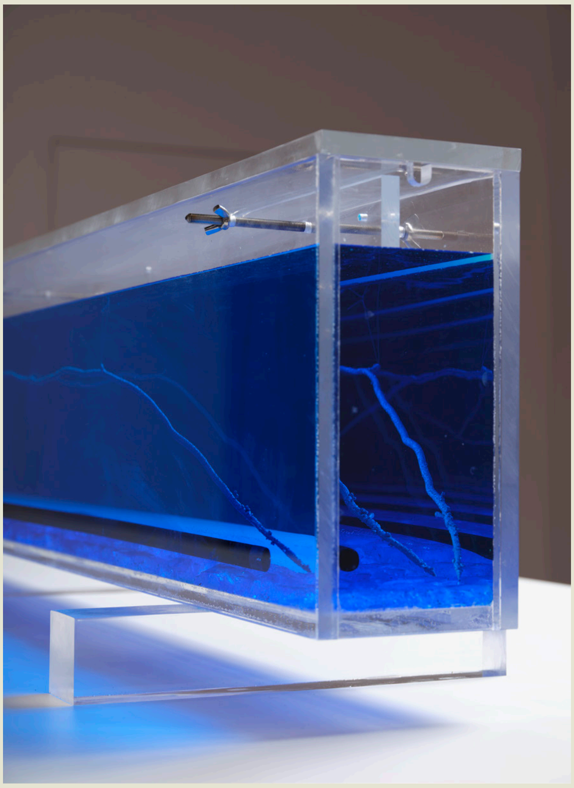
In this exegesis, I look at the work of contemporary artists who explore materials questioning what Rooth calls the *problematic politics of new materialism*. I situate my own artistic material explorations in this arena. Barikin argues that a mineral ontology (in contemporary art) might, "complicate binary framings of organic and non-organic materials."[131] She explains that she is not wanting to find life everywhere, but rather to "test out the logic of an ethics of being in which the living–non-living binary might no longer apply, and to see what this might teach us about the new materialisms of contemporary art."[132] In my art-making practice and in this exegesis, I have identified a mineral ontology: lithic thinking, in which, as I have described, minerality itself troubles this binary of living and nonliving, among other binaries.

I began this chapter with the Great Chain of Being and asked how we might employ lithic thinking to question the hierarchical categories that an Anglo-American worldview promotes. Lithic thinking attempts to place the human thinker firmly back *in* the world. The mineral disturbs the categories of life and non-life. I layer three different lithic worldings, drawing on mātauranga Māori, material vitalism, and Nail's mineral ontology of movement. Each of these approaches offers valuable ways to think with the lithic for this exegesis. In the second half of this chapter, I introduce three methods, or tools for lithic thinking and creative practice, and consider how these tools are at work in my art practice. These tools are floating/sinking, holding/releasing, and layering/wearing away.

131 Barikin, "Sound Fossils and Speaking Stones," 254.
132 Barikin, "Sound Fossils and Speaking Stones," 255.







Figures 38-40.
Shelley Simpson, *Unthought: tank*, 2020,
copper electroforming system,
Tāmaki Makaurau, Corban Estate Art Centre.
Photographs: Sam Hartnett.

Part 2: Lithic Tools For Lithic Thinking

Throughout the doctoral studies process, I have developed creative methods or tools for *thinking with the mineral* in my artistic practice and research. To explore these methods at play in my practice, I now return to *Unthought*, my 2020 exhibition from the beginning of my PhD candidature, and describe how lithic thinking shaped this body of work. To reach across the leaky boundaries between our lithic bodies, my process-based mineral iterations evolved alongside my readings of Reinert, Marder, and Yusoff, described in the first part of this chapter. I explore the porosity of the sculptural containers I create for holding material movements in parallel with the ruminations of Povinelli and Cohen, remaining alert to the social and material politics of place and sites of mineral extraction inherent in my materials.

1.2 *Unthought*—A Lithic Consolidation

As a body of work, *Unthought* was primarily an exploration of the materiality of copper, utilising several processes and approaches. I had been experimenting with electroforming for some months previously, building tanks and systems and exploring different substrates. The work in the exhibition was the culmination of this experimentation. The exhibition was held over two gallery spaces and consisted of four artworks. In the larger space was *Unthought: tank*, a copper electroforming system in a 2400mm long acrylic vitrine, which sat on a purpose-built table (figs. 38-40). On the wall behind the table hung a series of long horizontal copper sticks. These copper forms were created in the tank through the electroforming process.[133] Each stick took several days to grow. Throughout the

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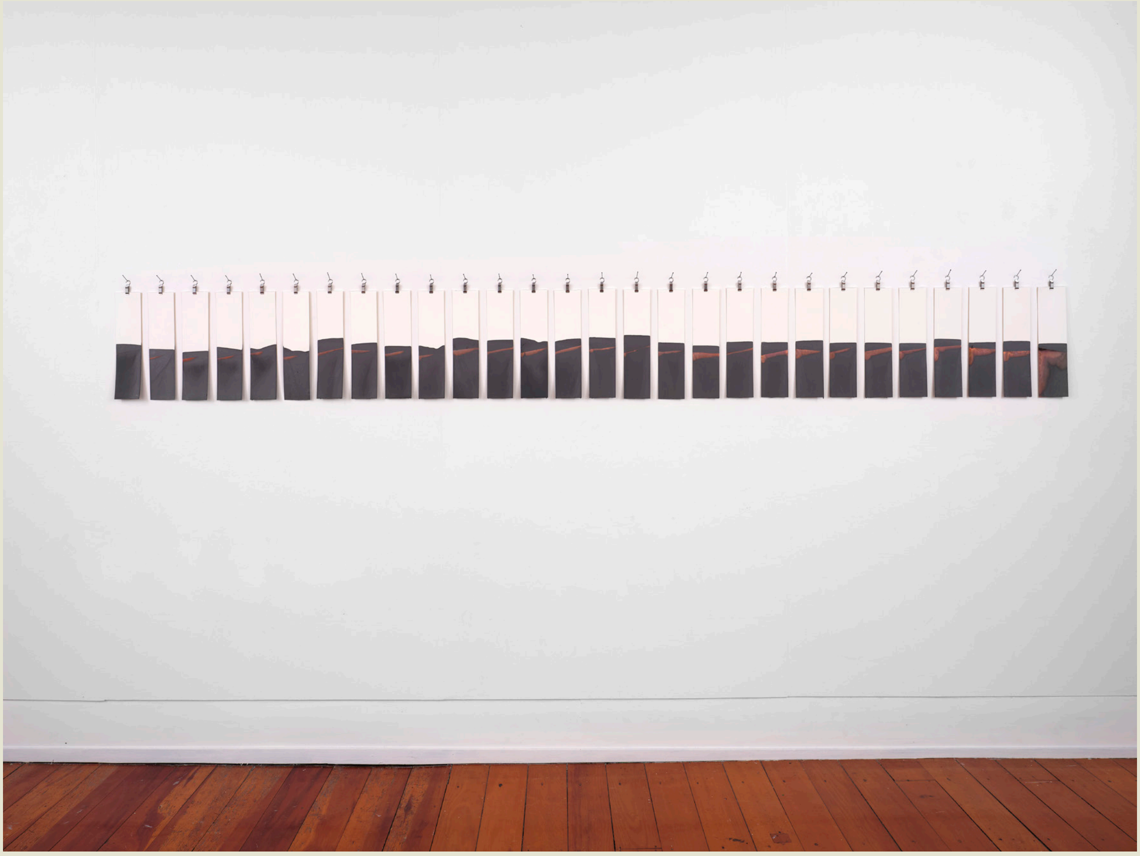
133 Electroforming is related to electroplating. Electroplating is a process often used in industry and crafts to coat the surface of a metal with another. A copper object might be coated with gold, or a tin object coated with silver. Electroforming takes this process further, using the same method, but instead of coating an object, the metal forms a new object. Both processes use a bath of electrolyte solution made up of salts of the metal being electroformed, a source for the metal (anode), electricity, and a base for the coating or new object (cathode). In *Unthought*, the metal used is copper. The bath solution is copper sulphate. The source anode is positively charged, and the



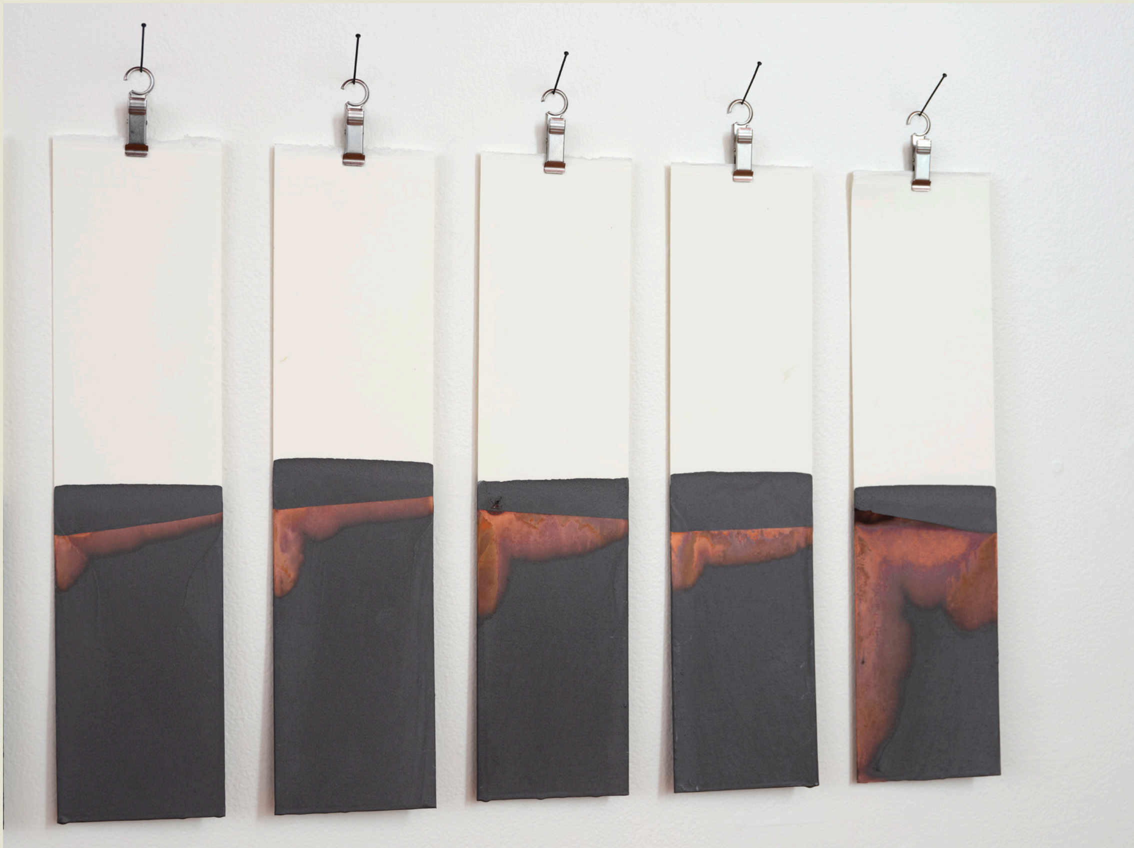


Figure 41-42.
Shelley Simpson, *Unthought: graphite*, 2020, watercolour paper, graphite paint, copper, stainless steel clips, pins, Tāmaki Makaurau, Corban Estate Art Centre.
Photographs: Sam Hartnett.

period of the exhibition, new copper sticks were added to the wall as they were completed. In the second gallery space were three works, *Unthought: video*, *Unthought: wall painting*, and *Unthought: graphite*.

In *Unthought: video* (single channel digital video) a piece of electroformed copper was imaged by a scanning electron microscope (SEM). Magnified at x120, the surface of the copper was revealed to be deeply fissured, fanning out in plant-like organic shapes. The video panned slowly across the surface of the copper on a vertically hung screen (fig. 44). *Unthought: wall painting* (copper sulphate pigment, gum arabic) was painted directly on to the gallery wall. The pigment was made by soaking scrap copper in vinegar and salt for several weeks. The soft blue green of the pigment was translucent, allowing the marks of the wall beneath to show through (fig. 43). The third work in the gallery was *Unthought: graphite* (watercolour paper, graphite paint, copper, stainless steel clips, pins). In this work, sturdy watercolour paper was dipped in a graphite fluid to create a conductive surface. Each paper strip was then put through an electroforming process allowing copper to accrete on to the conductive surface. Each strip was electroformed for increasing amounts of time, which, although not uniformly, intensified the amount of copper on the surface of the graphite. Twenty-eight strips were hung in increasing order of the time of exposure (figs. 41,42).

Through the development of the works for this exhibition, the methods holding/releasing, floating/sinking, and layering/wearing away emerged and solidified, contributing to the development of lithic thinking as it informs both my making and research.[134] In the following sections, I look in more detail at each of these methods and how they informed *Unthought*.

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atoms are ionized in the solution, creating positively charged copper ions, which are attracted to the negatively charged cathode and are deposited on to it, building up over time.

134 At the time I exhibited *Unthought*, I had identified 'attending to' as one method for my PhD project. By paying careful attention, I hoped to bring attention to that which was below the threshold of note. In order to 'attend to,' I created a number of events that pulled into focus certain processes and materials. Following my methodology of working within a posthumanist framework, I wished through the work to consider the expanded view of agency, challenge the notion of human exceptionalism, and emphasise collaborative agency and relationality.

Figure 43.
Shelley Simpson, *Unthought: wall painting*, 2020, copper sulphate pigment, gum arabic, Tāmaki Makaurau, Corban Estate Art Centre.
Photograph: Sam Hartnett.

1.2.1 Holding and Containers

My art practice often involves holding and gathering together various materials, energies, and processes. I collaborate with a variety of materials to enable processes or events to occur between the materials, energies, and forces that are held in proximity to each other. By creating this setup, the materials perform or action the inherent activities that they tend towards. This includes all the other matter involved, that not contained by it, the unintentional, and a variety of scales and time frames. In this way, an event occurs which may be able to be perceived in some way, but sometimes may not. A reaction between materials might occur, something previously unnoticed might be noticed, there may be a new material created, or there may be a dissolving. The generative element in my practice is often located at the edges, at the space between the held and the not-held, or in the action of release. This space can be described as the ecotone, to follow Astrida Neimanis: "Eco: home. Tone: tension. We must learn to be at home in the quivering tension of the inbetween."[135]

The process of electroforming requires a container to hold it. For *Unthought*, I built a container as a practical solution, strong enough to hold liquid safely, with a removable top for access, clear sides for visibility, and devices to enable access for electrical wiring. I wished to be able to create the longest electroformed object that was practically possible, and so the tank was the full length of an acrylic sheet. The width and height of the tank was, in part, dictated by the volume of liquid required to fill the tank while ensuring the tank's integrity and by the need for the cathode and anode to be kept apart from each other. The result was a long, narrow vitrine(figs. 49-51).

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135 Astrida Neimanis, "Hydrofeminism: Or, On Becoming a Body of Water," in *Undutiful Daughters: New Directions in Feminist Thought and Practice*, ed. Henriette Gunkel, Chrysanthi Nigianni, and Fanny Söderbäck (New York: Palgrave Macmillan, 2012), 108.

Figure 44.
Shelley Simpson, *Unthought: video*, 2020, single channel digital video,
Tāmaki Makaurau, Corban Estate Art Centre.
Photograph: Sam Hartnett.

While the processes are contained within the tank, a corresponding *re-leasing* occurs of more than simply copper ions. At the time of the exhibition, I reflected that:

> ...the unseen material processes occurring in the tank ripple outwards - in the space between the copper ions being released from one object and the ions collecting in a new configuration, an explosion of ideas, stories, histories and futures occurs. As the copper ions move invisibly (to our eyes) through the blue liquid, they pull with them and release whispers of unseen forces, of time scales not our own, of deep geology, of mineral life, of the earth, of the enfolding past, present and future. The copper in our bodies, in our iPhones, in our electrical cables all call to each other, mapping out a vast network of relations.[136]

Considering these words now, I see the initial emergence of the lithic body as central to my art practice, which is the subject of Chapter Two of this exegesis.

The electroforming tank is certainly a container, and it sits on another container: a large, custom-built table. The weight of the tank when filled with liquid, coupled with the need for me to be able to easily access the tank to replace the copper elements every few days, resulted in the decision to build a table to hold the tank. There were practical considerations: the table should be lab bench height as a working table, wide enough to allow close viewing of the tank but also provide safety, with a structure that could be dismantled and moved for exhibition purposes. The leg structure was copied from the benches in the Te Wānanga Aronui o Tā-

136 Simpson, Shelley, *Unthought* floorsheet, Corban Estate Art Centre, 2020

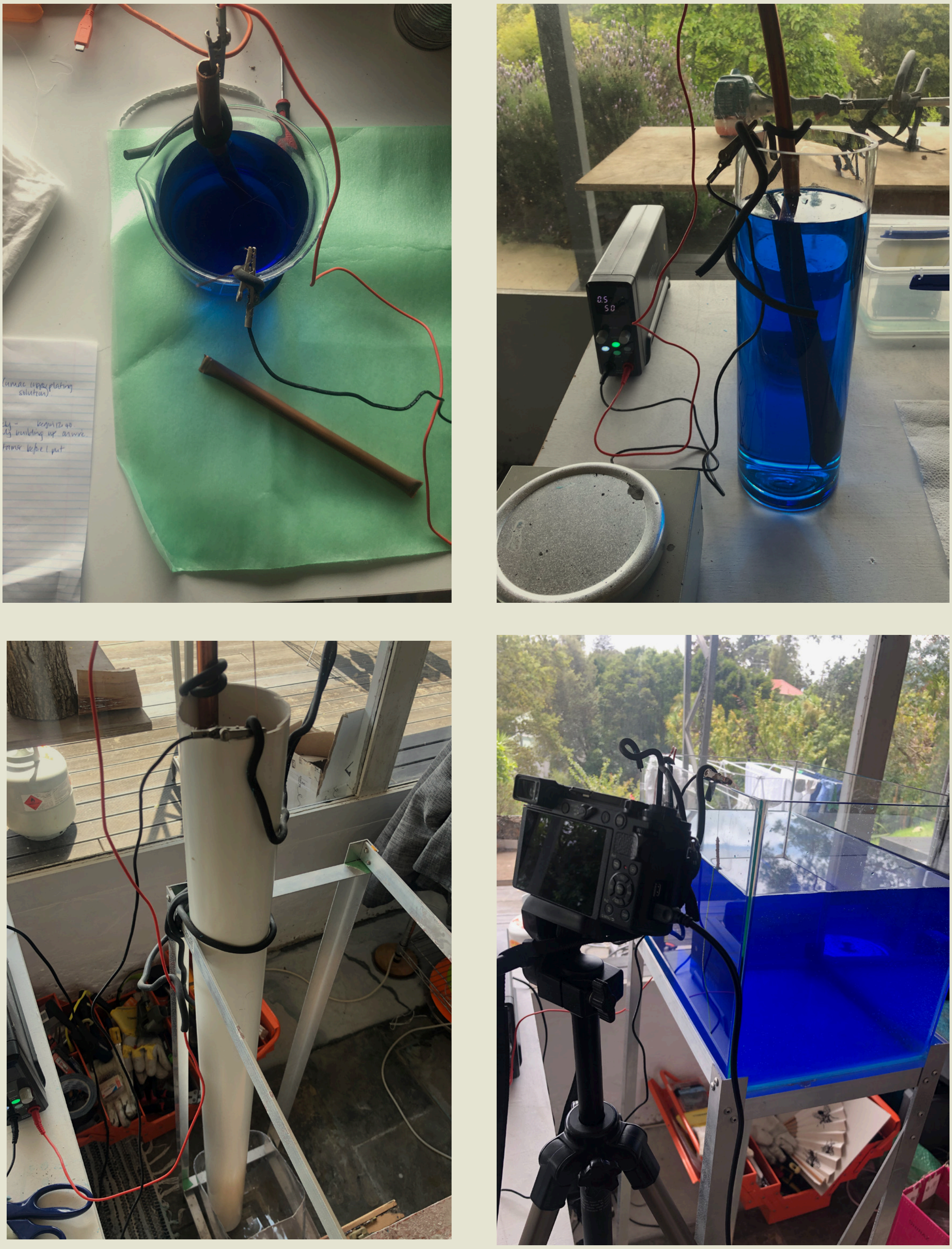

Figure 45-48.
My early electroforming systems using a variety of tank types.
Photographs: Shelley Simpson.

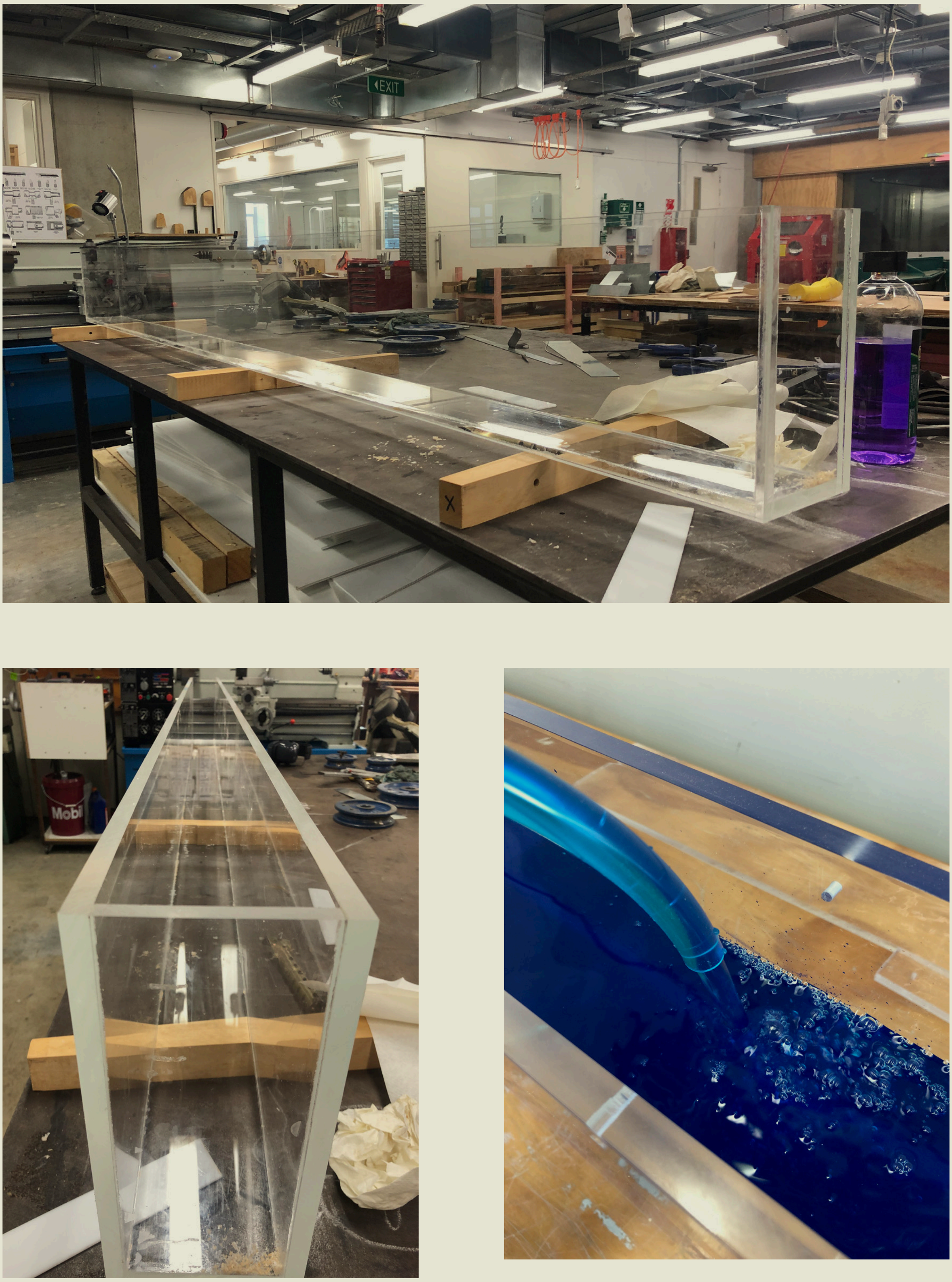

Figure 49-51.
Building and testing the electroforming tank for *Unthought*.
Photographs: Shelley Simpson.

Figure 52.
Copper ‘grown’ through electroforming, 2020.
Photographs: Shelley Simpson.

maki Makau Rau Auckland University of Technology (AUT) hard materials workshop, with square profile steel welded together. The bench top is coated plywood, easily cleaned of any spilled liquid. A bench underneath holds the electrical components of the work, and a hole drilled in the tabletop allows the wires to pass through.

Although holding is a temporary attempt to provide a bounded structure, containers for holding are always, at some level, open. A loosening and blurring of boundaries create a conceptual space (Neimanis' ecotone) where the connectedness of everything can be considered and actions can be seen as ever-occurring. In a holding situation that I create, I temporarily enable a physical and temporal relational positioning of materials, so that an event occurs in which the tank and the matter held within it can form a relational event. Containers are always leaky. Any attempt to contain is always accompanied by the recognition that boundaries are inherently porous. In particular, the boundary of the contained individual human is porous, both physically and relationally—the individual existing only in relation to others.[137] The physicality of the porous body is described through the concept of transcorporeality, the idea that bodies are enmeshed in the dynamic material world, which crosses through them, modified and in turn modifying them.[138] I discuss transcorporeality at more depth in Chapter Two. *Unthought: wall painting*, created by painting layers of copper pigment directly on to the wall of the gallery, gently gestured towards this impermeability, the layers a translucent membrane, the marks on the wall softly showing through the blue green colour. Standing in front of the painted panel, 2400mm high (a dimension reflecting the length of the tank in the next room), the field of vision is filled with colour, softly luminescent and gently rupturing the gallery wall. The panel became a portal, enfolding the viewer. I turn now to the second method of the three, floating.

137 Many feminist theorists have explored this issue, most notably Karen Barad (agential realism), Rosi Braidotti (posthumanism), Donna Haraway, Stacey Alaimo.

138 Alaimo, *Exposed: Environmental Politics.*

Figure 53.
Copper growing in the electroforming tank.
Shelley Simpson, *Unthought: tank*. 2020, (detail),
Tāmaki Makaurau, Corban Estate Art Centre.
Photograph: Sam Hartnett.

1.2.2 Floating

It might seem counterintuitive to associate a project concerning minerality—those heavy, dense materials of stone and metal—with a method of floating. From a human perspective, floating tends to be associated with materials that are light in weight: a feather floats in the air, a balloon filled with helium floats, a cork floats on water. However, floating occurs at various scales and materialities. Thinkers such as Hayles, Cohen, and Yusoff provide insights into the ways in which we can consider such shifts in perception. For example, Cohen writes of the lithic world:

> The lithic is oceanic; stone is slow water. Mountains surge and fall, their epochal undulations no less animated than the swell and crash of seas, but impossible for us to view without the aid of narrative and art. Yet volcanoes spurt molten rock that flies, flows, hardens within a human timescale. Ash and lithic powder tumble air and earth in dry liquidity.[139]

In *Unthought: tank*, the developing copper stick seemed to be suspended, floating in the blue liquid inside the tank. In actuality, the floating that was occurring inside the tank was at a sub-atomic level and is one of the two types of floating that I describe here. In my practice, in relation to lithic thinking, I have found it useful to consider floating in two scalar realms, one atomic and one vast, or geologic.

Lithic thinking involves a shift in scale. Floating occurs across scales. At one end is atomic bonding—the very basis of the reality of our universe. It is the way in which atoms bond together. Metal atoms bond together through *metallic bonding* and by releasing and sharing electrons, with ions *floating* in a sea of shared electrons. At the other end of the scale is a geologic floating; a *mélange* formation, in which one type of rock floats in another type of rock, like plums in a pudding.

139 Jeffrey Jerome Cohen, "Geophilia, or the Love of Stone," *Continent* 4, no. 2 (2015): 13.

1.2.1.1 Atomic Floating—A Sea of Electrons

Unthought explored the electroforming process that seems like magic, as metal dissolves over time in one place and 'invisibly' shifts to build up in another place: reforming metallic bonds. The metallic bond is one of the four basic bonding types in chemistry.[140] Atoms must bind together, otherwise our universe would be a soupy sea of atoms, floating around by themselves, without the ability to form anything. The bond types depend on what kind of atoms are joined together, metallic or non-metallic atoms. Two metallic atoms form a metallic bond. When metallic atoms are by themselves, they are described as neutral. When they are together, they like to share electrons, each contributing an electron to a sea of shared electrons. The electrons are negatively charged, and the ions are positively charged. The positively charged ions are attracted to the sea of negatively charged electrons: a communal sea of electrons, in which the ions *float*.[141] At the other end of the scale is a type of floating that occurs in geology, the mélange.

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140 *Encyclopaedia Brittanica*, s.v. "Crystal: Types of Bonds," accessed April 23, 2024, https://www.britannica.com/science/crystal/Types-of-bonds. The four bond types are ionic, metallic, polar and non-polar covalent. If a metallic atom and a non-metallic atom bond, they tend to form an ionic bond. This is where one atom steals an electron from another atom, creating a positive and negative attraction. Two non-metallic atoms bonding together form a covalent bond or a polar covalent bond, which is where they share electrons rather than stealing them.

141 Metal electrons are overlapping valence electrons, so they are not fixed, they can move around. This movement is what gives metals their properties—malleability and conductivity.

1.2.1.2 Geologic Floating—The Mélange

Mélange is a term from geology which describes pockets of one type of rock 'floating' in another. I first heard it when I when I visited geologist Mike Johnston in Whakatū Nelson, as part of a research trip I made at the beginning of 2022. Mike was taking me through the geology of Dun Mountain (part of Maungatapu), the site of historic copper and chromite mining which I planned on visiting. He told me that the area is a *mélange*—a geologic mixture—with stone floating in softer stone *like plums in a plum pudding.* It may be that Dun Mountain itself is one of these floating stones.[142]

I came across the same reference in *New Zealand Geology: An Illustrated Guide*, by Peter Ballance. Writing about New Zealand geology, Ballance describes a mélange as follows: "Part of the geological definition of a tectonic mélange is that it contains a wide variety of rocks, including 'exotic' rocks that have been derived from a range of origins, all floating like plums in a pudding. The plums can be any size, from millimetres to kilometres across."[143]

Geologists must, through necessity, have a sense of scale and temporality different from a non-geologist. The idea that one rock can float within another rock seems in some ways absurd, but also makes perfect sense. The surface of the Earth is constantly moving, sometimes in very disruptive ways. The continents float on a molten core. Because they are floating, they move. Geology is full of the absurd: the fossils of deep-sea creatures are found high on mountain tops; sedimental rocks that were formed horizontally are visible in vertical formations, with the stripes of earth pointing upward. Caves are full of giant crystals. Stalactites, stalagmites, and cave pearls form through the action of dripping water. Volcanoes

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142 Mike Johnston, in-person conversation with the author, January 2022, Nelson.

143 P. F. Ballance, *New Zealand Geology: An Illustrated Guide*, rev. ed. (Lower Hutt: Geoscience Society of New Zealand, 2017), 380.

spew diamonds. The liquid rock inside the Earth is pushed and pulled by the movement of the moon—a lithic tide. Seemingly solid ground shifts, hillsides collapse, earth moves like liquid. Rocks split as water freezes in crevasses. What we thought was durable and dependable turns out to be fragile. So, at Dun Mountain, one rock, as big as a mountain, floats like a plum.

Lithic thinking is a scalar exercise. To think with the mineral is to attempt to be open to a scalar modality, from the atomic level to the vast geologic scale and every scale between. Attempting to hold in mind these levels of floating, the very tiny and the very large, is a cornerstone of lithic thinking in my practice and research. The *mélange* and the *sea of electrons* both bridge the seen and the unseen, the too fast and the too slow, the too small and the too large. For my project, it is important to bring into focus that which is below the threshold of notice or of the ability to be seen. At one level, the atomic, there are ions in a sea of electrons, and at the other, overwhelmingly visible level there are mountains floating in larger mountains. Next, I describe my third method, that of layering/wearing away.

Figure 54.
Schist from the Mineral Belt, Whakatū Nelson, with distinctive fern like staining on the surface.
At one time these markings were thought to be fossilised ferns, but is now known to be caused by magnesium which seeps in to the layers and is revealed when the stone splits open.
Photograph: Shelley Simpson.

Side paper: Wednesday 9th Feb 2022 at 2.30pm

Sometimes you meet a person with a low centre of gravity. People whose body seems anchored more firmly to the ground than others. Their bodies move from a point in their hips. Mike Johnston is one. Maybe it is from years of careful walking in the mountains and hills looking at geology. A way of knowing where to put one's foot. A steadiness, a careful, deliberate placement.

Mike Johnston is a geologist whose book *High Hopes*[144] has been my main source of information about the historic copper and chromite mining in Whakatū. He is now retired, and I visit him at his home in Whakatū to talk about the Mineral Belt, a range of mountainous country inland from Nelson where the mining occurred and where I plan to go.

He talks me through the trip, what I hope to see, and where to find specific sites. He knows the area very, very well, and can describe exactly where things are. He talks a lot about geology, about morphic rock, ultramorphic rock, granites, basalts, gabro, serpeninite, dunnites, ophrolite, mélange, rodingite. He tells me that on my way up to the Mineral Belt I will see a lime kiln, fossilised bivalves as big as twenty centimeters long, and the railway track (the first railway in Aotearoa).

Once I am out on the Mineral Belt, Mike tells me, I will see an obvious change in vegetation, with open space, low shrubs, and smaller plants. Mike explains to me that this is caused by the geology; the ultramorphic rocks leach magnesium, which inhibits the amount of calcium that the plants can take up, thus limiting their growth. He calls this magnesium poisoning. The area is a mélange—a geologic mixture—with stone floating in softer stone like plums in a plum pudding. Māori made adzes from the pakohe (argallite) found in these pockets.[145]

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144 Mike Johnston, *High Hopes: The History of the Nelson Mineral Belt and New Zealand's First Railway* (Nelson: Nikau Press, 1987).

145 I discuss this pakohe mining at the beginning of Chapter Three.

Figure 55.
Electroformed copper growing on a copper wire, 2020.
Photograph: Shelley Simpson

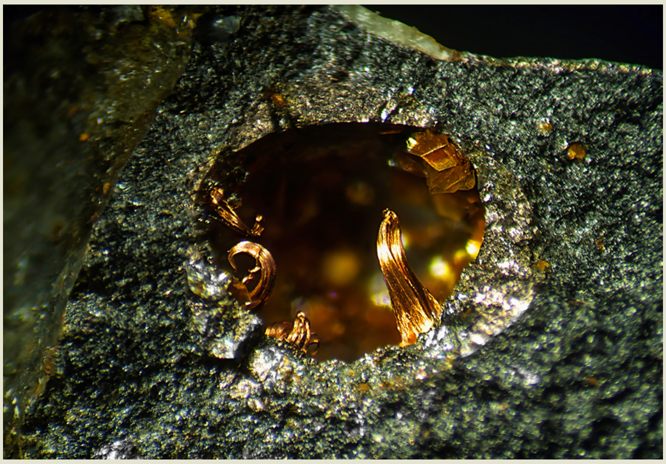

Figure 56.
Copper wires in smelter slag,
Location: Champion copper smelter, Nelson,
New Zealand.
Collector/photographer: Tim Saunderson.

1.2.3 Layering

In my research, layering can be either an accretion or a sedimentation, each a slightly different process. DeLanda proposes a philosophy of history from "the bottom up," writing, "In a very real sense, reality is a single matter-energy undergoing phase transitions of various kinds, with each new layer of accumulated 'stuff' simply enriching the reservoir of nonlinear dynamics and nonlinear combinatorics available for the generation of novel structures and processes."[146] Sedimentation in geology, DeLanda explains, is the result of two processes: sorting, in which materials similar in type, size, and weight are deposited together through a variety of processes; and cementing, in which these similar materials are consolidated together.[147] As previously mentioned, this exegesis is structured through a sedimentary process, with each new layer adding to and generating concepts for my art practice. The Māori concept of whakapapa also describes an expanded layering of genealogy across time, land, and space, from an alternate world view.

Accretion is the type of layering activity in the tank in *Unthought*, both building up and wearing away. Inside the tank, copper from the source (the anode) is sloughed off, with the anode becoming thin, losing mass, and eventually eroding away completely. On the cathode the copper accretes, building up in layers, forming a new object (see fig. 29). The wall work *Unthought: graphite* also worked with accretion as copper electrons built up on a graphite base, with the thickness of the copper increasing over time.

Two of the works in *Unthought* were specifically concerned with temporality. In the tank, the electroforming process was too slow for human perception to notice as the atomic binds broke and were reformed. The activity occurring in the tank was only obvious after some time had passed and the copper pipe anode had worn away, with holes and breaks appearing, and the new object became noticeably thicker. The work on graphite also worked with time. Each panel is the result of a timed session of electro-

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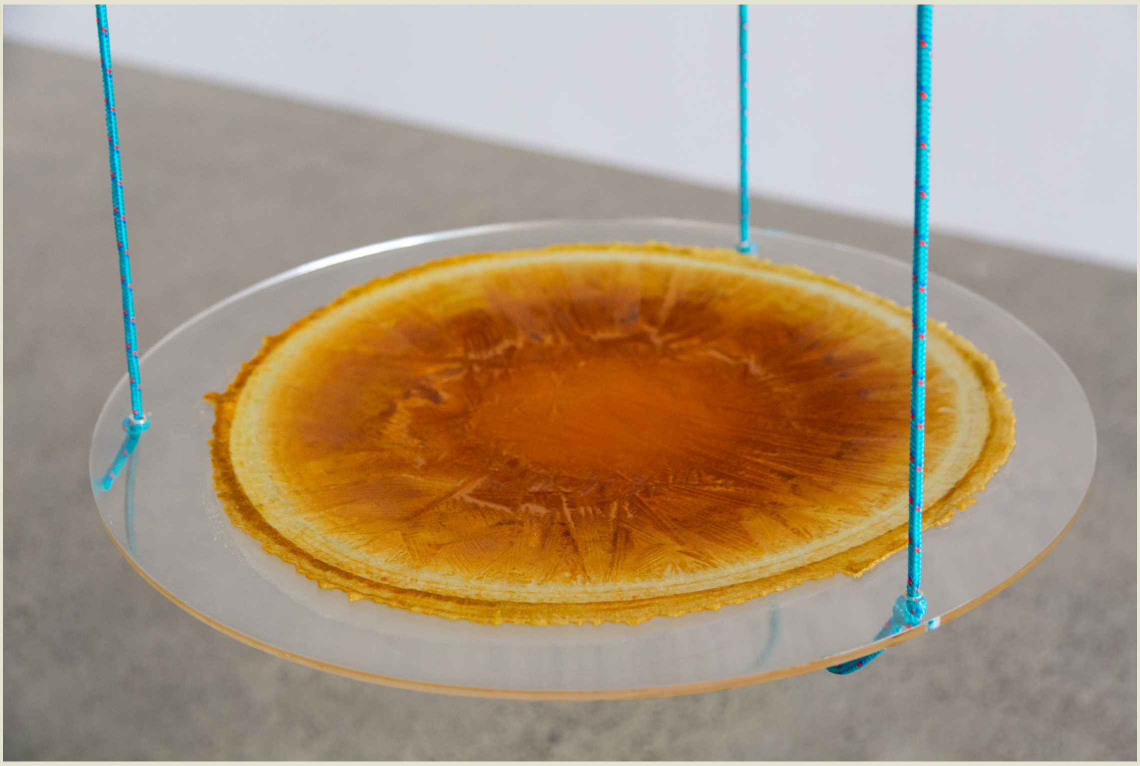
146 DeLanda, *A Thousand Years*, 25.
147 DeLanda, *A Thousand Years*, 60.



Figures 57-59.
Shelley Simpson, *Evaporation Disc*, 2023, iron suphate liquid and crystals, acrylic disc, cord.
In *space breathing/breathing space*,
Tāmaki Makaurau, Te Wai Ngutu Kākā Gallery.
Photographs: Shelley Simpson

forming onto the graphite surface, with a resulting increase in the amount of copper accreted onto the surface of the work.

In the work *Unthought: video,* I image the cross section of a tiny piece of the electroformed copper using a Scanning Electron Microscope (SEM). With the naked eye, it is possible to see that the surface of the copper has formed itself into a bobbly organic looking surface (fig. 55). 'Wild' copper ore also has this rounded shape (fig. 56). The magnification of the SEM reveals the structure of the cross section of copper to be fan-like—the copper growing in leafy, organic shapes from the central point. This change in scale allows a shift in understanding of the structure of the metal. Rather than a hard, regular structure, the metal becomes flesh-like, with an organic, bodily quality, closer to plants, bacteria, or fungi.

All the methods and techniques that were emerging in the works included in the exhibition *Unthought* have continued throughout my PhD project. The method of layering and a corresponding wearing away, the method of holding and releasing, and the method of floating have all informed the development of subsequent works. These methods are tools that gesture towards the use of lithic thinking as an ontological framework. One of these artworks is *Evaporation Disc* (2023, iron sulphate, acrylic, cord) which was exhibited in February 2023 as part of *space breathing / breathing space* at Te Wai Ngutu Kākā Gallery (with Lucy Boerman, Michelle Main, and Yana M' Baye). In this work, iron sulphate liquid sat in a shallow disc, suspended from the gallery ceiling. Over the course of the exhibition period, the liquid evaporated, leaving layers of iron sulfate crystals layered in the disc. The evaporation process was being written in the crystalline layers left behind. Each layer of mineral crystal tells the story of the period of time the evaporation took place, the intensity of the heat, the water that has evaporated. The crystals themselves create patterns, hatch marks, bubbles and growths, lifting in places (figs. 57-59). I return to this artwork in more detail in Chapter Four.

Side paper:
space breathing / breathing space

On Friday afternoon, we had finished the conference that ran alongside the exhibition *space breathing / breathing space*. I had presented a paper, as had my collaborator, Lucy. Michelle had given an artist talk in the gallery. The rain began. As I made my way to my car, I had to negotiate fast and unusually deep streams of water rushing down the street outside AUT. So began the terrible flooding event of Anniversary Weekend 2023, in which many people's lives were transformed through flooding and loss of life both in Tāmaki Makaurau Auckland and Te Matau-a-Māui Hawkes Bay. The gallery itself flooded with potentially contaminated water which gushed down the stairs and through the toilets. As the integrity of the building was permeated by the flood waters, mineral matter was washed into the gallery from outside and joined Yana's floor-based work made from clay, creating new sedimentations as the materials were dispersed and redeposited on the gallery floor. The gallery closed for several weeks.

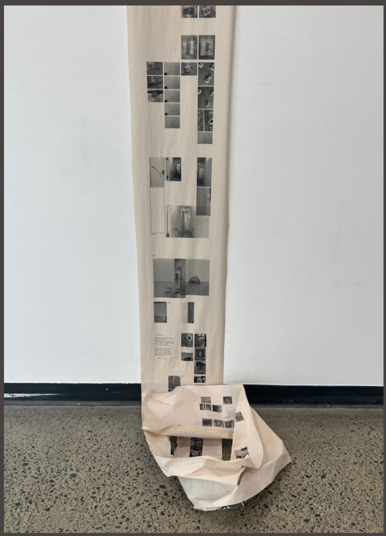


Figure 60-61.
The permeality of the WM Building evidenced in exhibition paper traces.
Photographs: Shelley Simpson

1.2.3 Conclusion

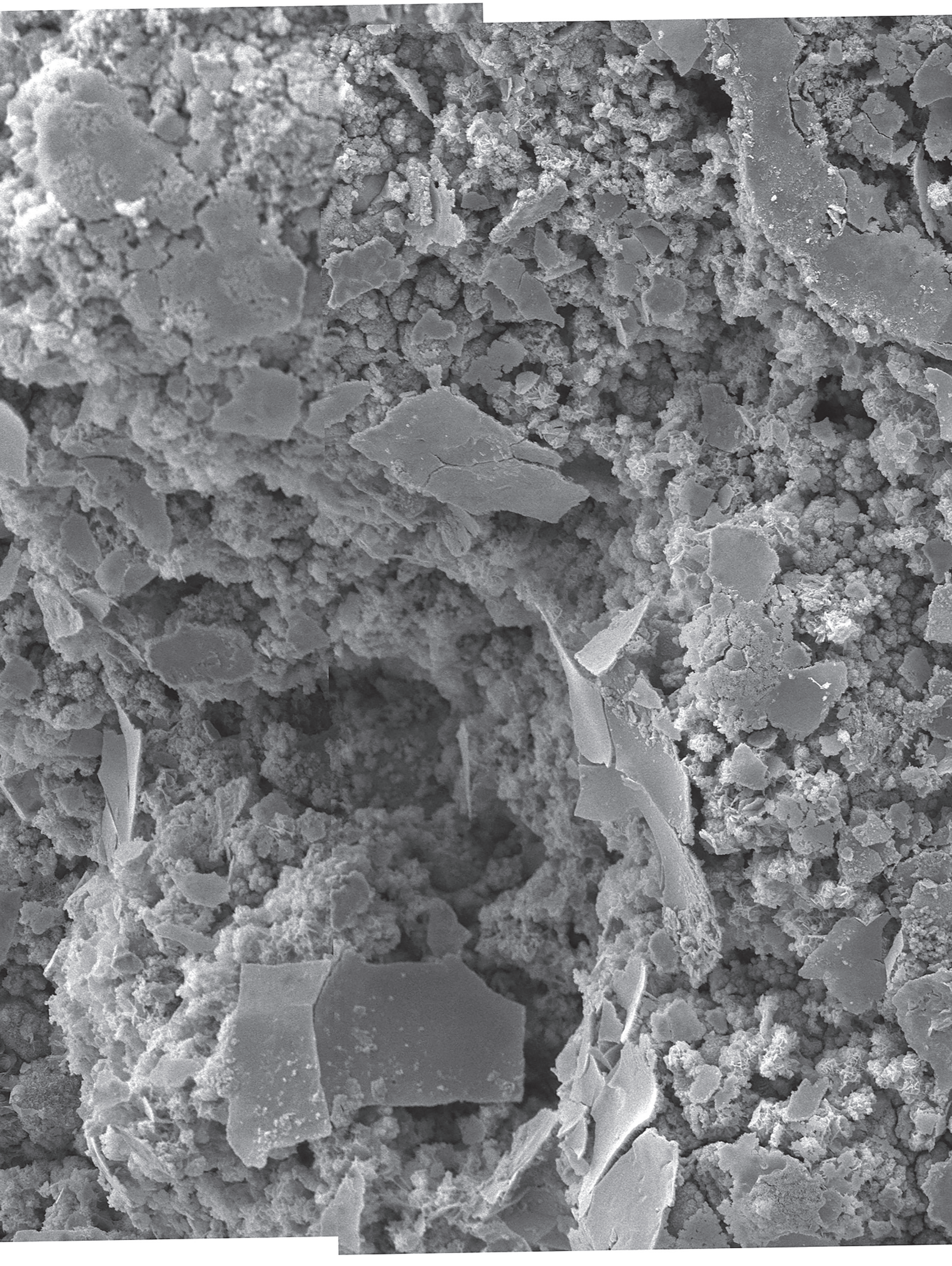
In this chapter, I have defined the term lithic thinking and its relationship to my art-making and research. Within a posthuman feminist framework, I have outlined three theoretical spheres that form the bedrock of this project. They are: a respect for knowledge of whenua in mātauranga Māori from my Tangata Tiriti perspective, a wariness of neo-vitalism, and recognition of the quality of matter-based liveliness through my practice-led research methods. Through the writing of Yusoff, Nail, Barikin, Povinelli, and Reinert I have traced a critique of new materialism which questions the tendency to find life in all places. As Barikin writes, "sometimes, importantly, the dead remain dead."[148] I have identified three methods that have become part of my art-making toolbox: holding/releasing, floating/sinking, and layering/wearing away. I have explored how these methods provide tools for lithic thinking in an art practice and how these methods apply to my body of work *Unthought.* In later sections of this exegesis, I will explore how these three methods have informed subsequent art-making. Later electroforming projects expanded to include iron and other types of containers, including hand blown glass. Wearing away continued to be important in ongoing metal surface experimentation. Holding and releasing became key in both iron, bronze and copper casting projects, most specifically in the casting project *Hand Held* (2023-ongoing), in which I cast the shape between my cupped hands, first in plaster of Paris, and then in metal.[149] Each of my methods is concerned with movement through state change: from solid to liquid to gas (and back) through time.

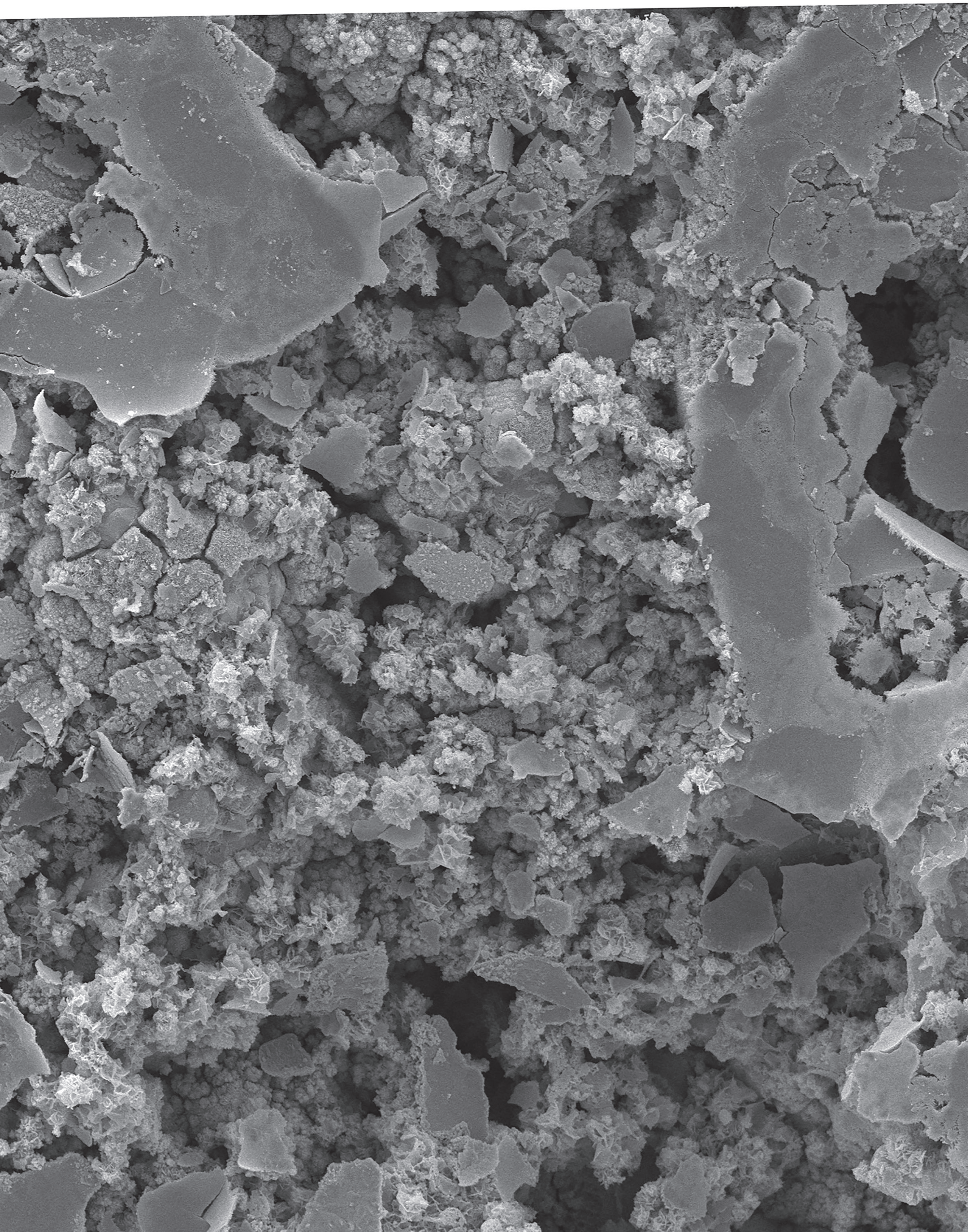
Two of my research questions have guided the contextual and methodological interplay in this chapter. I asked firstly, how can we build 'techniques of relation' that extend beyond the 'carbon imaginary'? By defining lithic thinking and working with my three methods I go some

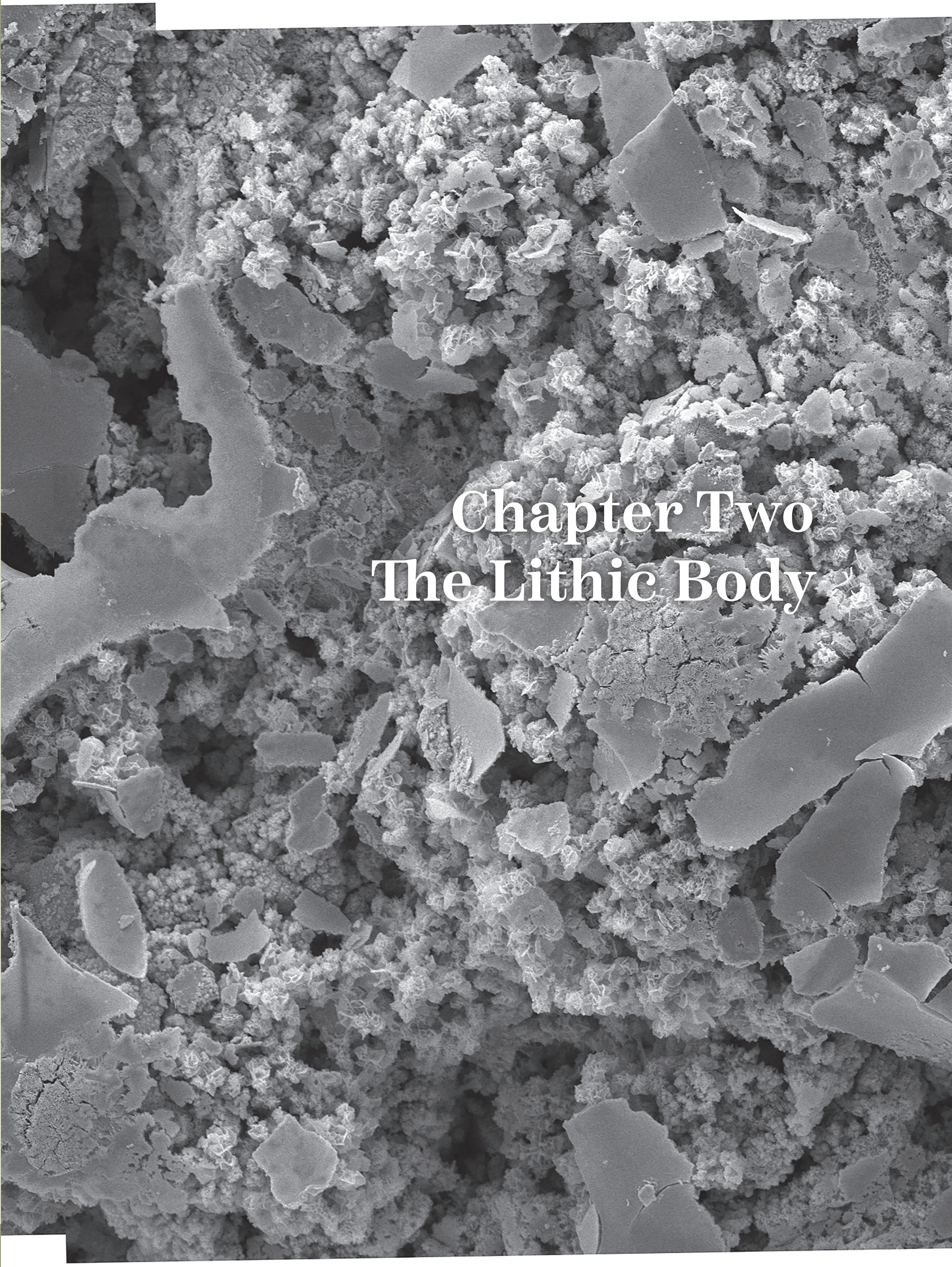
148 Barikin, "Sound Fossils and Speaking Stones," 254.
149 This project is described at length in Section 4.14

way towards building these techniques, at least in an art-making context. By interrogating our concepts of scale, temporality and 'aliveness' to take into account the mineral, the writers Cohen, DeLanda, and Nail suggest that we can widen our understanding of modes of being and of matter in movement. I have defined lithic thinking and making with three methods for building these techniques of relation in an art-making context. Secondly, I ask, how can we make space for thinking inorganic relationality? Working to consider this question through the writing of Povinelli, Reinert, Yusoff, and Barikin leads me into the next chapter, The Lithic Body, in which I suggest that it is the mineral inside our bodies that provides a pathway for a rich relationality that crosses perceived boundaries and categorisations.

In Chapter Two, I explore the myriad ways in which we are mineral bodies, and introduce the idea of a lithic feminism, through which the minerals in our human bodies connect us to other mineral bodies. I describe my encounter with the mineral life of a dress from the 1860s, the Rutherford dress, worn by Martha Rutherford at her wedding in 1866, in Whakatū. Now, 160 years after her body wore the dress, the dress continues to hold her, specifically through the mineral marks that are left in the fabric.







Chapter Two
The Lithic Body

Prologue: The Rutherford Dress

I encountered the bacterial and mineral lithic body most keenly when I visited Pupuri Taonga o Te Tai Ao Nelson Provincial Museum research facility at Stoke, in February 2022. I had been searching the museum's holdings that related to copper and chromite mining in Whakatū Nelson during the mid-nineteenth century, and a dress appeared as a search result. The dress, owned by Martha Rutherford is a wedding dress, possibly dyed with the mineral chromite.

At the research facility the box holding the dress was carried in by two people, the lid was lifted, and the coverings removed. The dress was nestled in tissue, and there was padding inside it too, holding the shape of the bodice, sleeves, and skirt. The effect of the tissue padding was that the dress felt as if it was floating around a body, rather than lying flat and empty; it had a certain life, a fullness, a body-ness (figs. 63, 65).

The dress was gifted to the museum by the Rutherford family in the 1980s. Martha was married in 1866. The dress is a beautiful pale green silk. It has facet cut mirrored buttons. There is lace at the collar and decorative fringing around the arms. The dress emits a powerful sense of its lived experience, not only because of the shape of the dress and the way it lies in the box, buoyed up by tissue, but through the condition of the fabric itself. There are many stains, especially down the front of the bodice, which speak of food being eaten, cups of tea drunk, perhaps sherry. The dress was obviously worn many times, not just as a wedding dress. The skirt is hemmed with a strip of woolen ribbon that is well-worn in places (fig. 64).

In a moment of almost unbearable intimacy, the technician shifts the sleeve of the dress to look at the underarm (fig. 66). Martha's sweat has stained the silk, and, for me, time collapses. It is here in this moment that I am confronted with the mineral traces of a woman living over 150 years ago. Her sweat staining the fabric is full of mineral salts, as are we all. So-

Figure 62.
The fabric of the Rutherford Dress, showing the fine tartan of green, cream and black.
Photograph: Shelley Simpson.

dium, potassium, magnesium, iron.[150] The dress is alive with the processes that continue to occur within it—the silk fabric itself changing, perhaps accelerated in the areas where other organic material is reacting, the metal fasteners slowly rusting. The entire thing is bustling with activity despite the efforts of the conservators to keep the dress as inert as possible.

The dress is a layering of meanings and physical accretions that reveal much about the woman who wore the dress and the context within which she did so. This dress contains Martha, holding her presence in the mineral traces of her body, persisting through time. To be confronted with the sweat stains in the fabric is to be reminded of the minerals that links us all to each other, both human and more-than-human. Contemporary American-Korean artist Anicka Yi's bacterial blooms in agar call attention to the physicality of bodies, particularly those bodies that are often not visible—in Yi's case, Asian women's bodies.[151] Martha's sweat announces her presence, demanding we attend to her absent body.

The mineral lithic of the dress is not confined to its physicality and the traces of Martha's body. There is a story about the dress that has persisted through time and is even part of the public Museum display. The story is that the dress was dyed using chromite to make the green hue—a mineral found locally at Dun Mountain, part of what is now known as the Mineral Belt, to the south and east of Whakatū, which I discuss in Chapter Three.

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150 C. Frank Consolazio et al., "Excretion of Sodium, Potassium, Magnesium and Iron in Human Sweat and the Relation of Each to Balance and Requirements," *The Journal of Nutrition* 79, no. 4 (1963): 407–15.

151 I discuss Anicka Yi's practice in Section 2.2.2

Figure 63.
The Rutherford Dress lies in its archive box, nestled in tissue.
Photograph: Shelley Simpson.

Figure 64.
The woollen hem of the dress, showing wear.
The brown inner lining of the skirt can be seen; a robust heavy fabric.
Photograph: Shelley Simpson.

Figure 65.
The Rutherford Dress at the Pupuri Taonga o Te Tai Ao Nelson Provincial Museum research facility.
Photograph: Shelley Simpson.

Figure 66.
The technician shows the sweat stains of the underarm fabrc.
Photograph: Shelley Simpson.

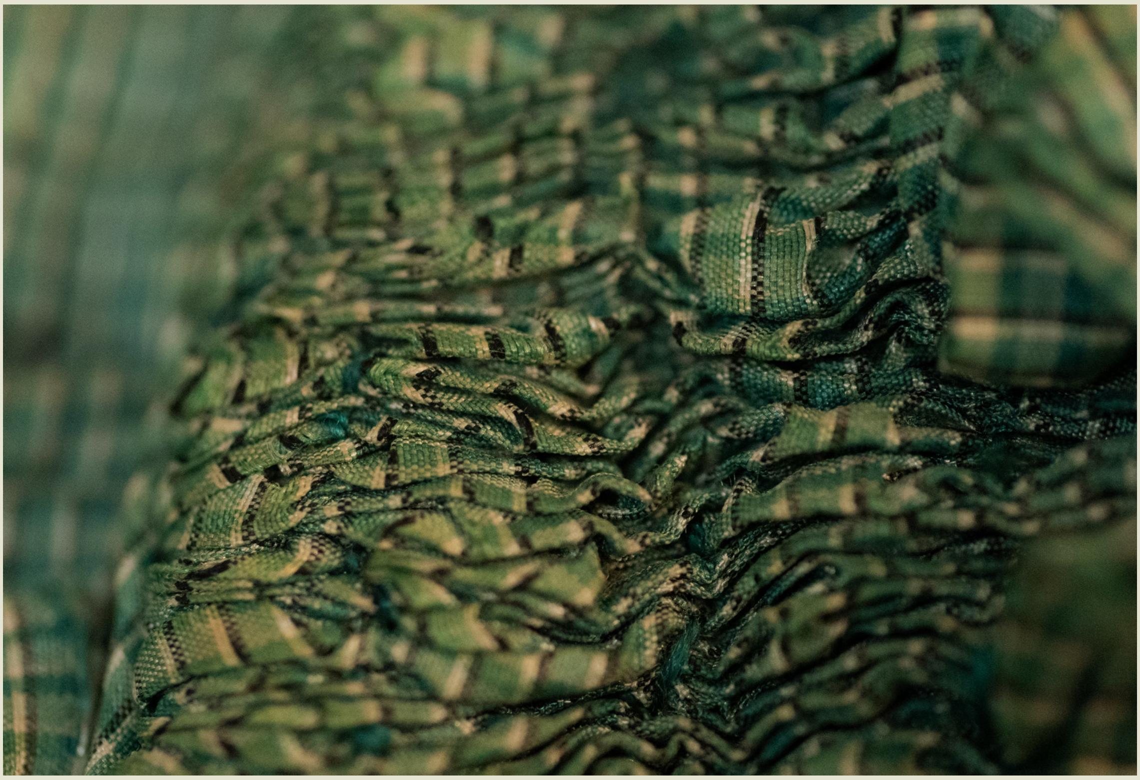


Figure 67.
Pintucking detail of the bodice of the dress.
Photograph: Shelley Simpson.

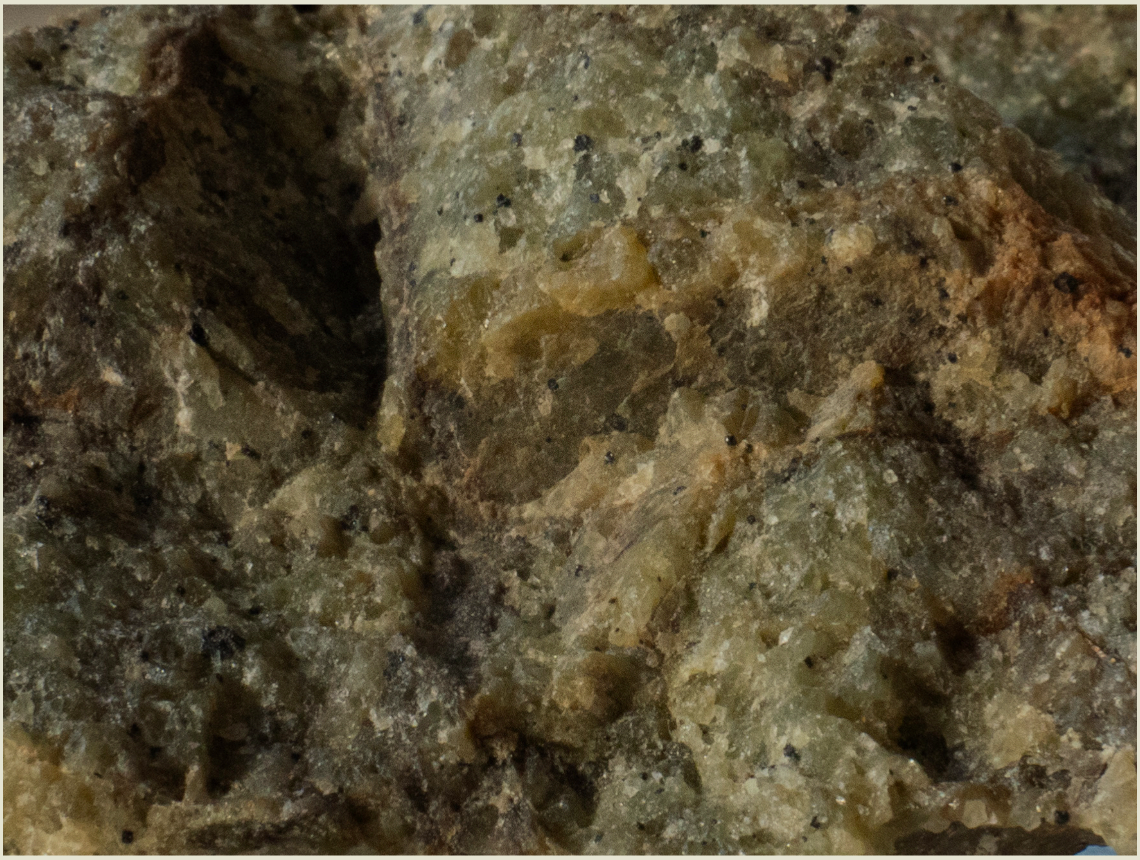
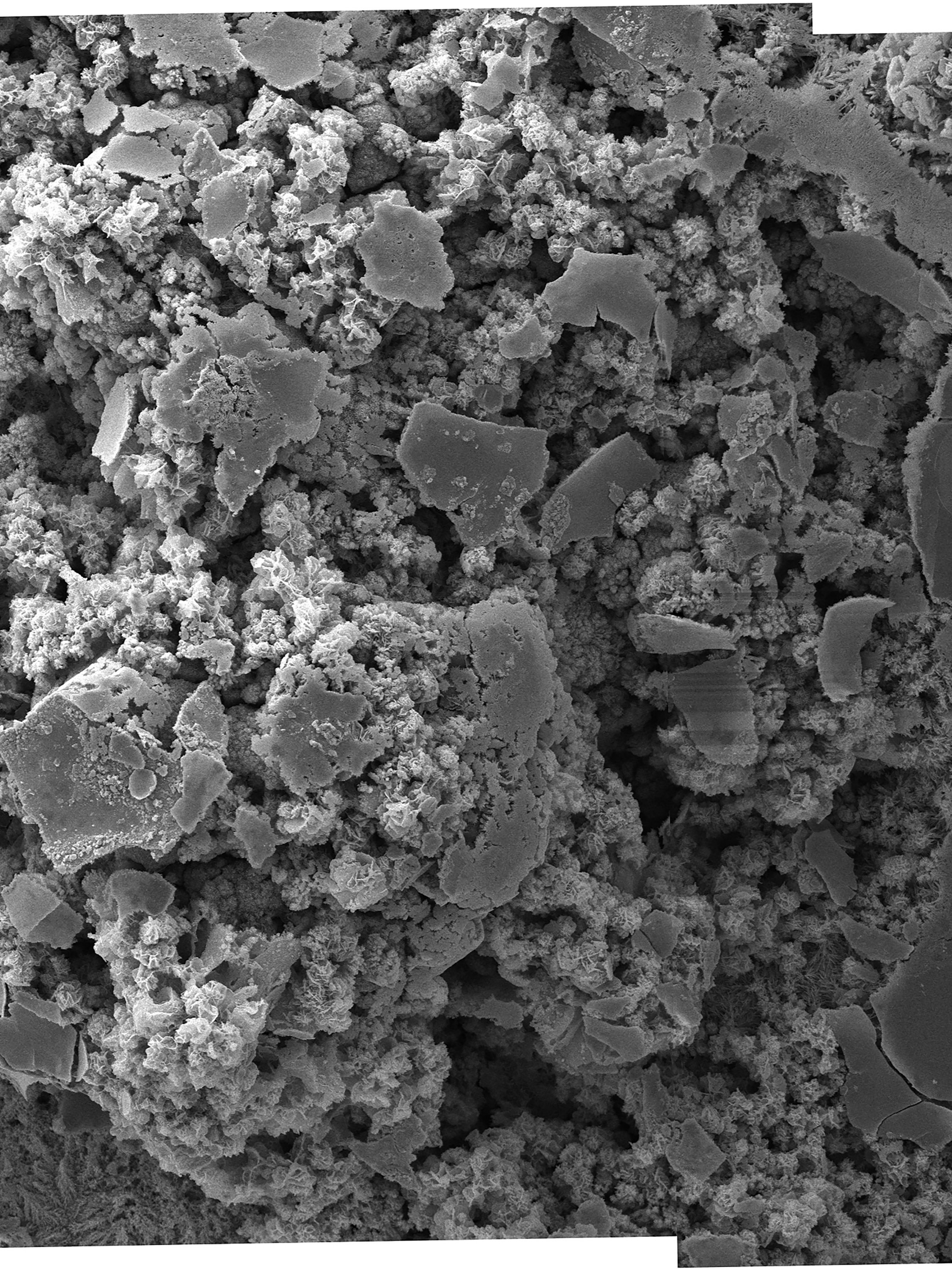


Figure 68.
Chromite ore, imaged through my fathers microscope at Pohara. The specks of black chromite can be seen.
Photograph: Philip Simpson.



Part 1 Towards a Lithic Body

Introduction

What does it mean to consider the human body as lithic? When we apply lithic thought to the body, what kind of body emerges? What does it mean to be in relation to other bodies, whether biological, such as animal bodies; or plant, fungal, and microbial bodies; or other Earth bodies like geologic bodies, chemical bodies, and liquid bodies? To be lithic is to be mineral, including stone, metals, and other mineral elements. To be lithic is an extension of lithic thinking, to consider the body both in terms of its minerality, but also how this minerality connects bodies.

In the Introduction to this exegesis, I described the strata of theoretical groundings that inform the lithic body. I began with posthuman feminism, a feminist position that has emerged from posthumanism and the work of ecofeminists, queer studies, Black, and decolonial feminisms, among others. Posthuman feminism seeks to encourage a subjectivity which emerges from an assemblage of embedded and embodied humans. I considered what a feminist posthuman body is: located, diverse, relational, porous, material, and accountable. In Part One of this chapter, I turn to Stacey Alaimo's transcorporality,[152] which recognises all bodies as porous, affecting and being affected by the environment, and that leads me to Astrida Neimanis's hydrofeminism. Following on, I introduce and develop my concept of lithic feminism, exploring the way in which these concepts allow us to "surround ourselves with the possibilities for being otherwise."[153]

Part Two of this chapter considers how the lithic body is present in my own research and art-making. I look at contemporary artists Nina Canell,

152 Alaimo, Exposed: *Environmental Politics.*
153 Neimanis, *Bodies of Water*, 5.

Anicka Yi, and Cecilia Jonsson, who create work that can be seen to occupy the space of the lithic body. My current iron casting project *Hand Held* (2023-ongoing) explores how the concepts of the lithic body and lithic feminism are continuing to be present in my work. Firstly, however, I outline how bodies developed their lithic materiality, and how the minerals inside us connect us back through eons of time to the Hadean (4.5-4 billion years ago), to the molten surface of the Earth.

2.1 The Genesis of Lithic Life

The bony skeletons of human bodies are made of one of the most abundant minerals on Earth, calcium.[154] Calcium has been part of the story of our bodily structure since the emergence of bodies with hard parts. There was a time, over 500 million years ago, when living creatures took the form of soft, plate-like structures, flowing along the sea floor, feeding on mats of microbes and single celled organisms. These were *Dickinsonia*, only millimeters thick, but up to a meter long. Their ribbed front and back potentially moved through muscle contractions.[155] The first animals to utilise a bony part were most likely the prehistoric, jawless, fish-like *Ostracoderms*, who developed external dermal plates made of dentine (calcium phosphate), like our teeth.[156] These plates may have been for protection or helped with swimming in the ocean. *Conodonts,* a worm like creature that lived in the ocean during the Paleozoic Era (541-252 million years ago) was the first animal to develop internal hard parts. They had small hard tooth like structures made from calcium phosphate that lined their mouths, helping them to grasp prey. Author Robert McFarlane writes of the underground geology of the body, "we are part mineral beings too—our teeth are reefs, our bones are stones—and there is the geology of the body as well as of the land. It is mineralization—the ability to convert calcium into bone—that allows us to walk upright, to be vertebrate, to fashion the skulls that shield our brains."[157] Manuel DeLanda describes how this internal mineralisation is also extended externally, as we create a stony environment for ourselves by building houses and other constructions from stone and earth.[158]

154 Although calcium makes up only 4% of the minerals in the Earth's crust, it is 5th on the list of abundancy. Chris Johnson et al., *An Introduction to Geology* (Salt Lake City: Salt Lake Community College: 2017), https://opengeology.org/textbook/, chapter 3.

155 Annie Sneed, "Ancient, Pancake-Shaped Marine Animals Were on the Move," *Scientific American*, September 1, 2019, https://doi.org/10.1038/scientificamerican0919-12.

156 Franz Anthony, "Ostracoderms, Armored Fishes without Jaws," *Earth Archives*, accessed August 21, 2023, https://eartharchives.org/articles/ostracoderms-armored-fishes-without-jaws/.

157 Robert Macfarlane, *Underland: A Deep Time Journey* (London: Penguin, 2020), 37.

158 DeLanda, A Thousand Years, 27.

Traces of the very beginnings of the Universe are held deep within the matter that makes up the cells of our being. The overused truism is that we are star dust. We *are* star dust, as is everything around us, every entity, every thing, whether we see it as alive or not alive. As well as a kilo of calcium, humans are also made from 13 kilos of carbon and another 58 chemical elements, 27 of which play an active, vital role in the functioning of our bodies. Within our cells, we have minerals needed by our bodies to perform respiration, energy transfer, cell reproduction, and growth. Among these minerals there is 3-4 grams of iron in an average-sized human, essential for cellular function and for respiration of oxygen.[159] The placenta holds iron in concentration, vital for the transfer of oxygen and nutrients from mother to embryo. These minerals connect us, as beings, back to the Hadean era, when the Earth's surface was a continuous bombardment of objects from space, even before the time of volcanoes. In mātauranga Māori, the link between our bodies and the land is evidenced through whakapapa, in which all lineages can be traced back to Papatūā-nuku, the earth mother, or to one of her children. People are of the land, not separate. This relationship is cemented at a baby's birth, when the whenua (placenta) is buried in the earth, which is also called whenua. As Māori lawyer E.T. Durie notes, "the whenua or land thus passes through the whenua or placenta."[160]

159 National Institutes of Health, Office of Dietary Supplements, "Iron: Fact Sheet for Health Professionals," accessed November 24, 2023, https://ods.od.nih.gov/factsheets/Iron-HealthProfessional/.

160 E.T. Durie, "Ancestral Laws of Māori: Continuities of Land, People and History," in Huia Histories of Māori Ngā Tāhuhu Kōrero, ed. Danny Keenan (Wellington: Huia Publishers, 2012), 7.

Sidepaper:
Iron Footed Snail

For many entities, their minerality is hidden within their bodies. But some of us wear our minerality literally on our sleeve, or as our sleeve. The iron footed snail (or scaly-foot gastropod, *Chrysomallon squamiferum*) does exactly this. This deep-sea animal lives only in a section of the sea floor, less than a third of a square kilometer, in the hot hydrothermal vent fields of the Indian Ocean. The snail has scales covering its fleshy foot. These hundreds of iron-mineralised sclerites are composed of iron sulfides, greigite, and pyrite. In addition, the snail's shell is made, in part, from iron sulphate. This is the only animal in the world that is known to use these minerals in this way. The scaly footed snail is also mineral in its digestion—it gains its nutrition through hosting sulphur-eating bacteria inside itself, allowing it and the bacteria to live in the extreme chemosynthetic environment of deep-sea hydrothermal vent fields. Additionally, scientists believe the protective scaly foot has developed to be beneficial to the microbes living inside it.[161] As a lithic body, the iron footed snail and its symbiotic bacteria have responded to their unique environment with mineral creativity.

Figure 69.
The Scaly-Foot Gastropod, found living next to ot
hydrothermal vents deep in the Indian Ocean.
doi: https://doi.org/10.1371/journal.pone.0032965.g005

161 Chong Chen et al., "The 'Scaly-Foot Gastropod': A New Genus and Species of Hydrothermal Vent-Endemic Gastropod (Neomphalina: Peltospiridae) from the Indian Ocean," *Journal of Molluscan Studies* 81, no. 3 (2015): 322–34, https://doi.org/10.1093/mollus/eyv013.

Metals provide a direct connection to deep geologic time and the earthly conditions and forces that created all matter on earth. My body that works to participate in an art practice is lithic. It is my mineral skeleton that enables me to engage with materials. It is the minerals in my bodily tissues and brain that allow my body-brain to function. The iron footed snail protects itself and its bacterial partners with iron scales. The minerals within my own body enable my life to endure, and my body to be in relation with others.

Now that we are firmly located within our ancestral and contemporarily emerging mineral bodies, we can turn to the theoretical groundings for considering what a materially mineral body might mean, socially and politically. Grounded in posthuman feminism, and expanding the feminist posthuman body, the lithic body is material, discursive, implicated, response-able (after Barad), and cyclic. In the next section, I expand each of these, asking, what does the body become when considered through an ontological lens of lithic thought?

2.1.2 The Lithic Body

The lithic body is a material and discursive body, with a mineral skeleton, blood full of iron, and cells hosting copper and other metals. A lithic body has sweat full of salts. A lithic body gestates others, in part through the placenta, rich in minerals. A mother's milk is full of necessary minerals and salts to nourish her baby. The interior hard minerality of the lithic body has been externalised by the construction of structures made from stone and concrete. The lithic body extends itself through the use of tools, some made from metal. Minerals have adorned bodies, contained stories, held value, and have been used to apportion power. Historic and contemporary extractive activity places the lithic body firmly within the politics of colonialism and the global movement of resources.

A lithic body is implicated, to varying degrees, in the current climate crisis, whether as the body of one of the minority groups using most resources and driving rising global temperatures, or as a member of the majority who use less but suffer more. Each of us has a body that extends beyond and through ourselves in material ways. A lithic body is therefore response-able.[162] A response-able lithic body draws attention to its lithic self, recognising that the minerals inside it extend beyond the body. According to posthuman feminists and material feminists (Alaimo, Braidotti, Neimanis among others), the body is not bounded, nor individual, but is porous and leaky in both directions, both inside and outside the skin. The transcorporeality of the lithic body implicates the body in the environment, and the environment in the body. The understanding that we all have some degree of toxicity in our bodily systems works to break down the conceit of individual separability of a body from the surroundings. The concept of 'self-care' must now extend outward beyond our skins.

The lithic body is cyclic. Mineral traces of human bodies are everywhere, particularly in the soil. Archeologists can find traces of humans long gone

162 Donna Haraway, *When Species Meet.* Minneapolis: University of Minnesota Press, 2008

through traces of minerals. Bones and teeth may have dissolved, but calcium phosphate may still be present where they lay in the earth. Manganese and iron may also remain. The very atoms of enslaved people are in the ocean where they were thrown overboard in the Middle Passage.[163] As a body that is material, implicated, responsible, and cyclic, the lithic body is also, according to environmental feminist writer Stacy Alaimo, transcorporeal, intermeshed with the material world.

2.1.3 Transcorporeality

In Alaimo's 2010 book *Bodily Natures: Science, Environment, and the Material Self*, she developed the concept of transcorporeality, which she continued to develop in later writing.[164] Alaimo was responding to the diminishment of the body and materiality in feminist theory of the past few decades. As scholar of feminist science Elizabeth A. Wilson argues, after the important work of post-structuralist feminists in the 1980s and 1990s on patriarchal systems of language and power, the body had "become curiously abiological."[165] Transcorporeality is a zone where material feminism and environmentalism can meet in productive ways. The transcorporeal body is where "human corporeality, in all its material fleshiness, is inseparable from 'nature or 'environment.'"[166] Transcorporeality is a way of thinking about feminism and environmentalism concurrently, partly countering the way in which the two conversations have been isolated from each other. Transcorporeality sees all creatures and matter, including humans, intermeshed with the material world. All are transformed and, in turn, transform all else. The *trans* of transcorporeality indicates movement across different sites, opening a space that acknowledges the interconnectedness of human and nonhuman creatures, of modes of production and ecological systems, of food systems and chemical agents. It is

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163 Astrida Neimanis, "Hydrofeminism." In *Posthuman Glossary*, edited by Rosi Braidotti and Maria Hlavajova, (London: Bloomsbury Academic, 2018), 65.

164 Alaimo, *Exposed: Environmental Politics.*

165 Elizabeth Wilson, *Neural Geographies: Feminism and the Microstructure of Cognition* (Abingdon: Taylor & Francis, 2016), 15.

166 Alaimo, "Trans-Corporeal Feminisms," 238.

the often-unpredictable nature of these relationships that Alaimo draws attention to, particularly in relation to chemical toxicity within bodies. Mercury is a case in point, a poisonous heavy metal that those of us who consume fish will have unwittingly taken into our bodies. Alaimo points out that there are no non-toxic bodies now, no place on the planet which is free from toxins. It is the traffic of toxins through the environment and through our bodies that makes it impossible for us to separate ourselves from the environment. Our bodies are leaky, in multiple directions.

Transcorporeality provides my project with an epistemological space to consider the porosity and embeddedness of our bodies. Transcorporeality allows me to consider the minerality of bodies, both a necessary part of functionality and potentially a toxin. As Spinoza wrote (as interpreted by Moria Gatens), human bodies are never finished or final, as they are in constant interchange with their environment, altering and being altered.[167] That which a body encounters is either good or bad, depending on its affect, and even this can develop and change. For example, calcium phosphate is a mineral salt that was initially a nuisance or even a hazard for early life. It was eventually used as skeletal material by protist cells who found a way to cleanse it from their tissues and use it.[168] From a feminist perspective, Alaimo writes that the transcorporeal body allows us to reimagine human materiality as always bearing the traces of history, social position, and the uneven distribution of risk, rather than once being in a utopian or romantic state of purity.[169]

The body has been lithic, for better and for worse, from the beginning of life. Our bodies are permeable, always in a state of porosity. Our bodies are also already 'other,' a conglomerate of systems and materials. I turn now to a feminist ontology of the body and consider how this might influence our ethical position in the world, particularly in relation to a material art-making practice.

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167 Alaimo, "Trans-Corporeal Feminisms," 255.
168 Margulis and Sagan, *What Is Life?*, 29.
169 Alaimo, "Trans-Corporeal Feminisms," 261.

2.1.4 A Watery and Rocky Feminism

Adrienne Rich's politics of location begins with the body. Similarly, Astrida Neimanis focuses on the importance of how we understand embodiment, and how "specific bodies become meaningful in communities of other bodies."[170] Bodies are situated within networks of power. To help to understand these complexities, Neimanis draws on Braidotti's proposal[171] that we adopt 'figurations,' 'living maps' that acknowledge, "concretely situated historic positions."[172] Figurations are, according to Neimanis, not metaphors, but rather amplifications of what is already there. Haraway's *cyborg* (1985) and *companion species* (2003) are figurations, as is Braidotti's *nomad* (2012). Braidotti underlines that figurations are not arbitrary but arise in response to particular contemporary questions or problems; the cyborg is a response to a new world of biotechnology, the companion species to transgenic species development, the nomad to the issue of global migration. Neimanis explains: "Figurations are keys for imagining and living otherwise, but unlike a concept unfettered by the world we actually live in or as, figurations are importantly grounded in our material reality."[173]

Neimanis offers her own figuration of the body as watery, with the accompanying concept of hydrofeminism. She outlines how her figuration of bodies of water is a direct response to the crisis our planetary waters and wounded water systems are in. By figuring embodiment as watery, Neimanis is deliberately extending "feminist theories of embodiment into distinctly posthuman waters."[174] While we know that the human body is on average 60% water, Neimanis writes that it is the epistemological

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170 Astrida Neimanis, "Feminist Subjectivity, Watered," *Feminist Review*, no. 103 (2013): 25.

171 Rosi Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory*, 2nd ed. (New York: Columbia University Press, 2011).

172 Rosi Braidotti, *Transpositions: On Nomadic Ethics* (Cambridge: Polity Press, 2012), 7.

173 Neimanis, *Bodies of Water*, 5.

174 Neimanis, *Bodies of Water*, 6.

and ethico-political implications that are more challenging.[175] Hydrofeminism is rethinking bodily matters beyond a humanist imagination: challenging anthropocentrism through seeing the watery body as leaky, as part of the hydro-commons, and as hybrid; the body is an assembly of matter, including water.[176] Important to hydrofeminism is the gestational nature of water—we literally bathe ourselves into life. Neimanis writes, "the promise of feminist theory, suggested by Elizabeth Grosz … is its ability to generate concepts that allow us to 'surround ourselves with the possibilities for being otherwise.'"[177] This is an "action concept."[178] Neimanis' elegant idea of hydrofeminism connects us, bodily, to other bodies of water and suggests that this connection calls for us to care for those other bodies. She describes the body as fluid-filled, an oceanic eddy. She adds: "The space between ourselves and our others is at once as distant as the primeval sea, yet also closer than our own skin—the traces of those same oceanic beginnings still cycling through us, pausing as this bodily thing we call 'mine.'"[179] My research has been, in part, creatively shaped by her work defining and developing hydrofeminism, and I have extended her methodology to create a new elemental figuration of my own, that of lithic feminism.

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175 Neimanis, "Feminist Subjectivity, Watered," 27.
176 Neimanis, *Bodies of Water*, 1.
177 Neimanis, *Bodies of Water*, 5.
178 Braidotti, Jones, and Klumbyte, *More Posthuman Glossary*, 64.
179 Neimanis, "Hydrofeminism," 96.

2.1.5 Lithic Feminism

I extend the concept of hydrofeminism towards the lithic, the mineral, proposing a lithic feminism that is embodied in my art practice, another 'action concept' that calls for a recognition of our relationship to deep time, to geology, to the origin of the Earth, to mineral bodies here and now, and to our relationships with these bodies.

Practicing a lithic feminism is to consider the lithic body and to ask how such a body engenders a feminist subjectivity. Earlier, I described the lithic body as material, discursive, implicated, response-able, and cyclic. Building on posthuman feminism, the lithic feminist approach in my art practice poses the lithic of the body in counterpoint to the autonomous individual. The mineral inside us connects us to other mineral bodies across space and time. In addition, the lithic body is political, implicated in global resource extraction with its associated damage to both the environment and people. As lithic beings, we are accountable for our actions in the world and how we respond to these crises. As Tangata Tiriti, my own lithic body demands that I consider and confront my ancestral complicity in the colonial extraction activities that my family was involved in at Whakatū in the mid-nineteenth century. And my lithic body demands that I consider my own impact on the earth through my direct consumer activity and my relationship to other earth bodies, animal bodies, plant bodies, and mineral bodies, and the use of these materials in my art practice.

In performing a feminism based on a relational body, an assemblage that challenges the autonomous discrete body, it is important to note that, for many feminists, claiming one's body as one's own has been a hard fought and politically vital battle. We must be careful to retain personal agency over discrete bodies, especially for those who have not had the privilege of owning their own bodies and having control over what happens to them. Yet, we can stay materially centered and focused on what our responsibilities are. As Neimanis writes, paraphrasing Haraway, "The challenge is to assume responsibility, even as we stay with the trouble."[180]

2.1.6 The Empathic and Ethical Lithic Body

As responsive lithic bodies, I ask, how do we approach ethical ways of being, and how can this be folded into an art practice? What does the materiality of our bodies allow? An ethical approach to the world is predicated to a certain extent on a sense of empathy. How can we feel empathy for the mineral, and therefore for each other and the many creatures of mineral landscapes, as lithic beings? It is perhaps a more straightforward proposition to feel empathy for the humans like us who are impacted negatively by our activities that involve minerals, those who are displaced, poisoned, or otherwise victimised. Is it also possible for us to have empathy for the other than human? Empathy is literally a feeling into the other—the German Einfühlung. But how do we feel into the other if the other is so different to us that there are not obvious points of similarity? This is one of the problems that writers such as philosopher Danielle Sands flags when thinking about empathy: there is a strong correlation between the intensity of empathy felt and the ontological familiarity perceived between the empathiser and the receiver of the empathy.[181]

Such questions become even more complex when we consider whether it is possible to have empathy for plants, bacteria or even the non-organic, such as the mineral. Michael Marder, writing about the limits of empathy in relation to plants, believes that the ontological differences between plants and humans require an empathy that is predicated on a negation of the true mode of being of plants; that we must project on to plants anthropomorphic constructs to be able to feel empathy. Furthermore, he writes that "empathy bears upon the others psychic interiority, into which it probes by means of projective imagination."[182] The inaccessibility of

180 Neimanis, *Bodies of Water*, 17.

181 Danielle Sands, *Animal Writing: Storytelling, Selfhood and the Limits of Empathy* (Edinbugh: Edinburgh University Press, 2019).

182 Michael Marder, "The Life of Plants and the Limits of Empathy," *Dialogue*

a plant's psychic interiority requires the empathiser to project her own feelings on to the other. Marder writes, "Through empathy, I deposit in the other, as construed by me, something that is already in me and, thereafter, re-discover myself in the other."[183] An alternative ethical approach would, he says, be non-empathic, would preclude, "human self-recognition in and projection onto the world of flora." He suggests that, rather than looking for the ways in which plants are like us, we can recognise what is in us that is like plants. An example is recognising the crucial role of nonconscious intentionality of any embodied existence.[184] Plants exist "without a head" and we can see in ourselves a desire for an absence of self-consciousness, a simple, blissful ignorance.[185]

Rocks and stones also exist without a head, and perhaps hold other qualities we may strive for, solidity, strength, persistence, immutability. This recognition of nonconscious activity returns me to the work of Kathryn Hayles that I described in Chapter One, where I drew attention to activity that is occurring below the threshold of note and how this activity might allow us to see similarities across ontological divides. These thoughts bring me closer to a concept of empathy for the mineral rather than a sense of the psychic interiority of the lithic. For Māori, the mineral has mauri, a life force that connects it to all other entities, cognitive and non-cognitive. From a Western perspective, the mineral is inert, at the very bottom of the ladder of life. Only in the world of spiritual and healing gemstones do the mineral have a kind of life, but this is at its best a type of sympathetic magic and at its worst a cynical projection of characteristics

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Canadian Philosophical Review/Revue Canadienne de Philosophie 51, no. 2 (2012): 262.

183 Marder, "The Life of Plants," 262.

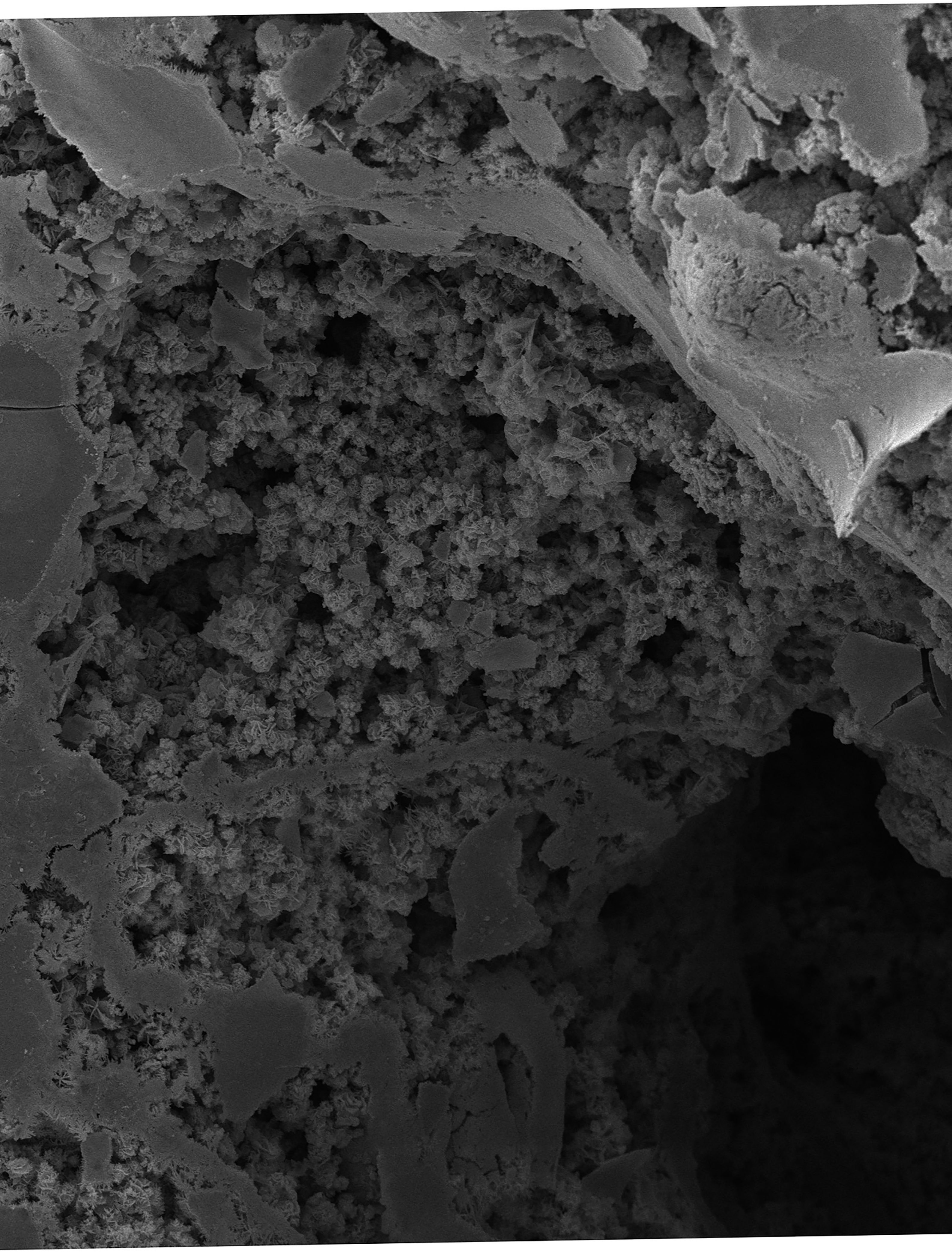
184 Marder, "The Life of Plants," 265. Marder suggests that rather than empathy, with its need for ontological closeness, an ethical approach to plants could be sensitive to plant differences. He cites Levin's ethical "substitution in separation"—that the 'I' puts itself in the position of the other, taking care not to annihilate the other's alterity. Deleuze and Guattari speak of "becoming-plant" as a step in the molecular breaking down of the identity of a subject to the point of "becoming-inorganic" and "becoming imperceptible." Deleuze and Guattari, *A Thousand Plateaus*, 278, 300.

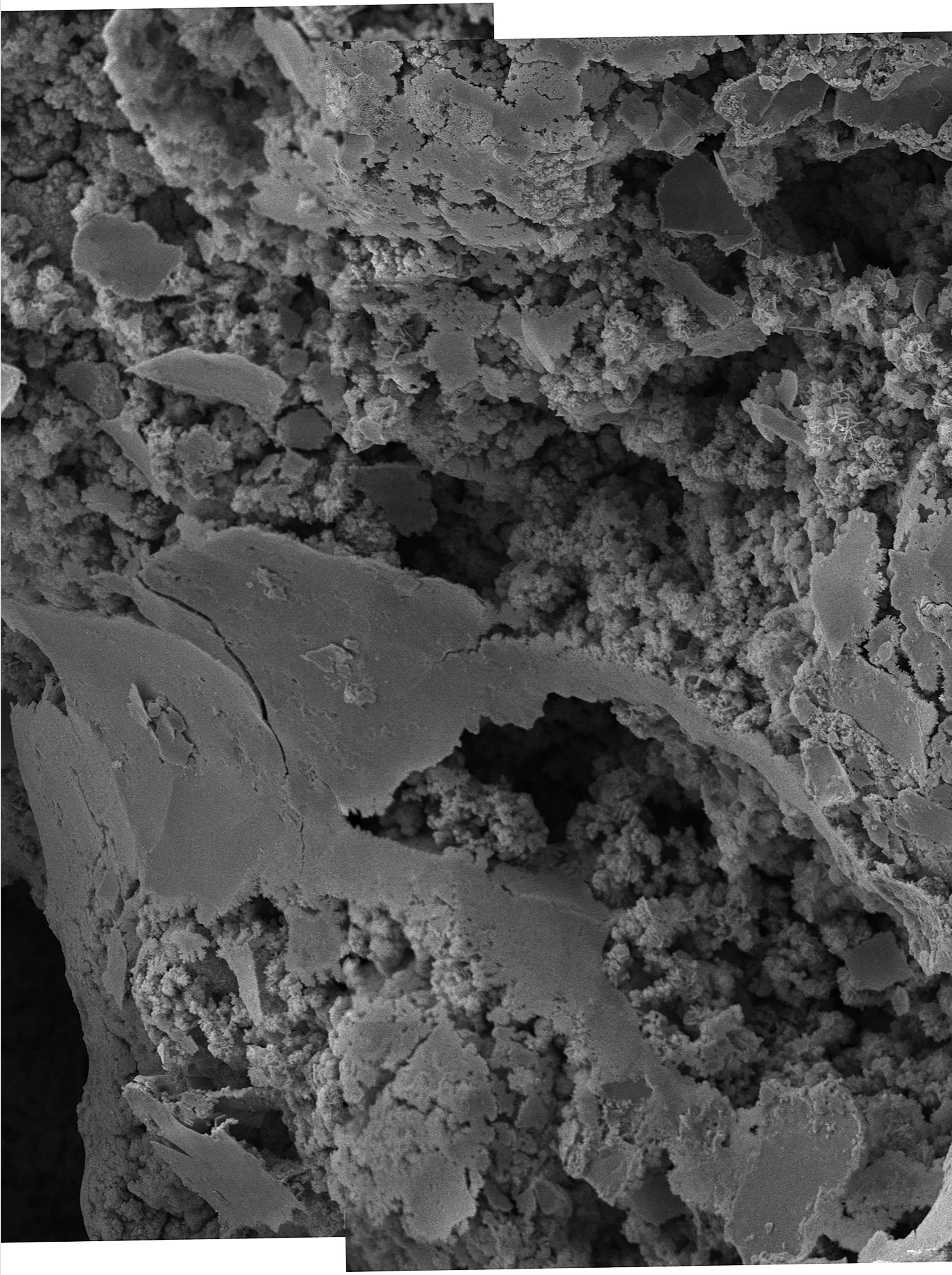
185 French poet Francis Ponge, "La Plante," in *Le Parti Pris des Choses*, 17-18 (Paris: Gallimard, [1942]).

(for gain, both financial and power).[186] Yet, we are all made of the same stuff, suggesting that empathy could be based not on ontological proximity, but on relationality at the atomic level. It takes a feat of imaginative speculation to imagine that you are 'feeling into' a mineral; the gulf is so wide, the language seems impossible to hear. Nevertheless, through art encounters I suggest that we can indeed 'feel into' a mineral and at the same time not simply project ourselves on to it. Creative endeavors such as art and literature provide ways to feel these resonances between our own lithic body and the mineral within it.

In the first half of this chapter, I have proposed the theory of the lithic body, framing such a body within a posthuman feminist framework. I have focused on material feminism and using the concept of figurations as a way of suggesting creative concepts, and I have offered my own feminist figuration, that of lithic feminism. I now turn to art-making. I explore the work of Nina Canell, Anicka Yi, and Cecilia Jonnson: three contemporary artists who are all exploring the lithic body. I discuss my own project *Hand Held* and the way in which this project is of the lithic body, and reflective of a lithic feminist approach.

186 Perhaps we need to use Deleuze and Guattari's concept of 'becoming imperceptible' to find a common ontology that could generate empathic feelings.





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Figures 70-71.
Installation views of Nina Canell's *Muscle Memory (7 Tonnes)*, 2022.
Hardscaping material from marine mollusks, dimensions variable.
Berlinische Galerie, Berlin. Photograph: Nick Ash.

Part 2
The Lithic Body in Contemporary Art-Making

Nina Canell, Anicka Yi, and Cecilia Jonsson are all artists whose work helps me to 'feel into' the mineral. In Canell's *Muscle Memory (7 Tonnes)*, the calcite bodies of shells speak of our own mineral skeletons and the externalisation of our skeletons as concrete. Anicka Yi recognizes the transcorporeal body though her work with odour and bacteria in *In Love with the World* and *Grabbing At Newer Vegetables.* Cecilia Jonsson externalises the lithic body through both locating the body in the landscape (*Prospecting: A Geological Survey of Greys*) and working with the very minerals present in human bodies (*Haem*). I begin with Nina Canell and her crunchy calcite shells.

2.2.1 Nina Canell

Earlier in this chapter, I introduced the iron footed snail, who lives deep in the Indian Ocean. Many creatures who live in the ocean have developed a hard exterior, reflective of our own interior skeleton. We are in contact with these creatures daily, even as we brush our teeth with toothpaste whose gritty quality is limestone, made from the shells of tiny creatures, who died and fell to the sea floor many millions of years ago. Nina Canell is a Swedish artist who lives and works in Berlin. Her practice is largely concerned with materiality and process, and in many of her works, processual forces are foregrounded with electricity, heat, gravity, and other 'unseen' actants at play. Canell describes her practice: "I often like to inhabit this gap between knowing and seeing and encourage viewers to understand materiality as something porous and deep."[187]

In 2022, Canell held the exhibition *Tectonic Tender* at Berlinische Galerie Museum of Modern Art. As part of this exhibition, the work *Muscle Memory (7 Tonnes)* covered the floor of the gallery with seven tonnes of

187 Canell, "Geobiology."

shells, the calcite lithic bodies of sea creatures, often used as a landscaping material. Visitors were invited to walk on the shells, crushing them beneath their feet (figs. 70, 71). This action draws attention to the relationship between the calcium of our internal skeleton and the shells of these animals, and the use of materials such as these in the exteriorisation of our internal minerality, through the construction of buildings and other hard infrastructure. The calcite of the shells is a vital ingredient in concrete making. In this exhibition, Canell "wanted to invite viewers to reflect on the fact that there is a kind of vitality there in the ground, and that plenty of building processes are tied up with the act of breaking."[188]

It is this recognition of bodily vitality in the material and in ourselves, at the same time, that I find most compelling in Canell's work. Materials are lively and in relation. Canell says the shells in *Muscle Memory (7 Tonnes)* "speak up from the ground" as they are crushed by the weight of the human participants, in a noisy relation. She says, "they speak of pressure and transformation, emitting the sound of a broken dried-out voice."[189] Canell's shell bodies speak audibly, while Anicka Yi's subjects communicate through odour.

2.2.2 Anicka Yi

In Korean-American, New York-based artist Anicka Yi's work, *In Love with the World* (2021), exhibited at The Tate Turbine Hall (London), she created floating aerobes, machines that moved autonomously, using AI to respond to each other and to the heat generated by visitors' bodies (fig. 72). In addition, Yi created scentscapes for the gallery space that changed from week to week, referencing the environment of the Tate and moving through time, including marine scents from the Precambrian period (4.6 billion to 541 million years ago), the smell of coal, and scents that would have been found at the time of the Black Plague.

188 Canell, "Geobiology."
189 Canell, "Geobiology."

Image redacted due to copyright.

Figure 72.
Anicka Yi, *In Love with the World,* 2021,
London, Tate Gallery.
Photograph: Will Burrard-Lucas.

Image redacted due to copyright.

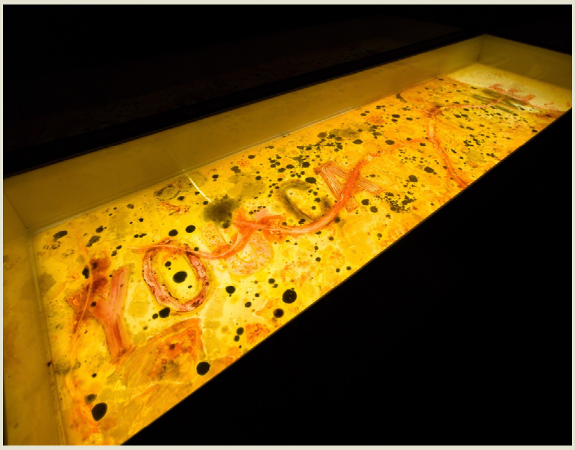
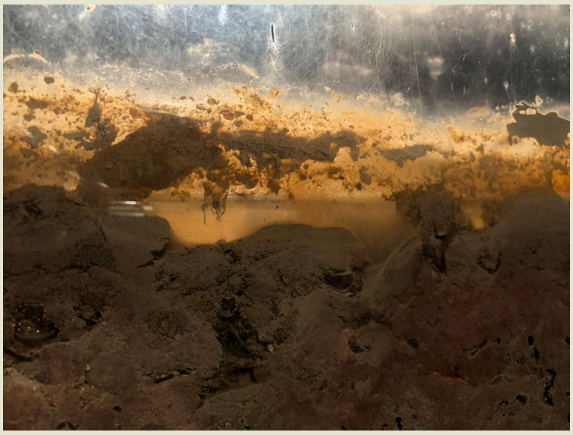


Figure 73.
Anicka Yi, *Grabbing at newer vegetables,* 2015,
47 Canal, New York and The Kitchen, New York.
Photograph: Jason Mandella.

Figures 74-75.
Anicka Yi, *Biologizing the Machine (tentacular trouble)*, 2019, Venice Biennale.
Photographs: Shelley Simpson.



Figures 76-78.
Anicka Yi, *Biologizing the Machine (terra incognita)*,2019, Venice Biennale.
Photographs: Shelley Simpson.

Yi works with odour to think about socio-political questions of race and gender, as well as the wider question of human hubris and anthropocentrism. She recognises that bacteria, rather than humans, are at "the top of the hierarchy of existence and life."[190] Working with bacteria as art material, Yi explores the destabilisation of binaries of human/nonhuman, biological/synthetic, and living/non-living. In an earlier work, *Grabbing at Newer Vegetables* (2015), Yi cultured bacteria taken from Asian American women, presenting the live process in the gallery. The audience experience was dominated by the intense scent produced by the work. Yi has also collaborated with perfumers to develop scents, including the scent of 'forgetting,' which she developed for a 2015 retrospective of her work at the Kunthalle Basel. Yi discusses the way an artwork with an olfactory dimension is a transcorporeal exchange. She says, "it has to come into your nose, your pores, your gut sensors, the smell sensors in your gut. You are metabolising the work prior to this cognition of what it is you're smelling, because we experience smell through the limbic system."[191]

In her use of bodily bacteria (and the volatile compounds they produce that we sense as odours), Yi brings attention to aspects of the body at work at a molecular scale. The attention that I wish to bring to the lithic nature of the body also exists at this very small scale. The presence of these elements of the body, such as bacteria, viruses, and minerals, draws attention to the body's porosity; Yi's work with bacteria is transcorporeal, making the flow of matter through bodies salient.

In a live stream with *Flash Art* in April 2020, as the COVID-19 crisis tightened, Yi discussed the way in which the COVID-19 virus has forced humanity to recognise the multi-species interdependence we are embedded in. She pointed out that humans have 8% virus in our DNA and

190 Paul Laster, "Anicka Yi, a Political Interview," Conceptual Fine Arts, last modified December 3, 2019, https://www.conceptualfinearts.com/cfa/2017/05/09/anicka-yi-and-her-political-statement-to-counter-the-ocular-centric-society-we-live-in-an-interview/.

191 Alexandre Stipanovich, "Mental Escape: Episode 2, Anicka Yi," Flash Art, September 3, 2020, https://flash---art.com/2020/09/2-anicka-yi/.

that COVID was erasing the boundaries between human and nonhuman, living and non-living; that traditional distinctions between these classifications are dissolving.[192]

Yi represented the United States of America at the 2019 Venice Biennale, exhibiting in two spaces. *Biologizing the Machine (terra incognita)* includes acrylic vitrines, stainless steel, silt, bacteria, algae, gas sensors, scent algorithm and infrared lights (figs. 76-78). Yi built three large vitrines in which she encased mud from the surrounding canals. Over the course of the exhibition, the bacterial and microbial life in the mud busied itself inside the vitrines, creating a living ecosystem. These types of systems are called Winogradsky cultures—ecosystems of bacterial biofilm and microalgae colonies, named after the Russian microbiologist Sergei Winogradsky. Each vitrine also housed an AI system, activated by a distinct scent emitted by specially engineered bacteria within, which impacted growth by regulating environmental factors such as light, temperature, and water-level, and generated fluctuating periods of growth, decay, and stasis.[193]

Similarly, in my electroforming projects, vitrines hold an electroforming process, through which metal 'grows' in response to electrical and chemical/mineral forces and atomic level bonding. The second work that Yi exhibited at Venice was *Biologizing the Machine (tentacular trouble)*, comprised of algae, LEDs, animatronic moths, water, and pumps (figs. 74, 75). In this work, Yi built large pupae-shaped objects from seaweed and hung them above primordial-seeming craters filled with brackish liquid. Inside the pupae, animatronic moths fluttered. These sculptural forms built connections between a variety of living forces, seeded with 'life' and in relationship with the craters which linked the work to the murky canals surrounding the exhibition space.[194] With these works, Yi queried the

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192 Stipanovich, "Mental Escape: Episode 2, Anicka Yi."

193 Information panel, Anicka Yi, *Biologizing the Machine (terra incognita)* 2019 Venice Biennale.

194 An iteration of this work, *Half Water, Half Mud, Half Sun* (2023), was exhibit-

slippery space between living and non-living. Her bacteria created a living ecosystem, while her animatronic moths suggested a mechanical kind of life, resonant of the kind of life a metal might have, like copper growing in an electroforming system. Yi's attention to the material and relationship to time, both present and future, resonates with the art practice of Cecilia Jonsson.

2.2.3 Cecilia Jonsson

Swedish artist Cecilia Jonsson engages with materials, site encounters, and research to work towards understanding nature and the ecosystems of which we are a part. At the beginning of my PhD candidature, I was drawn to her practice through her method of co-opting the language of science in her work to foster familiarity with the material world, which was an approach I was also using, specifically with the industrial process of electroforming and through scientific imaging tools such as the Scanning Electron Microscope (SEM). In her 2016 work *Prospecting: A Geological Survey of Greys* (sixty 2.6 metre-high rock-core samples of 2500 million year old primary rock, drilling residue, black steel), Jonsson drilled a 170-meter core sample in northern Norway and used it to build a column next to the 7cm hole it was drilled from (figs. 79, 80). By bringing the rock to the surface and creating a human scaled object, she revealed the unseen. Through the lens of lithic thinking, this work not only deploys stone as material, revealing the myriad of colours and the strata of geology, it connects us to the vast deep time, the forces and pressures in the Earth's crust and the processes that created it.

With a more direct relationship to the lithic body, and also in 2016, Jonsson created *Haem* (custom made compass, murrini glass bowl, text, sound, HD-video, water, electronics). In this project she worked with doctors at the OLVG West Hospital in Amsterdam, and, with the agreement of birthing mothers, collected sixty-nine post-birth placentas. The

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ed at the Toi o Tāmaki Auckland Art Gallery in 2023.

placenta facilitates the transfer of blood between the mother and child, rich in iron.[195] She was then able to isolate a small amount of iron from these placentas, smelted using age old techniques. The iron was fashioned into a compass needle, which floated on water in a rotating glass bowl (figs. 81, 82). This artwork parallels Neimanis' hydrofeminism in drawing attention to the gestational body as it bathes life into being. The placenta adds the mineral to this gestation. The watery world of pregnancy is also a mineral world. This artwork speaks to the magnetic pull of iron within our bodies, which, although minute, acts as a link between our interiority and the world that surrounds and holds us.

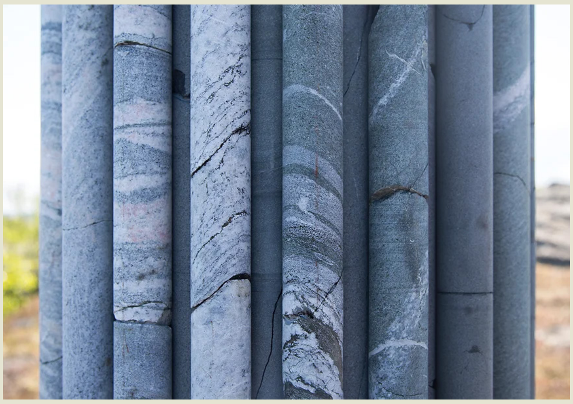
2.2.4 Lithic Fossils, Sounds, and Scents

There is a seam concerning cross-modal perception and materiality running through the work of a growing number of contemporary artists that deserves some excavation, concerning what can be called *sound fossils*. Nina Canell's shells cry out underfoot, in, she says, "a broken dried out voice." An earlier artwork of my own, *Ancient Air* (2016), records the popping and crackling of the air inside 30-70 million year old coal.[196] And in *Haupapa: The Chilled Breath of Rakamaomao* (2023), artists and scientists Heather Purdie, Janine Randerson, Rachel Shearer, Ron Bull, and Stefan Marks work with hydrophone recordings of sounds and underwater recordings released by the glacier Haupapa (Tasman) (figs. 83-85). The artists state:

> Through audio-visual modes of gifting and listening, we approach Haupapa as ancestor, a shape-shifting collaborator. Tiny bubbles of ancient breath and atmosphere are pressed inside Haupapa's glacial ice—including sea breezes,

195 Cecilia Jonsson, "Haem," accessed November 24, 2023, https://www.cecilia-jonsson.com/4-haem.

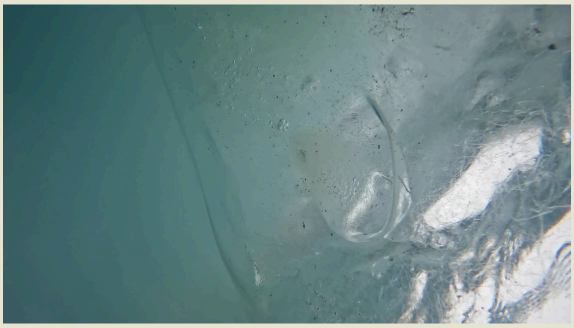
196 Shelley Simpson, "Ancient Air," May 7, 2020, video, 1:14, https://vimeo.com/415787784.



Figures 79-80.
Cecilia Jonsson. *Prospecting: A Geological Survey of Greys*, 2016, Norway.
Photographs: Cecilia Jonsson
Images courtesy of the artist.

Figures 81-82.
Cecilia Jonsson, *HAEM* (video still),

Photographs: Signe Tørå Karsrud
Images courtesy of the artist.



Figures 83-85.
Heather Purdie, Janine Randerson, Rachel Shearer, Ron Bull, and Stefan Marks, *Haupapa: The Chilled Breath of Rakamaomao,* 2023, Tāmaki Makaurau, Te Tuhi Gallery.
Images courtesy of the artists.

Figures 86-87.
Jo Burzynska, *Hyphal Space,* 2023,
Tāmaki Makaurau, RM Gallery and Project Space.
Photographs: Ardit Hoxha

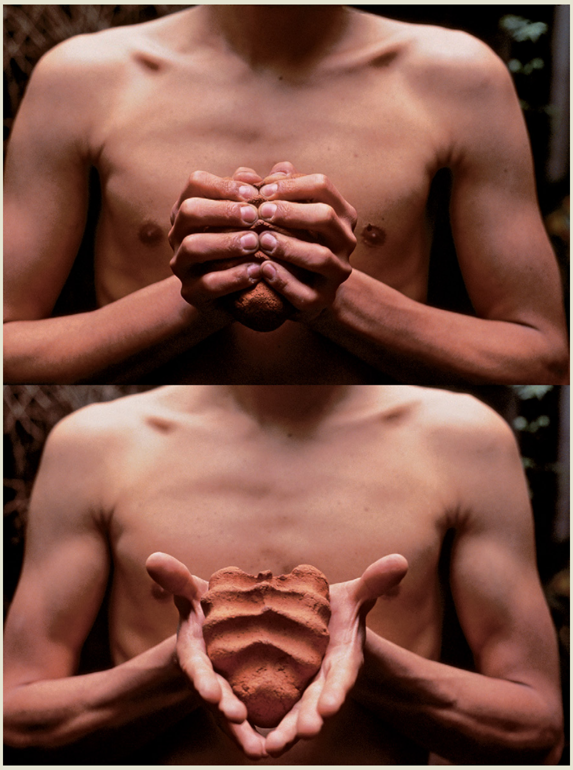
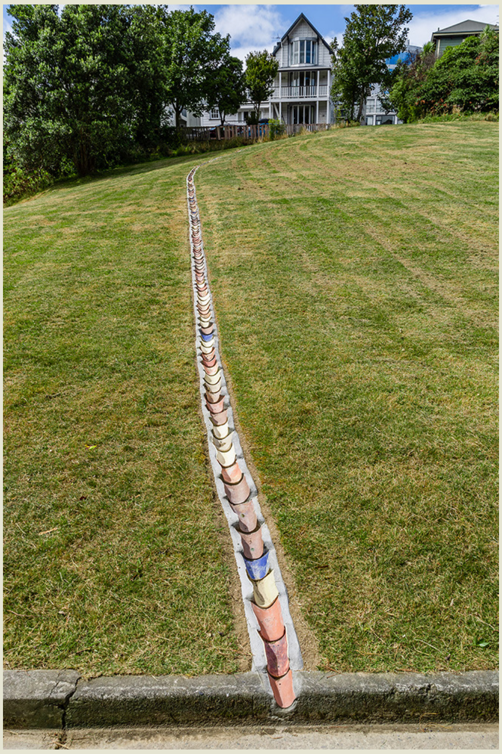


Figure 88.
Gabriel Orozco
My Hands Are My Heart, 1991
Silver dye bleach print (Cibachrome, 2 parts)
9 1/8 x 12 1/4 in. (23.2 x 31.1 cm) (each)
Courtesy of the artist and Marian Goodman Gallery

Figures 89-90.
Chris Braddock, *Take Series*, 2007,
Melbourne, RMIT School of Art Gallery.
Images courtesy of the artist



Figures 91-92.
Kate Newby, *Rob Duncan Megan Daniel Margaret Lynn Samuel Deb Nico Marilyn Sarah Henry Mieko Kate Ruth Mike Briana Justine Grace Romesh Josefine Madison Nerissa David Nina Gabrielle Dayle Isabelle Ana Lilith Christian Ruby Sophie Millie Michaela Loretta Laura Christina Alison Olly Miriam Fred Lise Hazel Simon Mia Anita Caroline Anna Prak Nadya Alba Xander Flavia Emma Stef Areez Bella Rachel Kirsty Kate Nicola Emerita Tim Megan Ruby Fina Felixe Ella Eva Ben Julian Bena Huhana Max Lily Tina Rose Bill and Teresa*, 2021, assorted clay, glaze, mortar.
Courtesy of the artist and Michael Lett.

> pollens, carbon dioxide and methane, as well as the ash of Australian fires. We collectively attune to the glacier through Kai Tahu cosmologies, instruments of science, audio hydrophones and underwater camera receivers to more-than-human scales of aural and visual perception.[197]

In Chapter One, I introduced Amelia Barikin's sound fossils in relation to minerality that troubles the binary between living and non-living, organic and inorganic, and animate and inanimate. She points out that the very term itself is paradoxical; sound demands a liveliness, as a vibrational event taking place in time and requiring organic neurological processing to be interpreted. Fossils are associated with the inert, the still, the silent. Sound fossils can be either, in her words, "an ancient record of an acoustic activity: a sound trapped or indexed in material form" in the field of archeoachoustics, or hearing ancient landscapes, such as the reconstruction of a cricket's song from a fossilised cricket thorax.[198] She discusses the artwork *Making a Record* (2009-2014) by Melissa Dubbin and Aaron S. Davidson, in which they worked with diamond, ruby, sapphire, and emeralds. The artists created dubplate recordings with the gems as the styluses used to cut the audio into the records. One of her observations about this complex project is that the gem itself "becomes a kind of sound fossil, a sonic imprint of the past, time crystallised in mineral form."[199] Barikin uses the sound fossil as a platform for complicating binary material frameworks, such as organic/inorganic and living/non-living, in order to reference a mineral ontology in contemporary art. Materials, she suggests, 'speak' beyond human intervention, operating with "a double ontology of materiality in which the material itself operates beyond and outside its deployment within zones of signification."[200]

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197 "Haupapa: The Chilled Breath of Rakamaomao," Te Tuhi, accessed February 9, 2024, https://tetuhi.art/world-weather-network/haupapa-project/.

198 Barikin, "Sound Fossils and Speaking Stones," 254.

199 Barikin, "Sound Fossils and Speaking Stones," 258.

200 Barikin, "Sound Fossils and Speaking Stones," 260.

Barikins' attention to the ability of materials to be expressive in this way prompted a further reflection: if a sound can be a sonic fossil, connecting back into deep time, can an olfactory experience be an odour fossil? Audio travels through the air, as does odour. Barikin offers Charles Babbage's 1838 concept of the air as a 'vast library': "Indelibly imprinted with the vestiges of oral testimony, the air itself becomes a material witness to history."[201] Might the air also carry the scents of the ancient?

Anicka Yi has drawn our attention to the body as a site of mineral and bacterial activity through odour. She locates the body in time and space, specifically calling to attention the ancient odours of the Thames. Canell does not mention the smell of the ancient, crushed shells in her work, but no doubt there is one, as limestone enters the nose and lungs. Scent molecules enter our bodies before our other senses catch up with recognition, being received and interpreted by various parts of our bodies and our brains. As Yi points out, there are receptors deep in our guts that receive odour molecules.[202] The scents of these ancient materials connect us directly to the past as our bodies absorb and recognise them.

Odour evidences transcorporeality at work, as molecules, either the volatile compounds of biota or the chemical odours of the mineral, are taken inside our bodies and interact with us. New Zealand artist Jo Bruzynska works with fungal odours to explore sensory interactions and their creative application. At the end of 2023, Bruzynska exhibited *Hyphal Space* at RM Gallery and Project Space, Tāmaki Makaurau (figs. 86, 87). Describing her practice as "crossmodal art," she works primarily with fungi. *Hyphal Space* offered several different engagements in the gallery. In the work *Tūtae Whatitiri (Nondual Networking)*, she created a perfume from fungi and the compounds they produce. Participants were invited to sit under a representation of Tūtae Whatitiri, the native basket fungus (*Ileodictyon*

201 Barikin, "Sound Fossils and Speaking Stones," 261.
202 Stipanovich, "Mental Escape: Episode 2, Anicka Yi."

cibarium), while the scent she had created was gently wafted through the air. Odour was present in other works: in *Bloom (Decomposition Composition)*, a selection of cheeses gave off their aroma as they changed over time; and in other works live fungi could be experienced through their scent. Bruzynska writes, "these connections both highlight practical solutions to current environmental issues, and suggest more collaborative, non-binary, and non-territorial ways of thinking, sensing and being in an undivided and undivisible world."[203]

Metals have scent. Rocks exude odours. Perhaps the stony smell of the lithic reminds us to, as Braidotti told me at the Summer School,[204] think carefully about where the 'other' is located within 'our' assemblage, and perhaps to ask—is there anything that is actually 'other'? Perhaps we are more non-human than human. Sound and odour fossils in contemporary art practice can remind us of these complex entanglements, and, as Barikin suggests, to look for "models of thinking about the material world that refuse a hard-line division between animate and inanimate temporalities."[205]

I now turn to a work of mine, *Hand Held*. In this work, the scent of iron is experienced when holding the iron pieces in the hand. From a posthuman feminist position, this work calls attention to the body, to the haptic, and to the cross-modal.

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203 Jo Burzynska, floorsheet for *Hyphal Space*, exhibited from October 18-November 11, 2023.

204 See Section 0.6

205 Barikin, "Sound Fossils and Speaking Stones," 270.

2.2.5 *Hand Held*—Iron Cast Work

Hand Held is a series of sculptural forms cast in iron created from onepū, the black, iron-rich sand of Te Tai Hauāuru, the West Coast of the North Island of Aotearoa New Zealand. These forms are casts of the space between my hands cupped loosely together. They are intended to be held, potentially accompanying a person on a journey through an exhibition space. The casting and carrying processes in this artwork enact a series of holdings and releasings of matter. The initial object is created through the act of holding Plaster of Paris between my two hands. This plaster object is then encased in Pinkisyl, a polymer material. The plaster is removed from the Pinkisyl, leaving a void, which is filled with wax. The wax is then encased in layers of ceramic shell over a period of days, until the shell is thick and strong enough to withstand being filled with 1500 degree molten iron. The ceramic shell holds the iron until the iron is cool enough to be touched and released from the mould. The casting process is completed through grinding and polishing. The objects are intended to be held, so it is important that they are safe and comfortable.

This iron that I have cast in hand shapes began life as volcanic rocks, held deep for many eons in the body of the earth, then expelled through the volcanic activity of the Taupo and Taranaki regions, making its way down rivers to the West Coast and out to sea. Through undersea grinding these volcanic rocks slowly became sand, onepū. Onepū contains the mineral titanomagnetite, rich in titanium and iron. In contemporary Aotearoa, iron is extracted not from rock, but from onepū. NZ Steel mine onepū at North Head near Waiuku (the iwi of that area is Ngāti Te Ata), and process it into iron and steel at Glenbrook Steel Mill. Glenbrook is the only mill in the world that extracts iron from sand. The process is very complex and took many years to perfect.

I gather Glenbrook iron for my castings when it is part way through the forging process with an unknown mineral make up. Iron has a very high

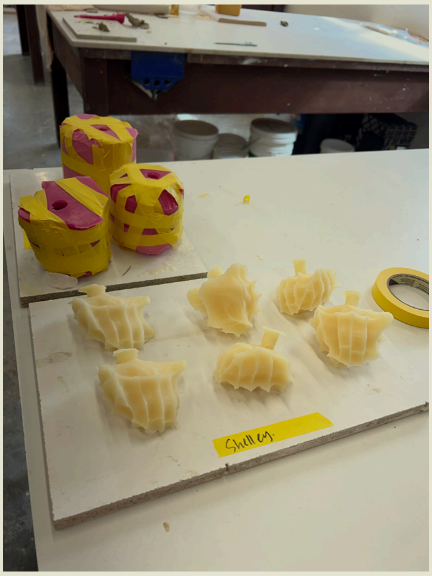
Figure 93.
Shelley Simpson, *Hand Held*, 2023, cast onepū iron.
Photograph: Shelley Simpson.

melting point (which accounts for the fact that the Iron Age comes after the Bronze Age in European prehistory). The first time we melted some of the iron in the workshop it behaved well, although the cast did not cope well with the high temperature of the molten iron. The second time, the iron started to behave strangely as it melted, sparking intensely and ultimately causing us to vacate the workroom as a precaution, due to potentially poisonous off-gassing. When casting *Hand Held*, we had these previous experiences in mind, and were well-researched and protected. Although the iron gave off some sparks, it casted well and I now have over a dozen iron objects. It is possible with these objects for a person to fit the shape between their hands, matching the cupped shape of my own.

The process of creating *Hand Held* was, as Barbara Bolt (citing Heidegger) might say, a process of praxical knowledge making.[206] The material itself offered many touchpoints of observation and learning about how it behaved and responded to the ways I was interacting with it. The origin of the material provided me with the opportunity to think about my 'politics of location' as a lithic body in this time and place. The work also gave me the opportunity to consider audience encounters with sculptural forms and materials, and what my role as an artist is within the complex ecology of the art experience. Encounters with the lithic are manifold and generative. This artwork provides a way to 'feel into' the mineral, to potentially build an empathic relationship. Holding iron objects allows for an understanding that would not be possible through simply looking at them.[207] In the handling, art becomes collective, existing in an ecology of relations. The iron handheld casts operate in this way—as objects they seem solid

206 Barbara Bolt, *Heidegger Reframed: Interpreting Key Thinkers for the Arts* (London: I. B. Tauris, 2010), 92.

207 Bolt, *Heidegger Reframed*. In Barbara Bolt's reframing of Heidegger, she describes what Heidegger would call praxical knowledge, that is, learning through doing. In *Hand Held*, this praxical knowledge is gained by both myself, as the artist creating the work, and the audience experiencing it, as they hold and carry the cast iron object. Heidegger identifies what he calls "handling as care," which is applying a theoretical engagement as well as a practical one. Bolt writes, "Handling as care produces a crucial moment of understanding, and that understanding is a revealing of possibility in its very possibility. This, not the completed artwork, is the work of art." (Bolt 2010, 92)



Figures 94-99.
The process of creating *Hand Held*, beginning with casting the space between my clasped hands in plaster, which is then used to create a wax version. The wax is coated in a ceramic shell, which is able to be filled with molten iron.
Photographs: Shelley Simpson.

Figures 100-105.
Once the iron has cooled, the ceramic shell is chipped away and the iron ojects are finished by removing any sharp and unwanted parts, made safe and comfortable for handling.
Photographs: Shelley Simpson.

and relatively inert. But as we learn from Deleuze and Guattari, metal is in constant motion, tumbling through transformations.[208] Through the invitation to hold, these objects remain open, interactive, intra-active.

In a future iteration of this project, I would like to extend the cast making to other hands—a gesture to include others in the making process, as Kate Newby did with her 2021 work, *Yes Tomorrow*, in which she involved a number of people in making half pipes from clay using their thighs (figs. 91, 92).[209] As Brian Masumi points out, however, all art is interactive.[210] There is an argument to be made that any person holding these objects becomes part of the artwork, through a relational sharing of matter, as their body heat and other material traces are transferred to the iron, and traces of the iron is conversely passed to them, most acutely through odour molecules entering deep into the body, but also through the skin, the skin of the porous posthuman body.

I position *Hand Held* as a lithic feminist artwork. Through the haptic encounter with the cast object, the material qualities of the iron are revealed in relation. The iron is very heavy. The weight of the object draws attention to the hand and the muscles of the arm. Holding the heavy iron locates me in my body. The finger shapes in the iron encourage a searching for relation: how does this shape fit in my hand? Does the way my fingers fit the shape trace the body of the artist and suggest the differences and relations between us? How are diverse bodies encountered through holding this work? The iron warms as I hold it. I can smell the iron. My fingers smell of iron. I know I have iron in my body. I know there is iron in the building structure that surrounds me. The detailed surface of the iron is both very individual and universal. Although humans differ in (hand) size and some are differently bodied, perhaps without both hands, or all

208 Deleuze and Guattari, *A Thousand Plateaus*, 453.

209 This work was part of the exhibition *Yes Tomorrow*, at Te Pātaka Toi Adam Art Gallery, Wellington, in 2021

210 Brian Massumi, “The Thinking-Feeling of What Happens,” *Inflexions* 1, no. 1 (May 2008), https://www.inflexions.org/n1_massumihtml.html.

Figures 106-117.
(previous pages)
Hand Held, 2023-ongoing, cast onepū iron.
Photographs: Shelley Simpson.

fingers, most of us experience the world using our hands, and an enormous amount of information is gathered this way. Information, held and released, tumbles and transforms as it is received by our bodies, parsed through our embodied brain. Holding and releasing are repeated actions throughout the lifespan of these iron objects and are a central method in my art-making practice.

Back to the Rutherford Dress

While I was looking at the dress at the research facility, the museum's textile specialist joined me—she came in specially to look at the dress and to take a thread sample. The thread was to be tested for arsenic to answer the question of whether the dress was dyed using chromium. Chromium replaced arsenic in the dying process. She told me that the origin of the idea that it was dyed with chromite is unknown, but probably came from the family. Perhaps the family fostered the story to honour the chromite mining which had been an important part of the local economy. The green of the dress is similar to the green of the rocks that chromite came from. Chromite itself is small black specks within the green rock (fig. 68). This ore has a brown 'rind' where the rock has weathered. This colour is the origin of the name Dun Mountain. The fabric of the dress is, when you see it closely, a very fine tartan, made up of three colours: green, cream, and black woven together. By the time Martha married in 1866,[211] chromite mining was ending, with only 281 tonnes shipped out in that year. In January the mining had been completely suspended. The fabric of the dress was almost certainly from England, and it could well have been dyed using chromite as the mordant.

After I look at the dress, I am in the library area of the research facility. The fabric technician comes to get me. She has found something she thinks I would like to see. It is a sewing pin, nestled within a seam, a pin that has probably been tucked in the dress from the time it was sewn (fig. 118). Another mineral story.

This mineral story continues. Martha Rutherford was the mother of Ernest Rutherford, who would grow up to become one of the most influential physicists of the 20th century. Martha had twelve children and was a schoolteacher, and it is said that she believed in education for all her children, including the girls. In his work, Ernest Rutherford discovered (among other things) the concept of the radioactive half-life and the radioactive element radon. Later, he theorised that atoms have their charge in a very small nucleus, pioneering the Rutherford model of the atom. And in 1917, he performed the first artificially induced nuclear reaction by bombarding hydrogen nuclei with alpha particles.[212]

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211 Marriage notices, *Nelson Evening Mail*, April 30, 1866, https://paperspast.natlib.govt.nz/newspapers/NEM18660430.2.4.

212 NobelPrize.org. "The Nobel Prize in Chemistry 1908." Accessed May 16, 2024.

Figure 118.
The dress pin nestled in the fabric of the Rutherford Dress.
Photograph: Shelley Simpson.

2.2.6 Conclusion

I began this chapter with my experience of the Rutherford dress, an object that I discovered in a serendipitous moment, and which, when experienced in close proximity, provided a lodestone of mineral connections through time and space. I have described the lithic body, a feminist posthuman body that is located, diverse, relational, an assemblage, material, and accountable. Through feminisms that settle and sediment, I introduce the figuration of lithic feminism, building on Astrida Neimanis' hydrofeminism. A lithic feminism manifests in my art practice, in an exploration of what the lithic body can bring to feminism and, crucially, to a feminist ethics. In a feminist paradigm the "possibilities of being otherwise"[213] (contrasted with a hetero-patriarchal separation of nature and culture) emerges through expressions of empathy with the ontologically distant, such as stones and other minerals. Art can engender ontological closeness to other forms of life and non-life and forge ethical ways of being and interacting in the world. The lithic body is present in the work of many artists, specifically in the ways artists might work with sensory experiences of the mineral body (Anicka Yi: scent; Nina Canell: sound). In addition, I have shown my own artwork to be increasingly concerned with the lithic body and I position my artwork *Hand Held* as a lithic feminist work. When the objects are held in the hand, there is an invitation to consider the materiality of the object as it relates to one's body, and, conversely, one's own body in relation to the lithic world. The lithic feminist body is transcorporeal, after Alaimo, affecting and being affected by all it comes into contact with.

In the next chapter, The Lithic Field, I situate the lithic body in the landscape and explore the ways in which my own body, itself political, engages with sites in the landscape, an engagement which resonates through my

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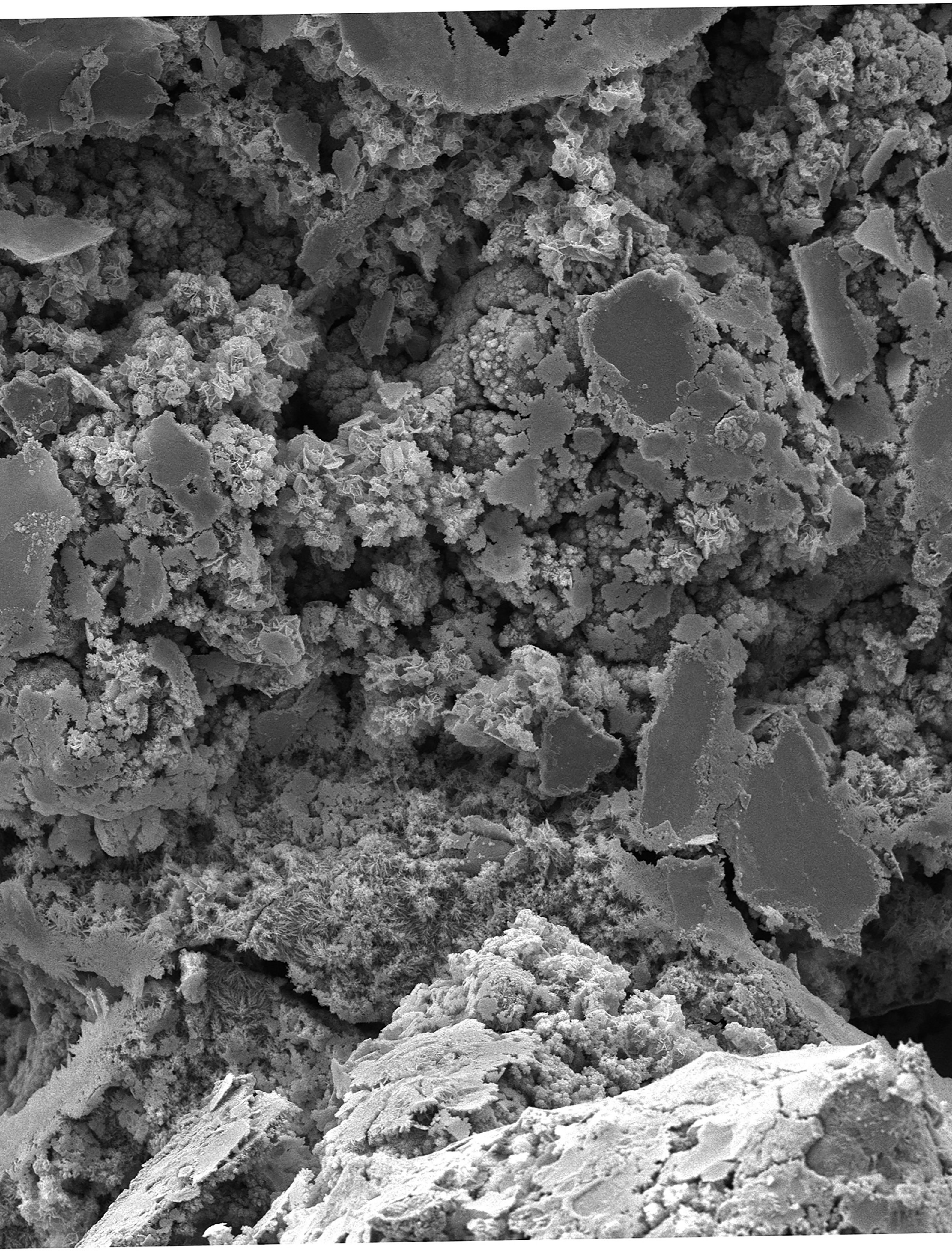
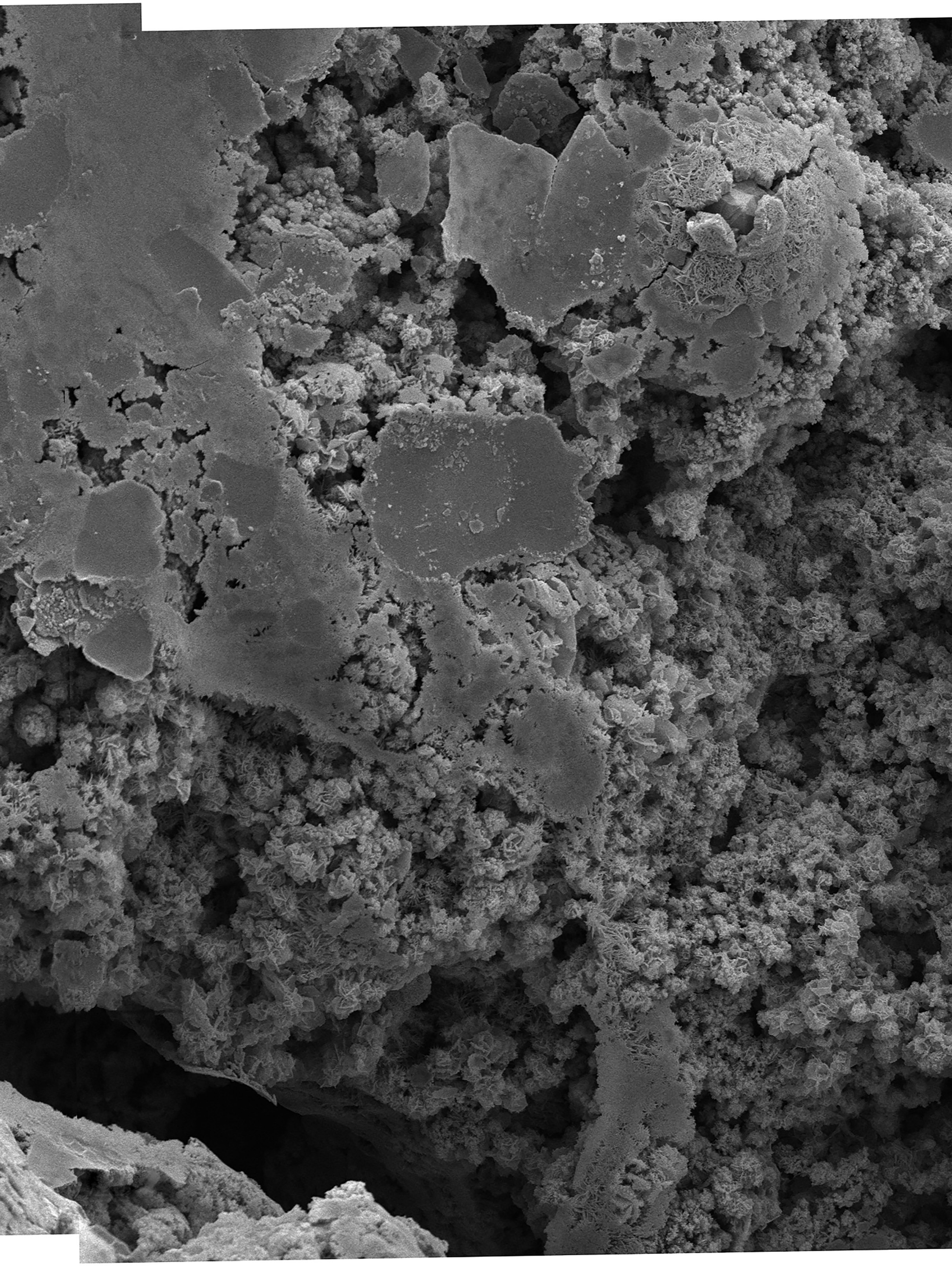
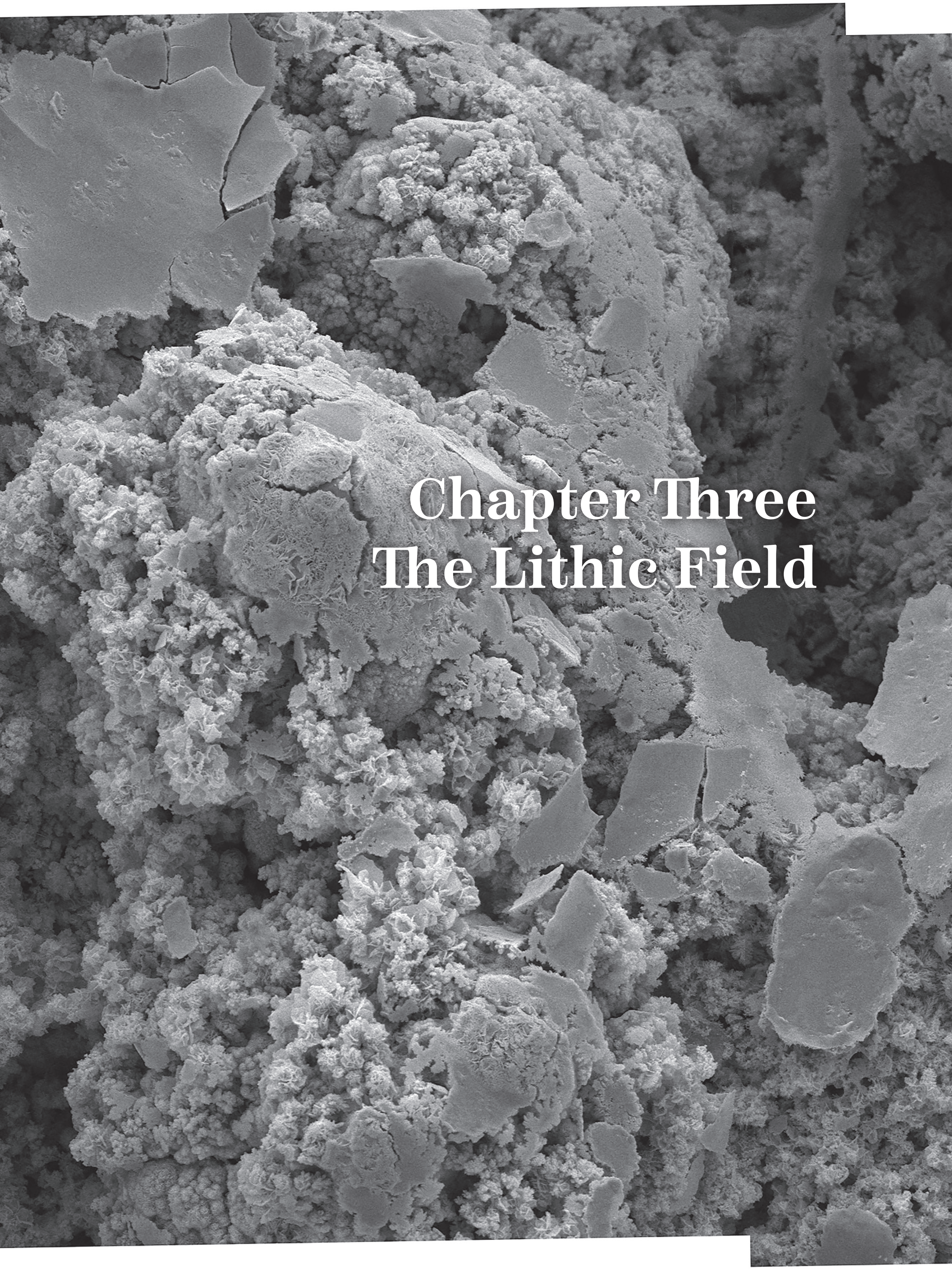
https://www.nobelprize.org/prizes/chemistry/1908/rutherford/biographical/.

213 Neimanis, *Bodies of Water* , 5.

art-making practice. I describe how site engagements are a crucial aspect of my research, specifically in relation to extractive activity in Aotearoa, both historic and contemporary. Martha Rutherford's wedding dress takes me to Whakatū, to the site of copper and chromite mining. I also visit Glenbrook Steel Mill, at Waiuku, and the sand mine at Waiuku Forest, and I discuss the origin of the iron in *Hand Held* and the complex political and ecological issues that surround the mining and manufacture of this specific iron, made from onepū. I also explore my responsibilities as Tangata Tiriti towards whenua and the materials that come from the land and ask which stories I can respectfully engage with.







Chapter Three
The Lithic Field

Figure 119.
Dun Mountain.
Nelson Provincial Museum,
Tyree Studio Collection: 99840

Prologue

In 1852, three young men were out looking for goats and stray cattle in the Maitai Valley, at the head of the Maitai River. The Maitai River runs through the city of Whakatū Nelson, which at that time was a settlement of about four thousand settlers. In a gully on the South Branch of the Maitai River, the three found what they thought might be copper ore.[214] This discovery quickly led to a mad rush of prospecting, potential fraud (certainly over estimations of lode size and number), journeys to England, companies being formed and dissolving, and what was, in the end, a short, hard won, and not very successful copper mining operation. In 1853, the mineral chromite was found in the same area and also became the focus of mining activity. Chromite was a new industrial material, replacing arsenic as a mordant in dying cloth red, yellow, and green. Arsenic was known to be poisonous and had been banned in France. Chromite prices were very high, and there was much excitement about the large amounts of ore in the Mineral Belt. Access was tricky, so talk of a railway to bring the ore down from the mountains began. In 1858, 3 tonnes of chromite ore were mined and exported. This rose to 3843 tonnes in 1862, which was the year the horse drawn railway was opened, the first railway in New Zealand (fig. 119). This was by far the best year for the miners, as several factors led to the saturation of the chromite market by 1863; the development of synthetic dyes, and the civil war in America, which reduced the amount of cotton imported into Lancashire textile mills. Chromite mining faltered over the next few years and finally ended in 1866. The horse drawn railway survived, providing public transport through Whakatū, with two carts taking people through the town.[215]

In January 2022, I travelled down to Whakatū. My use of copper in electroforming projects had developed into research about copper mining in Aotearoa. I had read geologist Mike Johnson's 1987 book *High Hopes*,

214 Johnston, *High Hopes*, 17.
215 Johnston, *High Hopes*, 49.

Figure 120.
Champion Copper Mines.
Nelson Provincial Museum,
Tyree Studio Collection: 176375

about the history of mining in the Whakatū region, and I had packed my trip with planned research activity: meeting Mike; going up into the Mineral Belt where the copper and chromite mining had taken place; visiting the Research Facility at Pupuri Taonga o Te Tai Ao Nelson Provincial Museum; and travelling over the hill to Mohua Golden Bay to visit historic iron mining remnants at Onekaka. On the first day of my trip, I had a wonderful, productive meeting with Mike, who talked me through what I would find as I made my way through the Mineral Belt, now a popular walking and biking track. At the end of my visit, he gifted me two pieces of chromite ore. My plan for the Mineral Belt was to hire an e-bike. I was hoping to bury two copper nuggets, melted down from copper left over from my art project *Unthought*.[216] I hoped to bury them somewhere near the copper mine remains in a symbolic returning of copper to the land. The problem was that it started to rain. It rained all the next day.

The day before I was planning to bike into the Mineral Belt I had an attack of hay fever, so violent that I was exhausted and bedridden. I called the bike hire place. They told me that they wouldn't hire a bike to me if it was too wet. I became nervous. It continued to rain. I lost my confidence. If I couldn't bike up to the mine sites, the trip was too long to walk.

The next day dawned dry, although very muggy. I got an email from my dad telling me to go up the Maitai Valley entrance to the Mineral Belt, as an alternative to the biking track. I could walk in and out that way, and although there were no remains of mining there would be geology and plants. So, I drove up the Maitai Valley—a place thick and heavy with meaning for me, with layers of personal history, the awa (river) flowing through my life in ways that mean more than these words describe. The air in the valley was warm and wet—almost viscous. I could feel the pressure in my body as I drove, as if the valley was filled with a weighty substance that I was entering.

216 See Section 1.2 for this project.

I came to the quarry, a high cut in the side of the road, the place of my conception. "No use crying over spilt milk," is what my great-nana Ruby said when she was told of my mother's unwed pregnancy. I stopped and got out of the car. I walked to the rock edge, the ground littered with scrappy rubbish. I picked up a palm-sized rock. It seemed similar to the chromite ore Mike had given me a couple of days before, but I didn't know enough about geology to be able to tell what it was. I felt tight and sad. I took the rock and put it in my pocket.

I drove past the river swimming holes that punctuated my childhood summers. Past the scenes of my own teenage backseat fumbles. Past the spot of a terrible memory—holding my baby sister, standing chest deep in the river water as the stones rolled out from under my feet; a surge of terror as I struggled to hold her up while I fought to regain my footing. There are river drownings in my family history: in 1910 a young woman, my great-great-aunt Elsie Wratt (sister to Ruby, mentioned above), was swept under while crossing the Whakamarina River at Canvastown, 35 kilometers from Whakatū.[217]

I drove and drove—my father had given me loose instructions about where to go. I got to the gate leading to the Maitai dam. No cars allowed. There was no mobile reception. I parked and began to walk past the dam and up into the hills. It was very hot. There was water everywhere after three days of rain. The cicadas were loud. I walked for about an hour. Finally, I came to a stream which was running high and crossed right over the track. I could go no further without wading through the fast-flowing, knee-deep water. Just before this big stream there was a smaller one that came out through the undergrowth at the side of the track and crossed the path, flowing through the plants and grasses, which I returned to. I took out the copper nuggets I had brought from Tāmaki Makaurau. The water was cold and soft. Lively. I set up my video camera and filmed as I washed the copper, turning the heavy nuggets over and over (figs. 121-123).

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217 "Drowning Fatality," *Nelson Evening Mail*, January 26, 1910, https://paperspast.natlib.govt.nz/newspapers/NEM19100126.2.16.

Figures 121-123. (previous page)
Shelley Simpson, *can't live without you*, 2022, video stills.

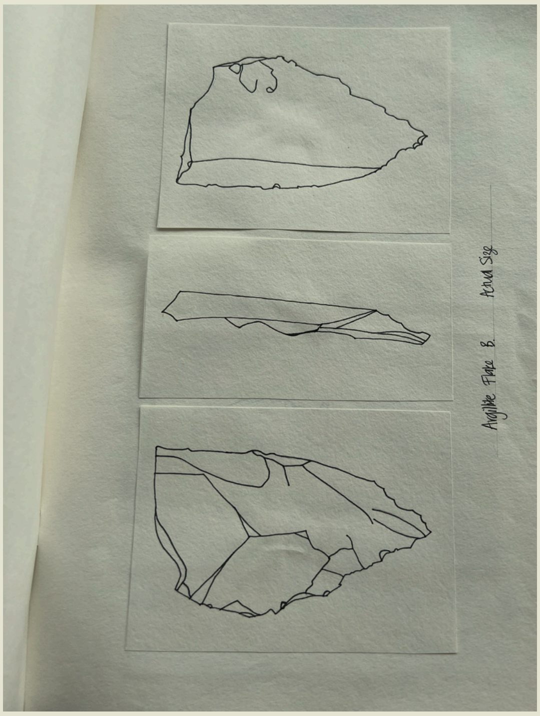
Figure 124.
(on left) Shelley Simpson, *Matter feeling*, 2022, newsprint.
(on right) Shelley Simpson, *can't live without you, 2022,* digital video.
In *Feilding*, Tāmaki Makaurau, Ngutu Kākā Gallery 3.
Photographs: Shelley Simpson.

The colours of the copper looked beautiful in the clear, cold water. While I was working, I noticed several honeybees. One came to examine me. I am used to bees; we have hives at home. I knew what this bee was saying to me as he flew close to my ear. You should leave, he said politely. You have done your thing, now it is time to go. OK, I said, OK. He kept buzzing me as I packed up. He insisted. He accompanied me down the path, ushering me out. OK, I said, thank you. I am going.

I exhibited the video work, titled *can't live without you* (2022, single channel video), as part of *Fielding*, a group exhibition with Clare Fleming and Jill McIntosh, in March 2022 at Te Wai Ngutu Kākā Gallery Three (figs. 6, 124). In the video, a closeup of my hand holds the copper, turning it over and over in the swift water. A second shot shows the copper sitting in the water as the water bubbles around it. The audio is of the location sound itself—rushing water and cicadas.

At that time, my intention was to bathe the copper, rather than wash it. I wanted to facilitate a relational exchange from copper to water and water to copper, and between myself and copper and water; an exchange of matter on a micro scale. Burying the copper was an ill-conceived idea, as I had not organised to leave the copper there.

The visit to the Maitai Valley was shadowed by uncomfortable personal memories. The walk was hot and uphill. I was alone and unsure. I had not been able to pursue my original intentions. I was troubled by my lack of consultation with local iwi (Ngāti Ata) about my plans. The rushing water was cool and beautiful, but also blocked my way. The land was saturated with water. The water was lively and full of air, moving swiftly. Whatever was placed in it was quickly taken down stream. There was not a convenient ledge to perch on. The bee made sure I knew when to leave.



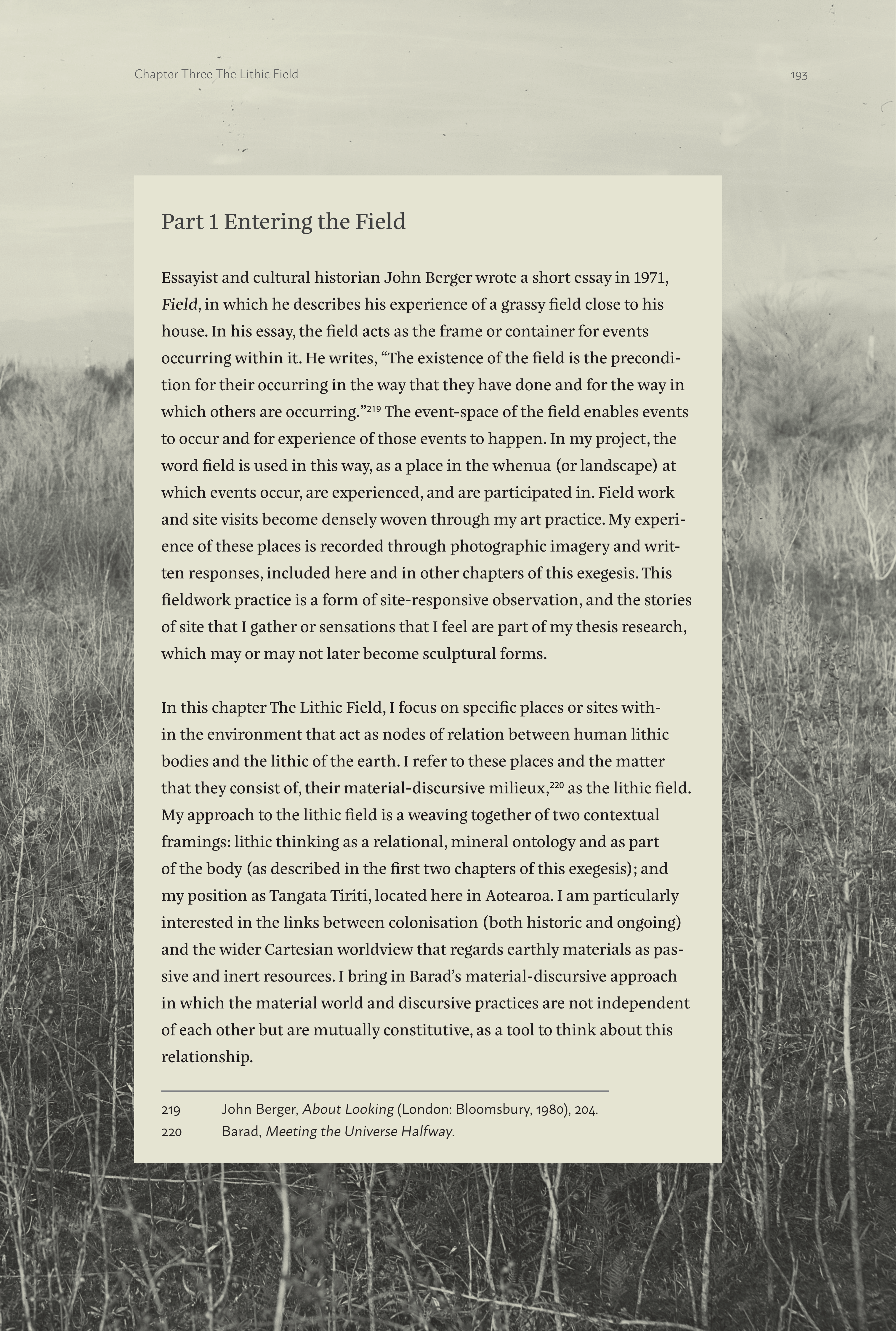
Figures 125-128.
My undergraduate archaeology project about the pakohe quarry at the head of the Maitai River.
Photographs: Shelley Simpson.

Side paper:
Pakohe

I find I can trace my interest in quarrying and mining back to when I was an undergraduate student. I did a second-year archaeology project about the pakohe (argillite) quarries found at the head of the Maitai River Valley. Māori quarried pakohe at the site, fashioning the rough patu (adzes) there and then transporting them to more convenient sites for finishing and trading. The quarrying used large granodiorite boulders brought up from the Boulder Bank down at sea level. These hammer stones could weigh up to 50kgs. They would have been 'bounced' against the argillite rock outcrops until a fracture in the rock developed.[218] In photos I took on my visit then, a large granodiorite boulder shows scarring where it was used as a base for shaping patu.

When I read about these quarries in Mike's book *High Hopes*, I was reminded that I had visited the pakohe quarry those years ago. I searched through my old university papers and found the project, including the research forms, hand drawn maps, and photographs. I had brought back examples of the argillite chip, which I carefully drew, and these drawings are there too. This is part of the history that connects me to this place, to Whakatū.

218 Johnston, *High Hopes*, 14.



Part 1 Entering the Field

Essayist and cultural historian John Berger wrote a short essay in 1971, *Field*, in which he describes his experience of a grassy field close to his house. In his essay, the field acts as the frame or container for events occurring within it. He writes, “The existence of the field is the precondition for their occurring in the way that they have done and for the way in which others are occurring.”[219] The event-space of the field enables events to occur and for experience of those events to happen. In my project, the word field is used in this way, as a place in the whenua (or landscape) at which events occur, are experienced, and are participated in. Field work and site visits become densely woven through my art practice. My experience of these places is recorded through photographic imagery and written responses, included here and in other chapters of this exegesis. This fieldwork practice is a form of site-responsive observation, and the stories of site that I gather or sensations that I feel are part of my thesis research, which may or may not later become sculptural forms.

In this chapter The Lithic Field, I focus on specific places or sites within the environment that act as nodes of relation between human lithic bodies and the lithic of the earth. I refer to these places and the matter that they consist of, their material-discursive milieux,[220] as the lithic field. My approach to the lithic field is a weaving together of two contextual framings: lithic thinking as a relational, mineral ontology and as part of the body (as described in the first two chapters of this exegesis); and my position as Tangata Tiriti, located here in Aotearoa. I am particularly interested in the links between colonisation (both historic and ongoing) and the wider Cartesian worldview that regards earthly materials as passive and inert resources. I bring in Barad’s material-discursive approach in which the material world and discursive practices are not independent of each other but are mutually constitutive, as a tool to think about this relationship.

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219 John Berger, *About Looking* (London: Bloomsbury, 1980), 204.
220 Barad, *Meeting the Universe Halfway.*

Figure 130.
Stallard's Panama Hotel, Nelson.
Nelson Provincial Museum,
Tyree Studio Collection: 55244

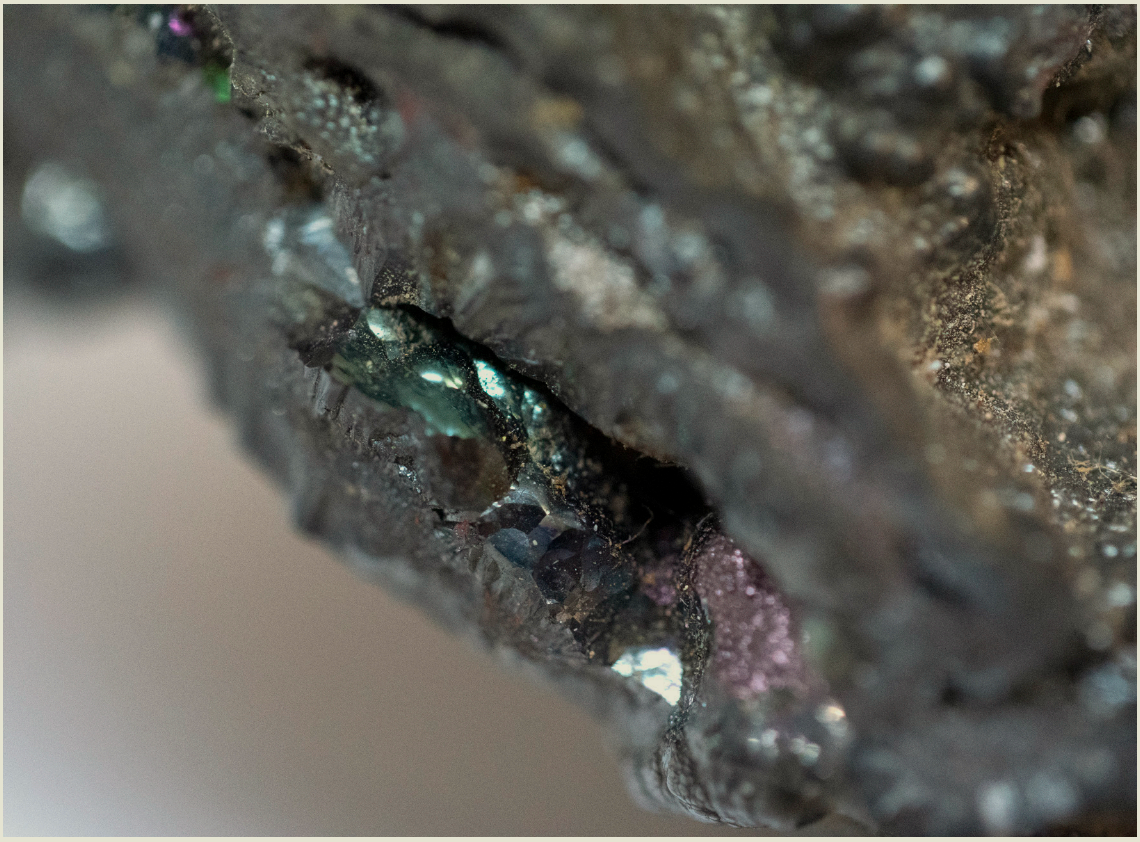
Figure 129.
(previous pages) *Onekaka experiments.*
Nelson Provincial Museum,
F G Gibbs Collection: 322098

With this contextual framing in mind, I describe the ways in which my research and art-making speak and listen to particular sites: locations of activity within the field. In this chapter, I examine how lithic thinking has directed me to places within the whenua. My artwork made from slag and iron from the industrial site of Glenbrook Steel Mill is positioned as responsive to site as a material-discursive event. My artwork with copper relates to my own whakapapa and ancestral connections to the mining history of Aotearoa through the copper and chromite mining in Whakatū, through which I explore the concept of allyship, while acknowledging the colonial past and present in Aotearoa, and continued resource extraction. Through the critical approaches of sociologist and environmental scholar Myra J. Hird, who foregrounds the importance of recognising relationships within encounters, and Donna Haraway, on the role of the modest witness, I ask how I can engage ethically with earthly locations, looking specifically at my engagement with the location of historic iron mining at Onekaka, Mohua. Framing my approach to land and site is the concept of diffraction,[221] and I detail what a diffractive approach to site entails.

In parallel, I investigate how lithic thinking has directed me to particular kinds of sites within the lithic field and what this means as a descendant of colonial settlers. Because the material concern of my project is lithic, the point of relation between the mineral body that I am (a human body) and the geologic body of the Earth are the sites of material extraction and sites where minerals are processed, such as mines, quarries, and industrial sites, and their significance to the mana whenua of these places. I ask specifically what politics my Pākehā body carries as I visit these sites. I offer contextual groundings: considering my position as Tangata Tiriti and how this influences my engagement with the whenua and the earthly materials I work with. I consider the role of Tangata Tiriti as manuhiri (guests) in Aotearoa together with lithic thinking and see where that lands in terms of an ethics of engagement with whenua.

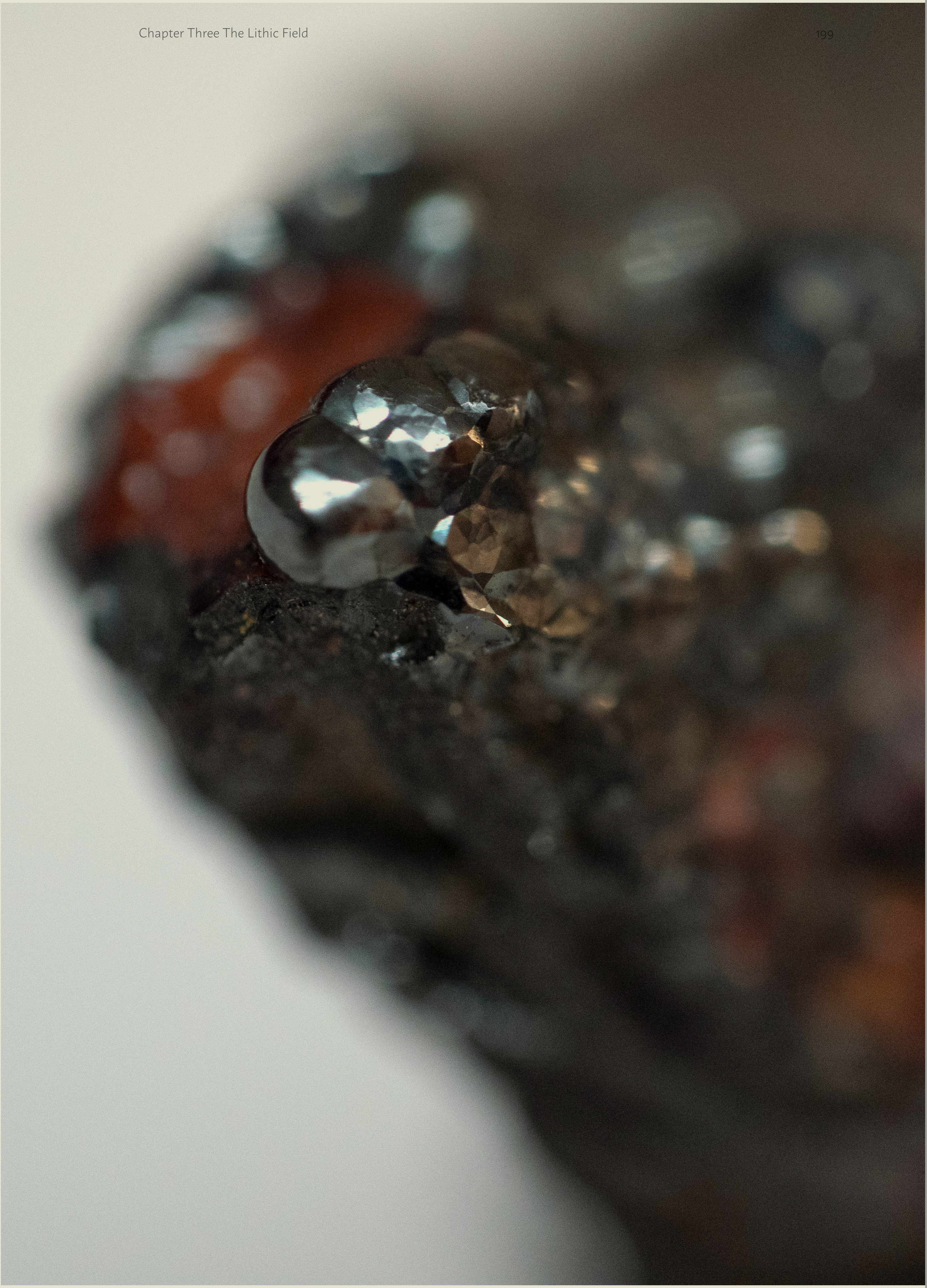
221 Haraway, *Modest_Witness@Second_Millennium*; Barad, *Meeting the Universe Halfway.*

Figures 131–132.
A sample of chromite ore held in the Pupuri Taonga o Te Tai Ao Nelson Provincial Museum, with a paper label attached.
Photographs: Shelley Simpson.



Figures 133-134.
Iron ore from Parapara held in the Pupuri Taonga o Te Tai Ao Nelson Provincial Museum.
Photographs: Shelley Simpson.

Figures 135-136.
Iron ore from Parapara held in the Pupuri Taonga o Te Tai Ao Nelson Provincial Museum.
Photographs: Shelley Simpson.



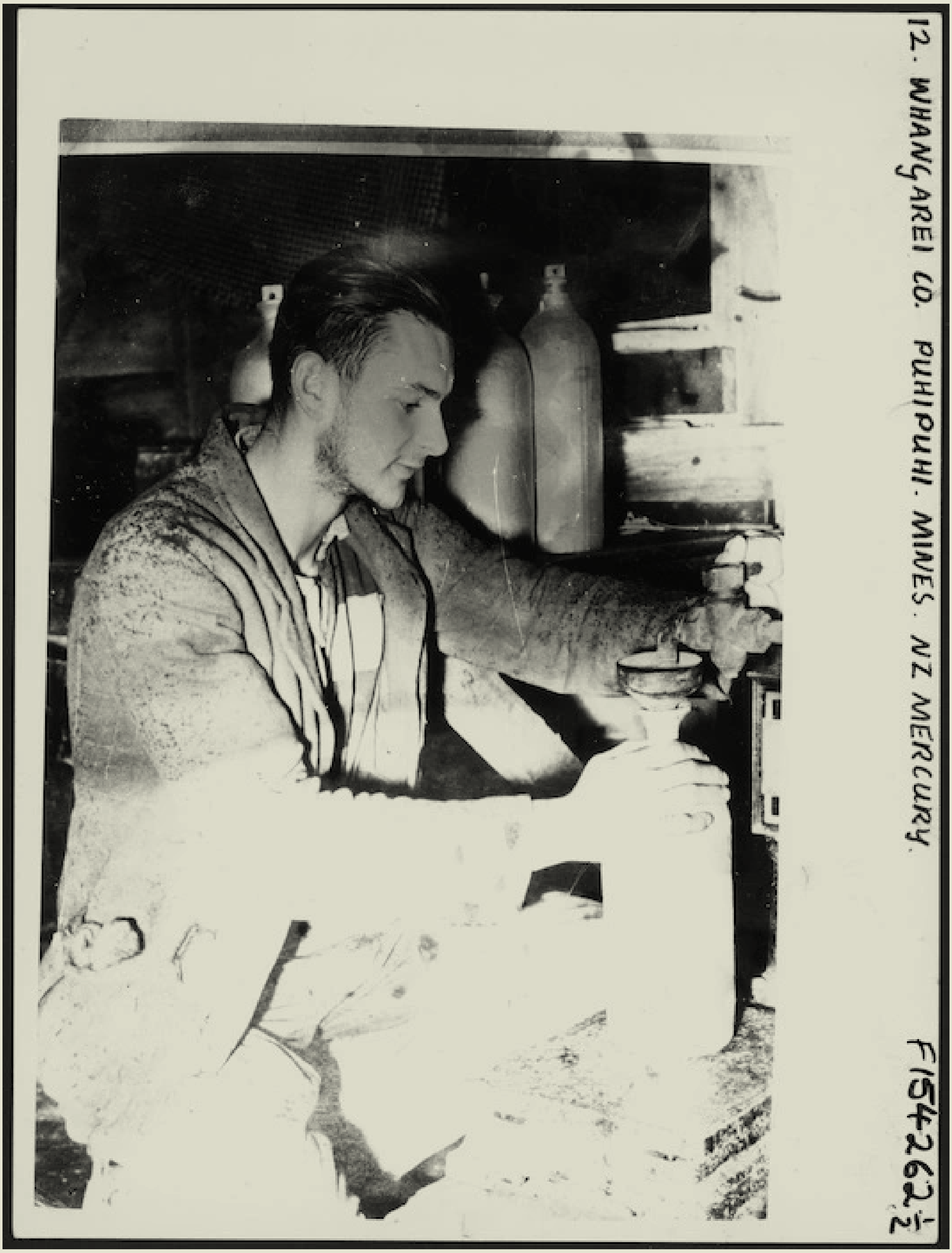


Figure 137.
Filling a metal bottle with mercury for export, Puhipihi, near Whangarei, Northland.
Brown, D F :Chiefly photographs of bush tramways and mining scenes in Northland. Ref: PAColl-5934-04. Alexander Turnbull Library, Wellington, New Zealand. /records/22708002

3.1 Mines and Quarries

The land of Aotearoa is marked with historic and contemporary extraction sites—mines and quarries. These sites are spaces of both hope and hubris. They are liminal, transitional, borderland spaces.

Mines and quarries, whether active or abandoned, are sites of entanglement of multiple layers: the biosphere, cultural history, and the entanglement of nature/culture. They are transitional spaces providing a point of access to multiple layers of meaning—a way in, literally. As a mine cuts into the earth, the stratum of the Earth is revealed. A quarry bites away at the earth, scraping away the surface, reducing mountains to flat land. The geology of a place is exposed. What was below or inside is brought up and out into the air. As a shaft into the earth, a mine accesses deep geological time. Extraction sites are social, economic, and cultural spaces. They contain workers, unions, danger, and accidents. There are floodings, fires, deaths, tragedy, and occasional triumph. Mines are dark and filled with gases. Settlements and townships grow beside mines and quarries. Women and children arrive; shops, churches and schools are built. Alongside them, tailings are filled with toxic waste.

Sites of extraction are tools to think with in my research, as well as supplying the material for my artistic practice. Considering mining provides a way of discussing the complexities of human relationships with the world. It is a way of thinking about the arrogance with which many of us engage with earthly materials. Mines are a generative and productive way of talking about settler economies and colonial activity. Mines also provide the resources that allows many of us to live as we do. We are in a bind—we need resources to live, and we cause enormous damage accessing them.

Figure 138.
Garden outside the reception area at Glenbrook, NZ Steel, 2022.
Photograph: Shelley Simpson.

3.2 Approaching the Landscape though Diffractive, Lithic Thinking

I am drawn to sites that give me the ability to engage and activate stories of mineral earthly matter in my art practice, and I am interested in sites that hold layers of meaning. The sites in this project are those with layers of both human and more-than-human activity. These types of sites are a multiple convergence of stories, of strata, a place to explore the assemblage of human and more-than-human, with shifts in temporality and scale. Jussi Parrika, in his chapter from *Posthuman Ecologies* titled "Cartographies of Environmental Arts," writes of "landscape … places and spaces, as technological and biological, [which] signal an attachment to situated ways of doing." They are "mixed arrangements of knowledge and ecology."[222] Mines and quarries are materially geological and political sites of environmental and social collisions. Extractive activity is a colonial activity, both historic and contemporary.

As places in the world, the sites selected for my research extend through time and space, where relational, storied and material engagements pull together past, present, and future.[223] The physical site is a container, a way of holding and anchoring, a place to be, to stand (or sit, or lie, or crawl, or jump), a launching point, and also a place to return to. Defining physical boundaries of a site is not simple—sites extend deep into the ground and far into the atmospheric space above. A site extends through non-physical, discursive modes as well, as thoughts and ideas, memories, and imaginings. I have found it useful, when approaching a site in the landscape, to hold in mind a diffractive approach, in which the encounter between myself as a lithic political body and the site is relational, with subject and object encountering each other, making and remaking the other in a constant entanglement. I now turn to diffraction, and what a diffractive

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222 Jussi Parikka, "Cartographies of Environmental Arts," in *Posthuman Ecologies: Complexity and Process After Deleuze*, ed. Rosi Braidotti and Simone Bagnall (Washington, DC: Rowman and Littlefield, 2019), 43.

223 Miwon Kwon, *One Place After Another: Site Specific Art and Locational Identity* (Cambridge, MA: MIT Press, 2002).

Figure 139.
Glenbrook NZ Steel, 2022.
Photograph: Shelley Simpson.

encounter with site might entail.

A diffractive reading of site has become important to my art-making practice as a method of grounding the practice materially, and as a key to understanding the origin of the materials I work with. Metals come from this earth, the ground that I walk on. The use of a material such as metal is not a discreet action, it cannot be separated from the activity that sourced and created it. It is important for me to understand the systems and activity that have made it possible for me to access and engage with materials. This is part of the very core of my project, lithic thinking. Lithic thinking requires a consideration of the deep time origins of the earth and its matter. This requires engagement with the political and social aspects of resource extraction and its companion, colonisation. It is this entanglement, beginning with reaching out and choosing a material, which then tumbles into a world of associations both material and cultural, as differences diffract, creating new worlds. I now look more closely at diffraction, a concept orginating in the physics of optics, and how it can be used when approaching a site in the land.

Haraway defines diffraction as an optical metaphor for philosophy and science.[224] She says diffraction is: "a mapping of interference, not of replication, reflection, or reproduction. A diffraction pattern does not map where differences appear, but rather maps where the effects of difference appear."[225] Diffraction, she continues, "redeploys optics into a model of creativity that doesn't equate representation with mere reproduction of the same."[226] Empirically, a diffraction pattern occurs when waves, whether liquid, waves of light, or radio waves, encounter either obstacles or other waves. When they encounter each other, they recalibrate, each

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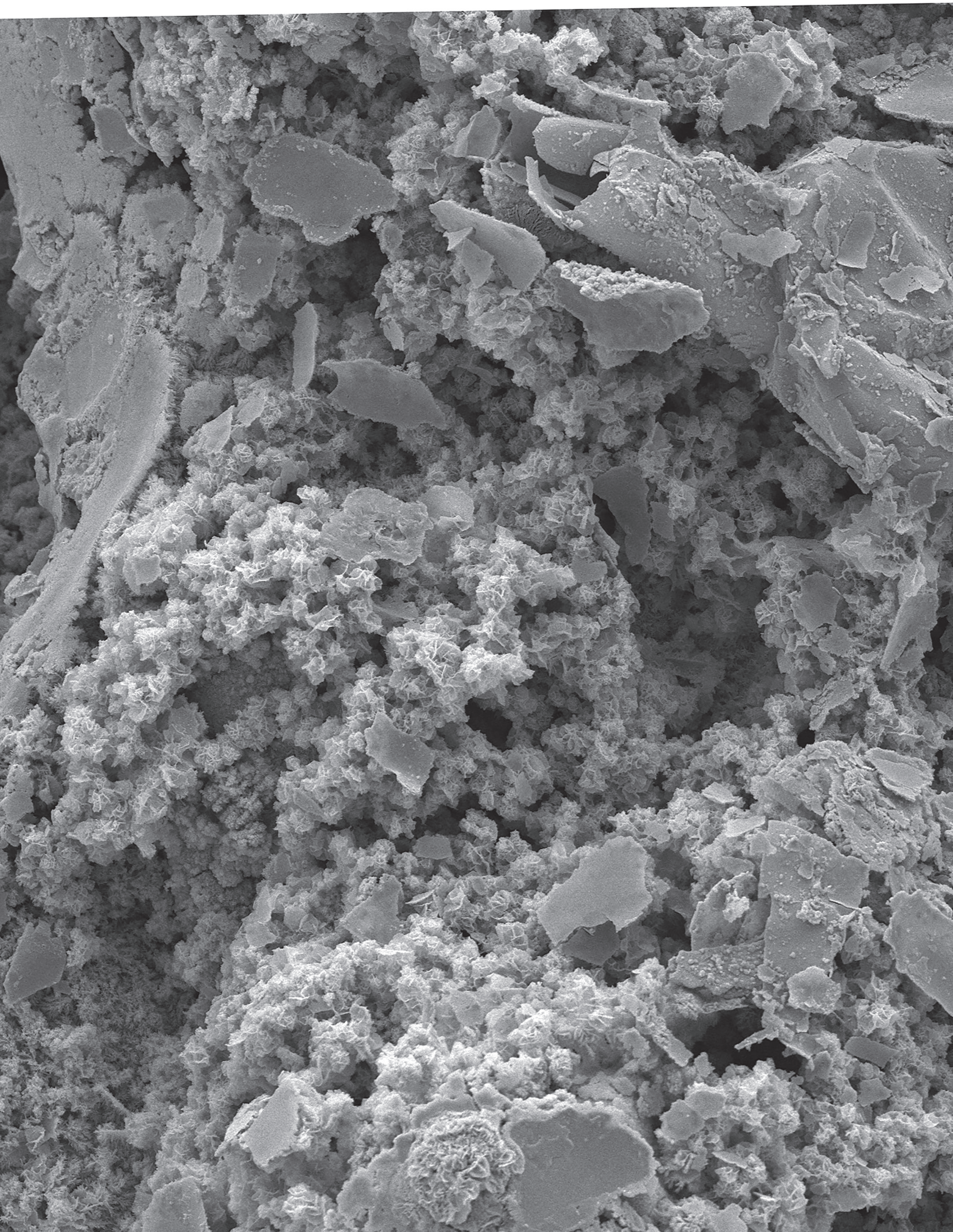
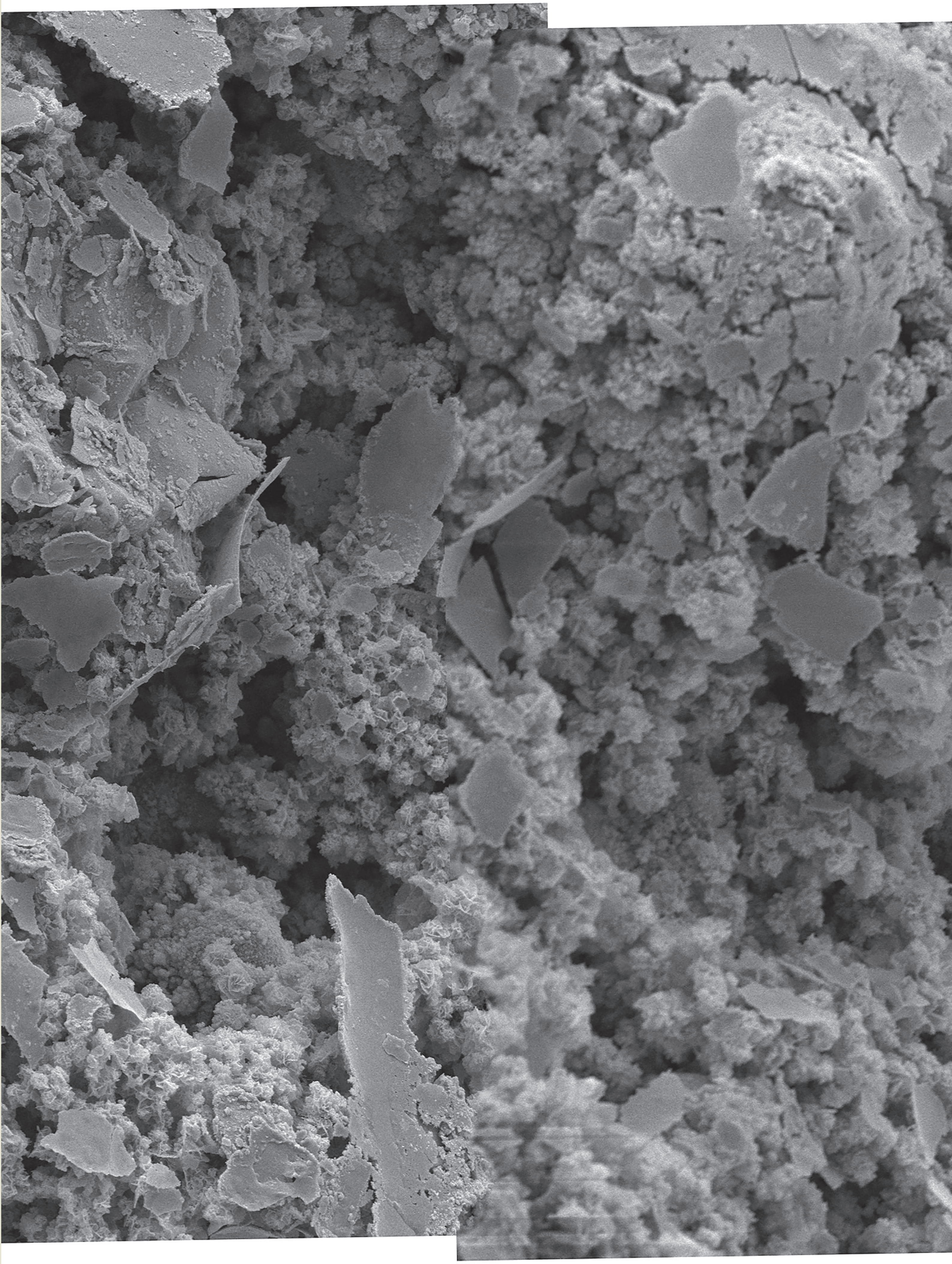
224 Haraway, *Modest_Witness@Second_Millennium*.

225 Donna Haraway, quoted in Vivienne Bozalek and Michalinos Zembylas, "Diffraction or Reflection? Sketching the Contours of Two Methodologies in Educational Research," *International Journal of Qualitative Studies in Education* 30, no. 2 (2017): 6, https://doi.org/10.1080/09518398.2016.1201166.

226 Kay Are, "Touching Stories: Objects, Writing, Diffraction and the Ethical Hazard of Self-Reflexivity," *Text* 22, no. S51 (2018): 6, https://doi.org/10.52086/001c.25588.





redirecting the other into diffractive patterns. 'Subject' and 'object' are remade. A decade later, Barad stated: "This is the deep significance of a diffraction pattern. Diffraction is a material practice for making a difference, for topologically reconfiguring connections."[227] They explained further, "Diffractive readings bring inventive provocations; they are good to think with. They are respectful, detailed, ethical engagements."[228] In *Dialogue with Karen Barad*, Barad stated, "Of course, Donna Haraway's inspired idea to shift optical metaphors from that of reflection to diffraction was a crucial inspiration."[229] Barad was looking for a methodology that would fit with their concept of agential realism, one that would not assume a "metaphysics of individualism."[230] Diffraction allows for relational phenomena, rather than starting from a place of comparison of individual, separate subjects. Turning to diffraction rather than reflection becomes a performative approach rather than representation, challenging the power of words to represent existing things. This is the entanglement of the material and the discursive.

227 Barad, *Meeting the Universe Halfway*, 381. Barad describes quantum physics' explanation of differences as a matter of entanglements, a seemingly counter-intuitive approach, as we tend to think of difference as separation. In quantum physics, "an intra-action is 'cutting together-apart' (one move!), that is, differentiating-entailing."

228 Barad, "Matter Feels, Converses, Suffers," 3; Haraway, *Modest Witness@ Second Millennium*, introduces the idea of diffraction as an *optical metaphor* useful to philosophy and science. She notes that reflexivity, like reflection, has been much recommended as a critical practice, but risks simply recreating the same elsewhere. She posits that "diffraction is an optical metaphor for the effort to make a difference in the world." (16) For Haraway, diffraction is more 'critically conscious,' as it gives us the opportunity to become more attuned to how differences are created in the world, and what particular effects they have on subjects and their bodies. (273)

229 Malou Juelskjær,, and Nete Schwennesen. "Intra-Active Entanglements—An Interview with Karen Barad." *Kvinder, Køn & Forskning*, no. 1–2 (March 2012). https://doi.org/10.7146/kkf.v0i1-2.28068, 122

230 Barad, *Meeting the Universe Halfway*, 5

3.3 Material-Discursive Sites

In their book *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Barad proposes that discursive practices must be reconceptualised to take into consideration their material nature. They write:

> Discursive practices and material phenomena do not stand in a relationship of externality to each other; rather, the material and the discursive are mutually implicated in the dynamics of intra-activity. The relationship between the material and the discursive is one of mutual entailment. Neither discursive practices nor material phenomena are ontologically or epistemologically prior. Neither can be explained in terms of the other. Neither is reducible to the other. Neither has privileged status in determining the other. Neither is articulated or articulable in the absence of the other; matter and meaning are mutually articulated.[231]

Barad offers the apparatus as a situation in which this occurs; apparatuses are specific material-discursive configurations through which 'subjects' and 'objects' are produced. They write, "Apparatuses are the conditions of possibility for determinate boundaries and properties of objects and meanings of embodied concepts within the phenomenon."[232] In addition, discursive practices *define what counts as meaningful.* In a lithic landscape where there are nodes of human activity, mines and industrial sites can be seen as apparatuses, material-discursive situations, where both the human and the more-than-human entities intra-act as phenomena, creating meaning. For Barad, 'meaning' is an ongoing performance of the

231 Barad, *Meeting the Universe Halfway*, 152.
232 Barad, *Meeting the Universe Halfway*, 143.

Figure 140.
Pine plantation at Waiuku Forest that surrounds the onepū mine. Pines were first planted there in the 1930s to reduce wind blown sand on neighbouring farmland.
Photograph: Shelley Simpson.

world.[233] In Barad's agential realist account, nature is not passive (matter) waiting for human (discursive) meaning. I explore how the human apparatuses of the mines themselves in the lithic field are fertile zones for thinking and making with; later in the chapter, I focus on my experience of onepū (black sand) and iron smelting in Aotearoa.

3.4 Diffractive Readings of Site

To 'read' sites like Glenbrook or the Mineral Belt at Whakatū diffractively positions them as text and as lively matter at the same time in a material-discursive field. My diffractive reading is sensitive to vibratory noise, to interference; sensitive to difference, to variation. An example of this is my experience of Waiuku Forest (the location of a sand mine), a place that I approached knowing that it had been completely modified from its original ecosystem, with an ecology of two main plants, pinus radiata and marram grass, and a sand mine in the middle, where sand is separated from its occupant animals and plants, where life would be limited. All this is indeed true, but what is also true is the sense of vitality that exists there despite the loss and damage, the singular beauty of the tall straight pines, the sound of the wind in the branches, the watery pond life, the spider webs in the sandy roots of trees, the pīwakawaka (fantails). As I carried my Pākehā body through this landscape, I brought with me the ongoing legacy of colonisation, the knowledge of the theft of this land from tangata whenua. At the same time, I was reminded of the generosity of the natural world, the way in which plants and animals endure, their potentia, or will to live, being expressed in their habitation of this strange space.

Reading a site diffractively, or diffractive fieldwork in this research, means for me being attentive to both the human and the more-than-human aspects of the place—reading nature and culture through each other without negating one through the other, or championing one over the other.

233 Barad, *Meeting the Universe Halfway*, 148.

Figure 141.
Steel slabs are stacked outside to cool at Glenbrook.
These will later be hot rolled in to steel plate, 2022.
Photograph: Shelley Simpson.

A diffractive reading of a site allows for serendipity, for the surprising encounter which may lead to an unexpected place.[234] It means approaching a site lightly, with an awareness of one's own knowledge and context, and remaining open to possibilities. What one brings to a site may enhance or bring emergent encounters into the light; ideas may render invisible an aspect of the site that another may see. A person's 'politics of location' and worldview, will interfere with what is found. As both observer and actor, one is never neutral, always relational, always impactful.

In my fieldwork research during my candidature, I can point to several examples of the affective agency of site: encountering the silky, black magnetic sand at the steel mill and running it through my fingers sparked the investigations that would eventually lead to *Hand Held* (2023-ongoing); the serendipitous algorithmic results thrown up by the museum search engine while planning a field trip that led me to Martha Rutherford's dress,[235] and the endless Whakatū rain that resulted in a different walk to that which was planned and to different encounters, resulting in the artwork *can't live without you*, discussed in the Prologue to this chapter.

A diffractive encounter with a site accepts one's position as an entity in the landscape, breathing in and out, sharing the space with all else that is there. Skin dissolves as microbiomes interact with all around; skin is porous, and breaths of air contain animals, bacteria, viruses, chemicals, dust, minerals, and water, moving both in and out. The unconscious brain filters millions of signals that arrive through the senses of the body, constantly shifting and adjusting within the environment. This porosity

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234 Iris van der Tuin describes the relationship between diffraction and serendipity. She points out that the serendipitous encounter is predicated on a certain amount of prior knowledge—one must be able to be open to serendipity, recognising it when it occurs. University of Missouri, "Post Philosophies and the Doing of Inquiry Session 1 Iris van Der Tuin and Amy Pekal," *Post Philosophies and the Doing of Inquiry* series, video of panel discussion, August 29, 2020, https://www.youtube.com/watch?v=Vosui4KGoYY.

235 See Iris van der Tuin, "On Research 'Worthy of the Present'," *Simon Fraser University Educational Review* 12, no. 1 (Spring 2019): 8–20, https://doi.org/10.21810/sfuer.v12i1.860. Iris van der Tuin discusses the relationship between diffraction, algorithms, and academic research.

was evident when holding and passing my iron cast work *Hand Held* from person to person (see Chapter Four). The work was made from the iron collected from the smelter floor at Glenbrook Steel Mill, and relates the body directly to the huge iron billets cooling outside the mill building, as body heat warms the iron, exciting the iron itself, in an activity that inserts one's corporeal self firmly in the world.

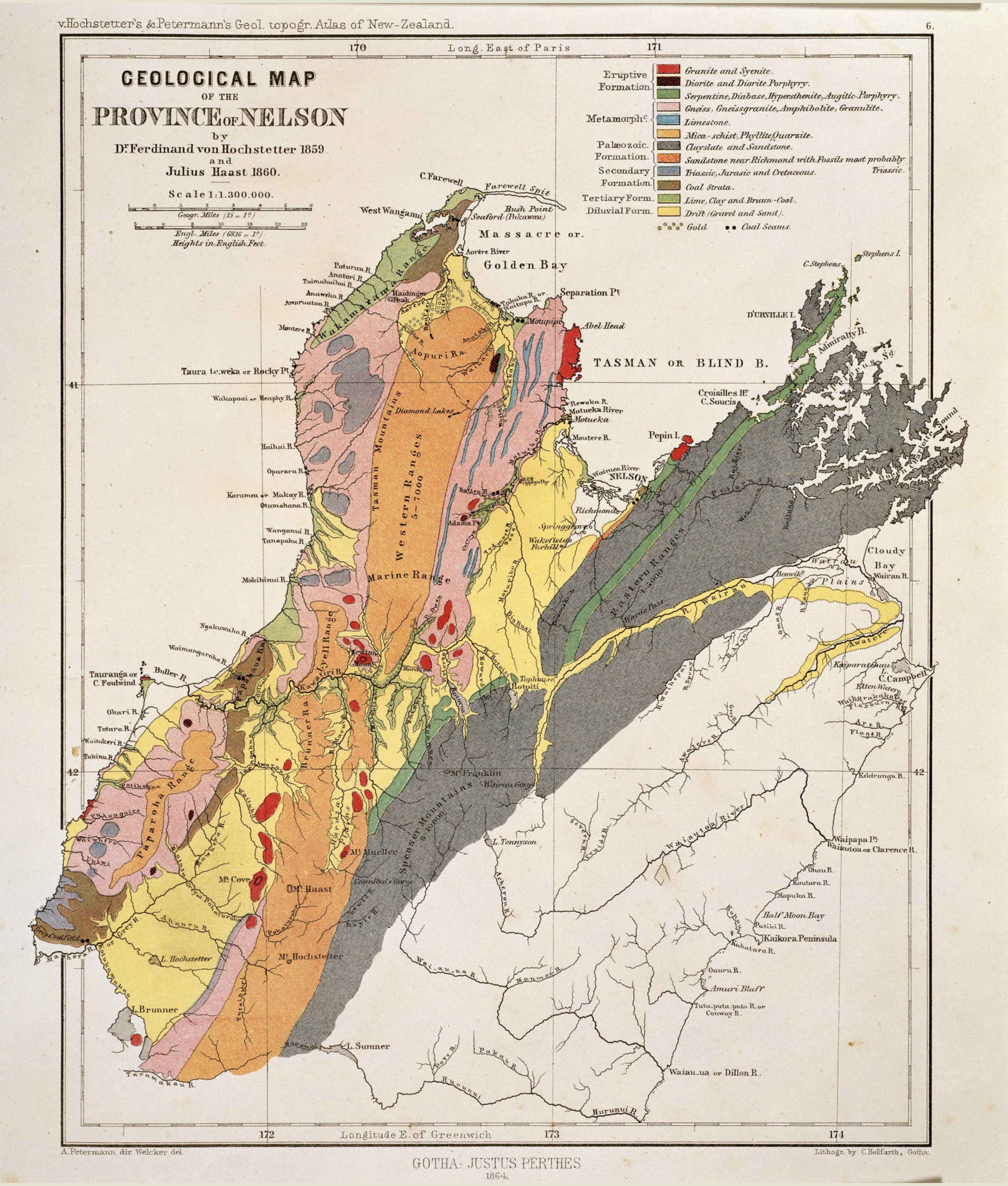
A diffractive reading of site reminds me of the worlds of the many entities that are there. These encounters are sensorially productive; and what happens during them is generative. My diffractive reading looks for complex and multi-scalar consequences of these productive engagements in which we can see the differences that open possibilities. I have attempted, in my encounters with site, to hold a diffractive approach. I now introduce the five locations that have become key in my research and experience.

Part 2 Field Sites, or Being There

Before I began my PhD studies, I visited sites as part of specific art-making projects and research opportunities. These places included the historic tin mining at Port Pegasus, Rakiura Stewart Island, and the defunct coal-fired Meremere Powerstation in the Waikato.[236] Over the course of my PhD candidature, five sites in the landscape have become integral. These are Kawau Island, the location of a historic copper mine; the Mineral Belt in Whakatū, home of my ancestors and historic copper and chromite mining; Glenbrook Steel Mill at Waiuku and Waiuku Forest, the location of the sand mine; and Onekaka, Golden Bay, the only iron ore quarry in Aotearoa. I now introduce each of these engagements and describe how each one was key to specific research opportunities.

236 I discuss these projects in the Introduction.

Figure 142.
Hoschetter's geological map of Nelson, created when he visited the area in 1859.
NZ Map 5694e, Sir George Grey Special Collections, Auckland Libraries.


v.Hochstetter's & Petermann's Geol. topogr. Atlas of New-Zealand.
6.
GEOLOGICAL MAP
OF THE
PROVINCE OF NELSON
by
Dr. Ferdinand von Hochstetter 1859
and
Julius Haast 1860.
Scale 1:1.300.000.
Geogr. Miles (15 = 1°)
Engl. Miles (69.16 = 1°)
Heights in English Feet.
Long. East of Paris
Eruptive Formation.
Granite and Syenite.
Diorite and Diorite Porphyry.
Serpentine, Diabase, Hypersthenite, Augitic Porphyry.
Metamorph.c
Gneiss, Gneissgranite, Amphibolite, Granulite.
Limestone.
Mica-schist, Phyllite, Quarzite.
Palæozoic. Formation.
Clayslate and Sandstone.
Sandstone near Richmond with Fossils most probably Triassic.
Secondary Formation.
Triassic, Jurasic and Cretaceous.
Coal Strata.
Tertiary Form.
Lime, Clay and Brown-Coal.
Diluvial Form.
Drift (Gravel and Sand).
Gold
Coal Seams.
C. Farewell
Farewell Spit
West Wanganui
Bush Point
Seaford (Pakawau)
Massacre or.
Golden Bay
Separation Pt.
Abel Head
TASMAN OR BLIND B.
C. Stephens
Stephens I.
D'URVILLE I.
Admiralty B.
Croisilles H.r
C. Soucis
Pepin I.
NELSON
Richmond
Taura te.weka or Rocky Pt.
Aopuri Ra.
Diamond Lakes
Tasman Mountains
Western Ranges 5-7000
Marine Range
Eastern Ranges
Cloudy Bay
Wairau R.
Plains
Spenser Mountains
Mt. Franklin
Mt. Mueller
Mt. Cove
Mt. Haast
Mt. Hochstetter
Paparoha Range
Brunner Ra.
Lyell Range
L. Hochstetter
L. Brunner
L. Sumner
L. Tennyson
Tauranga or C. Foulwind
Buller R.
Taramakau R.
Kaikora Peninsula
Half Moon Bay
Amuri Bluff
Waiau-ua or Dillon R.
Hurunui R.
C. Campbell
Keldrangu R.
Waipapa Pt.
172
173
174
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171
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42
Longitude E. of Greenwich
A. Petermann dir. Welcker del.
Lithogr. by C. Hellfarth, Gotha.
GOTHA: JUSTUS PERTHES
1864.

3.5 The Complexities of Allyship—Kawau Island / Maitai Valley

As Tangata Tiriti, I negotiate my relationships with land. I now turn to a project that involved two locations of disused copper mines: Kawau Island (Ngāti Manuhiri) and Whakatū (Ngāti Kuia, Rangitāne o Wairau and Ngāti Apa ki te Rā Tō, Ngāti Koata, Ngāti Rārua and Ngāti Toa Rangatira, Ngāti Tama ki Te Tau Ihu and Te Ātiawa o Te Waka-a-Māui), the material copper and the process of electroforming. In this project I actively work through the complex issues of my relationship as a Pākehā to whenua, which, I realise, contain stories that are not always mine to tell. With a diffractive approach to these sites, I became more than an individual approaching specific discrete places, rather, I became an entangled phenomenon, carrying with me a range of material-discursive alignments that affect and are affected.

I had already been working with copper as a material in my art-making (see Section 1.2), and was intrigued to find that there had been a copper mine in the nineteenth century on Kawau Island, about an hour north of Tāmaki Makaurau. Motivated by the desire to return some copper to the location of the copper mine, I proposed to create copper casts of the rock work that made up the remaining copper mine buildings, which would be returned in some way to the Island. In the early 1840s, colonial settlers found copper on Kawau. As in many mining histories, conflict and crisis were part of the story. The main seam of copper ore extended out underneath the seabed. Subterranean tunnels were dug, and pumps were installed. A smelter was built close to the mine. Hundreds of miners and their families arrived. The owner of the mine built a large house which so entranced Governor George Grey that he later bought it and moved in himself. After a very few years and an acrimonious rivalry between two mining companies (including sabotage), the sea finally won, and the tunnels flooded. By 1851 the game was over.[237]

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237 Geoffrey G. Thornton, *New Zealand's Industrial Heritage* (Wellington: A. H &

As I widened my enquiry into Kawau Island, I found that the story of copper mining is embedded in a far more complex and confronting history. Māori prisoners of war were kept in the smelter house, escaped, and made their way in boats back to the mainland. I heard hints of a violent history and tapu sites, including possible Māori hanging(s).[238] George Grey had retreated to Kawau Island and directed the colonial troops fighting in the Ngā Pakanga o Aotearoa New Zealand Wars from his mansion there. He also embarked on an intense modification of the island flora and fauna.[239] This legacy is still very much apparent in the contemporary landscape of the island, which has reduced animal and plant diversity and a problematic wild wallaby population (of several different types, including a small rat-like one).

I met with Senior Park Ranger Caleb Hamilton at Te Whata Atawhai Department of Conservation in May 2021 to discuss the project. He suggested that before I go to Kawau I attend an orientation session with the iwi (tribe) of the area, Ngāti Manuhiri. I arranged the orientation session through him, but unfortunately, due to COVID restrictions the induction did not go ahead. However, I was increasingly drawn to the question of whether, as a descendent of settlers, I had legitimacy to explore the copper remnants there. With its history of intense intervention through George Grey's modification of land, plants and animals, the violent mining history, and the deeply disturbing history of the treatment of Māori prisoners and historical trauma, Kawau Island became much more than a site at which I could undertake a symbolic return of extracted minerals.

At the same time, I was finding out more about copper and chromite mining that had taken place in Whakatū, the home of my ancestors, who had

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A. W. Reed, 1982), 79.

238 Caleb Hamilton, conversation with author, May 2021.

239 George Grey (1812-1898) was the Governor of New Zealand from 1845-1853, and Premier from 1877-1879. Keith Sinclair, "Grey, George," in *Te Ara—The Encyclopedia of New Zealand*, accessed May 12, 2024, https://teara.govt.nz/en/biographies/1g21/grey-george.

arrived from England in 1843. The first railway track that had been built to service the mining activity ran through the Brook Valley where I briefly lived as a child (and had a three-legged mouse), and down Hardy St to the Port. As a site to work through the relationship between myself, colonial extraction of minerals and the return of copper, Whakatū seemed more appropriate.

As I learnt more about both sites, I began to understand that it is my positioning (my feminist politics of location as proposed by Adrienne Rich; see Section 0.6), that answered the question of which place was appropriate for the project. Kawau Island, with its complex history, holds a powerful story. Whakatū also has a complex history, and as a descendant of people that were part of that history, I am woven into the story of that place. These positions that I hold, and the deep histories and geographies of the two locations, taken as a diffractive relational weaving together, or layering, resulted the decision to shift the location of the project to Whakatū.

This shift in location brought clearly in to focus that I have a relationship with 'site' that is specific to my position as Tangata Tiriti. Core to my approach in my research is my desire to be an ally to Māori and an active Te Tiriti partner, to consider more fully the role my ancestors played in the European colonisation of Aotearoa. This, in turn, has highlighted for me the complexities of my position. My ancestor's names are inscribed in bronze at Port Nelson, as arrivals on one of the early ships. My feelings about being a seventh-generation coloniser are complex: on the one hand a sense of pride (how tough the sea journey would have been, the pain of the young family leaving their homeland knowing they would never return, and the difficulties of settler life); and on the other a terrible shame, a complicity that is painful and not easily placated, nor should be.

The New Zealand Company, led by Arthur Wakefield in Whakatū, had sold land to settlers that had not actually been bought from Ngāti Toa who were the the manawhenua iwi (tribe with authority over land or territory) at that time, and was therefore unavailable. In 1843, in the first conflict after the signing of Tiriti o Waitangi, the only violent conflict in the South Island during this period, a group of colonisers attempted to evict Māori from their land. In the resulting fight, known as 'The Wairau Affray,' differing accounts record that four or six Māori and twenty-two or thirty colonisers were killed. Arthur Wakefield himself was killed during the Affray by the Ngāti Toa chief Te Rangihaeata, in return for the murder of his wife Te Rongo.[240]

My ancestors in Whakatū arrived soon after 'The Wairau Affray.' My ancestor William Stallard, who arrived as a toddler, later owned a hotel in the centre of the town called The Miners Arms (later the Panama Hotel), which I assume was so named because it catered to miners, who were mining copper and chromite (fig. 130). I can, then, trace the money spent by those miners as it fed my ancestors, nourished their children, and moved down through the generations to my mother and myself. What can I do with this fact, this direct line back to the 'opening up' of the land, to the pickaxes and dynamite, the horse drawn loads? What can I do with the fact that the land, if not outright stolen, was bought under false pretenses, and, no matter how the land was taken, it was under the guise of a colonising group of people who thought they had the right to cheap land, the right to arrive, to clear, to build, to dig the land, and to usurp the people that were already there?

These conflicting feelings about my ancestry underlies my relationship with the whenua of Aotearoa and my engagement with it. I hold in one hand a deep curiosity about the material world, in particular the stone and metals that ground us. In the other hand I hold an awareness of my position in relation to this land, that of manuhiri (guest), and of the responsibilities that such a position carries. One of these responsibilities is how I engage with materials in my art practice that are of the whenua. To this end, I recognise that culture and nature are not separate fields but

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240 Micheal King, *The Penguin History of New Zealand* (Auckland: Penguin Books, 2003), 182.

create each other. It is not possible to concern oneself with the materials of the world, and not with culture. This is a diffractive approach, holding the two together in an entangled relationship, while not privileging one over the other. To further explore the complex, diffractive relationship between the material and the discursive, I now turn to my engagement with the industrial site of Glenbrook Steel Mill.

3.6 The Magnetic Pull of Onepū

In contemporary Aotearoa, iron is extracted not from rock, but from onepū, the black iron laden sand of the West Coast beaches of Te Ika a Māui North Island. Bluescope NZ Steel's Glenbrook plant at Waiuku, to the southwest of Tāmaki Makaurau, is the only place in the world that extracts iron from onepū. This sand contains the mineral titanomagnetite, rich in titanium and iron. The sand that feeds the process at Glenbrook is mined directly from the surface at Waiuku Forest and is piped to Glenbrook.

With an art practice increasingly concerned with the mineral, my interest in onepū focussed on the steel mill and the iron produced there. In his history of Glenbrook Steel Mill, *True Grit* (2015) (more a hagiography written to celebrate fifty years of the company), Michael Larsen is keen to impart the enormous difficulties that were overcome in the process of figuring out how to extract iron from the titanomagnetite rich sand. The magnetic qualities of the sand had been marvelled at by European colonists since they had arrived in the area, and their interest lay in the possibility of using it as a resource. Aotearoa has very few deposits of iron ore, and the glittering black sand of the West Coast tempted the colonists, so certain were they of their right to extract whatever they could from their new land. As early as 1842, iron sand had been sent to England for testing in a furnace. A long and complex process of figuring out how to smelt the sand followed.

Figure 143.
Onepū, the black magnetic sand from the West Coast of Te Ika a Māui North Island, Aotearoa.
Photograph: Shelley Simpson.

Figure 144.
NZ Steel at Glenbrook, Waiuku.
Accessed May 27 2024,
https://maps.app.goo.gl/TjvDBGWyEVicCHnV7

Figure 145.
Glenbrook Steel Mill, 2022.
Photograph: Shelley Simpson.

Glenbrook sits on the coast, in a spot chosen for the solid granite rock substrate needed to hold the enormously heavy machinery. The mill uses one million tonnes of water a day from the Waikato River,[241] and a great deal of electricity, as well as coal from Huntly and limestone from Otorohunga. Driving towards the site, I was struck by what seemed to be a dialing down of colour, a sepia tone appplied over the landscape. And indeed, when the mill first opened in 1969, locals complained of black washing on the line and black sheep in the paddock.[242] Once at the mill, a brown dust coats everything.

Visiting a place like this, where the raw materials that form the basis of our capitalist society are made, is like peeling back the veneer that allows us to live with a certain amount of denial. We exist at one end of the consumer cycle, where products are clean, shiny, and ready for purchase. The man who spearheaded the whole Glenbrook venture was Woolf Fisher, who wanted to make steel locally for the household appliances Fisher and Paykel are known for: washing machines, dryers, and refrigerators. Glenbrook is brutal; it is chaotic, dirty, loud, hot, wet, oily, and dangerous. Humans in this place seem very soft, easily squished. We wear hard hats, high visibility vests, and white gloves—gloves that are, by the end of our visit, blackened with the omniprescent dust. At Glenbrook there is a courtyard with a strange machine in the middle of it. This is the iron oxide machine. It is two stories high, and impossible to make sense of. Like everything at Glenbrook, it is a mash up of pipes, tanks, steel boxes, ladders, platforms, chimneys, vents, and cables. It is thickly coated in red-brown iron oxide powder. In a shipping container next to it sit sacks of the powder. Seen from above on Google Maps, the roofs of the surrounding buildings are covered with the oxide powder (fig. 144). This machine feels like the epicentre of the brown dust that coats the entire Glenbrook site and leaks out into the landscape.

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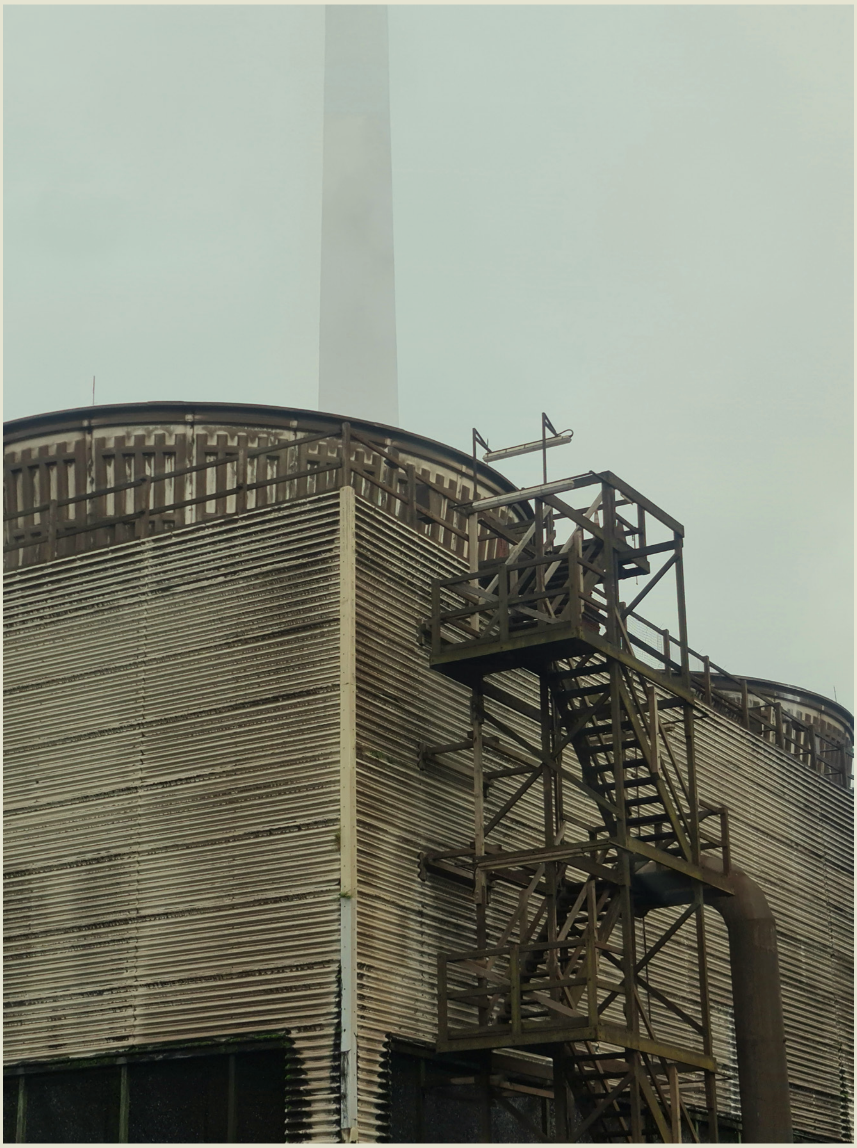
241 “Water: An Essential Resource,” New Zealand Steel, accessed February 12, 2024, https://www.nzsteel.co.nz/sustainability/our-environment/water-an-essential-resource/.

242 Michael Larsen, *True Grit: The Survival and Success of New Zealand Steel* (Auckland: Random House New Zealand, 2015), 40.



Figures 146- 150.
Glenbrook Steel Mill, 2022.
Photographs: Shelley Simpson.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Visiting Glenbrook provided me with many opportunities to explore place as a material-discursive node, as well as remaining open to a diffractive approach to the site. The mill is a brute space, with intensities of processes needed to perform the task of material transformation on an industrial scale. Through approaching the site diffractively, I became aware of the multiplicity of entities inhabiting the site, and it was the plants that held my attention: the moss growing through the pavements, the gardens tended by the company gardeners, the hedges, and outside the lunch-room, a Ginkgo tree (fig. 149). Ginkgo is an ancient plant—one of the first conifers, appearing in its modern form 160 million years ago during the Jurassic Period, and it seems apt here. This tree, considered a living fossil, its yellow berries once food for dinosaurs, stands where the mill modifies starburst iron, using fossil-filled coal and limestone made up of the calcite shells of ancient animals. The plants at Glenbrook, even with the persistent dust, continued to insist on themselves and their existence. Encountering these plants and their activity threw into focus the complexity of this site, the always and already interacting materialities. The surprising tenacity of the plants, growing in such an unforgiving environment, provided a diffractive experience, as differences were amplified and observed.

The onepū that is intended for Glenbrook is mixed with water into a slurry and piped from the mine at Waiuku Forest to the steel mill through a buried pipeline. I have felt this refined sand, and I didn't want to stop running it through my fingers due to its seductive coolness. Metal tumbles through transformation,[243] and this is the first stage of the transformation that this particular metal goes through—the removal of 'life'—of insects, of plants, of other types of minerals, such as clay. As I run this transformed sand through my fingers it has a pull that feels more than itself.

What I feel in this fine velvety sand is sand wind-blown on to farmland, sand held in place by marram grass and pines, sand creatures and plants,

243 Deleuze and Guattari, *A Thousand Plateaus*, 453

sand running through fingers, sand transformed into iron, sand as iron held in the hand; as an event that holds all of these situations within it, with a pull that reaches inward to the iron in our blood, and outward to the structures that form our buildings and cities. And this black sand reaches back through deep time to the volcanoes that pulled the molten rock from within the earth's mantle, through the great movement of matter circulating through and around the Earth.

The onepū that is used at Glenbrook is mined at Maioro, now Waiuku Forest, 18 kilometers away. Wind-blown sand caused problems for the early farmers of Waiuku, who had transformed what had been low-lying coastal forest, no doubt rich in a diversity of wildlife, into paddocks for sheep and cows. In 1932, Waiuku Forest was established by the Public Works Department, who planted marram grass to prevent the sand being blown on to the adjacent farmland. Pines were also planted as a commercial crop. In 1966, NZ Steel was granted a 100-year mining license to mine sand to feed Glenbrook. In a beautiful photograph from 1898, taken at Otaua, north of the area that is now the forest, there is a sense of what the landscape looked like before the land was cleared for farming (fig. 151). In the photo, tall kahikatea (white pine, *Dacrycarpus dacrydioides*) line a waterway. I imagine freshwater fish, birds, and insect life.

Waiuku Forest is a heavily constructed landscape, with a commercial crop of pinus radiata and an understory of maram grass providing a limited biodiversity that feels very alien in Aotearoa, where the bush is often an abundant, lush environment (figs. 140, 152, 153). Considering the history of this area is confronting from both ecological and social perspectives. The ecological paucity here speaks of the damage that has been done to the environment through destructive, colonial extractive economies. As I research the history of the removal of Māori from this place through land confiscations and punishments, I feel pain for the loss that Māori suffered (and still suffer). In 1865, tens of thousands of acres of land were confiscated under the New Zealand Settlements Act of 1863. George Grey had begun to invade the Waikato region in July 1863, forcing most Māori

Figure 151.
The landing, Otaua, 1898
Photographer: Pegler, Enos Silvanus,
Auckland Libraries Heritage Collections Footprints 04731

Figures 152–153.
Waiuku Forest, 2024.
Photographs: Shelley Simpson.

in the Manukau Harbour area to leave their homes and move south. The land confiscations that occurred were punishment for those who would not or could not leave.[244] The forest is currently under a Treaty of Waitangi claim by Ngāti Te Awa.

After I visit Glenbrook, I feel a curious mixture of awe at the scale of the enterprise, and a kind of shame. It seems so disrespectful. The mess of it, the brutality, the intensities. I think, too, of the reach of the place. Glenbrook reaches back to the shifting land masses of Gondwanaland, to the slow separation of Aotearoa from its sister lands. The mill reaches back through eons of birdsong, of countless kinds of life, of changes in climate and water levels, of slow, slow grinding of rock, of particles building up in sedimental layers.

Glenbrook reaches forward in time, to the changes it helps hasten, to the days in which its own steel body collapses and falls to the ground, its own sedimentation back into the earth. Who knows what entities will find nourishment in the rusting, oxidising metal ribs and bones? Glenbrook also reaches into our current moment, affecting this time and place in many complex ways. I keep thinking about the living, the small lives disrupted by the processes there. Undoubtedly there is a complex ecology of animals and plants that live in iron rich sand and enjoy the iron-ness. Now, the pines and marram grass of the replaced sand are home to other creatures and provide a recreational place for people. The mill has sustained a community of workers and families over decades. Currently NZ Steel (the owner of Glenbrook) employs 1400 people. However, the steel mill is one of Aotearoa's largest pollution emitters, with its smokestacks producing 1140 kilograms of carbon monoxide each hour. The emissions also include particles which can be hazardous to human health. One of these, PM2.5, is absorbed directly into the bloodstream, and can be car-

244 Ngati Te Ata Waiohua, *Cultural Assessment Report: Prepared for PW, SM & GM Askew Partnership; Proposed Plan Change from Rural Zoned Land to Residential Land* (Auckland: Ngati Te Ata Waiohua, 2019), 9, https://www.aucklandcouncil.govt.nz/UnitaryPlanDocuments/pc-55-appendix-1a-cia-ngati-te-atata.pdf.

cinogenic and cause cardiovascular problems.[245]
In 2023, NZ Steel partnered with the Government to begin the process of reducing its emissions by replacing coal use with electricity, and to use more recycled steel. This will eliminate 800,000 tonnes of carbon pollution a year, the equivalent of taking all the cars in Christchurch off the road.[246] Sand at Waiuku Forest will continue to be mined.

As a site in the landscape, Glenbrook allows me to explore not just the physical process of mining and material transformation, but the relationship between extraction and colonisation, between our relationship with the land and its resources, and with the lithic nature of our bodies. The question of displacement is key to my project, in which lithic materials are in a constant state of movement through both space and time, in response to forces: atomic level bonding; gravity; geologic forces such as pressure and heat, wearing away, and sedimentation; and human forces—mining, quarrying, and transformation from one form to another.
As we are aware, humans, through our activity, have caused the largest movement of earthly materials across the planet from the south to the north. A stone I pick up and put in my pocket was on the move for millennia before I touched it and will remain on the move for millennia to come. The sand at Waiuku Forest, now iron, continues to shift and move, ions trembling and reacting. What location and time does it belong to?[247]

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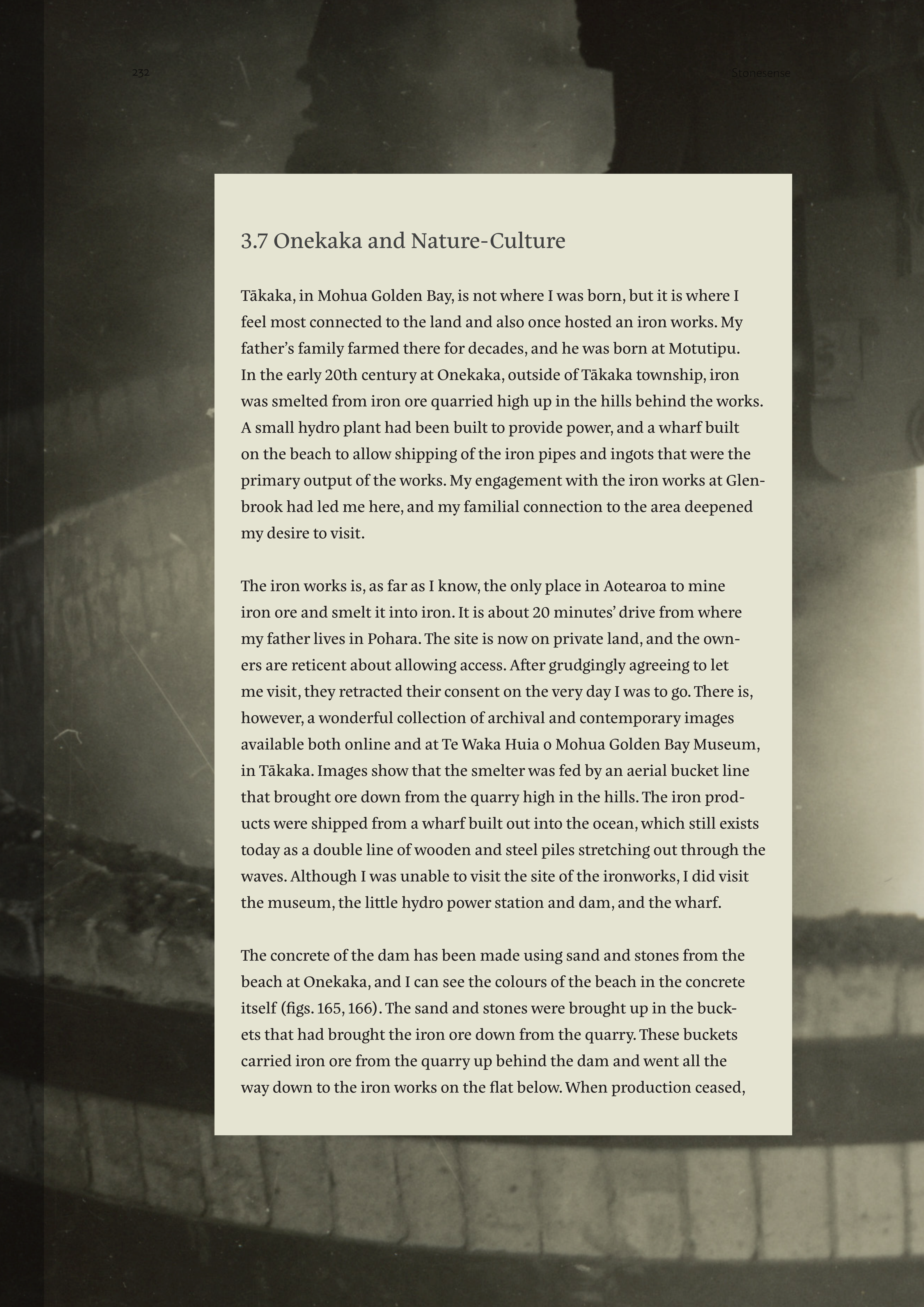
245 Jonathan Killick, "The Small Group of Residents Fighting an Industrial Giant's Pollution," *Stuff*, September 12, 2022, https://www.stuff.co.nz/environment/300683870/the-small-group-of-residents-fighting-an-industrial-giants-pollution.

246 "NZ's Biggest Ever Emissions Reduction Project Unveiled," Beehive.govt.nz, press release, May 21, 2023, https://www.beehive.govt.nz/release/nz's-biggest-ever-emissions-reduction-project-unveiled.

247 Kathryn Yusoff, "Geological Expulsions," in *Spatial Workshop: Converging in Time*, ed. Scott Mitchell, Terri Bird, and Bianca Hester (Melbourne: Monash University Museum of Art, 2017). Yusoff writes about the Open Spatial Workshop work *Splinter* (2015), in which the artists returned an ancient, fossilised log to the place it was found. Yusoff writes, "The return of the tree to its site of discovery in the Latrobe Valley, the repatriation of a log to its soil, is riffing on a chronologic al-geological act that opens up ideas of origins: to which time does the tree belong? To which Earth does it belong? Where does the tree think it is?"



3.7 Onekaka and Nature-Culture

Tākaka, in Mohua Golden Bay, is not where I was born, but it is where I feel most connected to the land and also once hosted an iron works. My father's family farmed there for decades, and he was born at Motutipu. In the early 20th century at Onekaka, outside of Tākaka township, iron was smelted from iron ore quarried high up in the hills behind the works. A small hydro plant had been built to provide power, and a wharf built on the beach to allow shipping of the iron pipes and ingots that were the primary output of the works. My engagement with the iron works at Glenbrook had led me here, and my familial connection to the area deepened my desire to visit.

The iron works is, as far as I know, the only place in Aotearoa to mine iron ore and smelt it into iron. It is about 20 minutes' drive from where my father lives in Pohara. The site is now on private land, and the owners are reticent about allowing access. After grudgingly agreeing to let me visit, they retracted their consent on the very day I was to go. There is, however, a wonderful collection of archival and contemporary images available both online and at Te Waka Huia o Mohua Golden Bay Museum, in Tākaka. Images show that the smelter was fed by an aerial bucket line that brought ore down from the quarry high in the hills. The iron products were shipped from a wharf built out into the ocean, which still exists today as a double line of wooden and steel piles stretching out through the waves. Although I was unable to visit the site of the ironworks, I did visit the museum, the little hydro power station and dam, and the wharf.

The concrete of the dam has been made using sand and stones from the beach at Onekaka, and I can see the colours of the beach in the concrete itself (figs. 165, 166). The sand and stones were brought up in the buckets that had brought the iron ore down from the quarry. These buckets carried iron ore from the quarry up behind the dam and went all the way down to the iron works on the flat below. When production ceased,

the high-quality steel cable was cut and rolled up for sale. The buckets lie where they fell, perhaps dozens of them, rusting all through the bush (fig. 177). Still existing are a few of the towers that carried that aerial line. These towers had a structure at the top that held wheels on each side for the wire to roll through (fig. 179). Originally made of wood, they were strengthened by reusing iron tram tracks from Wellington. These tram tracks also strengthened the Onekaka Wharf and were used in the dam.

Onekaka Iron Works took iron ore and made it into iron. This iron was cast into pipes and other objects. Hearing the stories of various materials that are part of this project, I am struck by the continuous movement of matter: the sand and pebbles from the beach form the dam that holds back and releases the water to spin the turbines creating electricity; the iron buckets that transported the ore lie rusting in the bush, iron leaching into the soil and affecting the plants and animals there; the tramway tracks coming from Wellington were used to build the dam and the aerial towers. And core to all of this activity is the movement of the ore, down from the hill, to be smelted into iron. I am again reminded of Deleuze and Guattari's metal that tumbles through transformations.[248] Ore becomes iron, tram tracks become part of the dam, iron buckets rust in the bush.

When I visit the wharf, I can see in the distance the tall dark piles rising from the water (figs. 172-174). I realise that my idea of swimming out to them and filming them underwater will not happen and would not happen, even on the mildest of days. The tide is out, and the beach is made up of the large pebbles which, because of the rain, are showing their most beautiful colours, including a bright yellow and a glowing white, which I had seen in the concrete of the dam. I think of Neolithic people in Europe, who collected round white pebbles like these and carried them to leave at places of importance. I recall also of the stones Tāne carried from the heavens along with ngā kete o te wānanga (the baskets of knowledge): the white stone Hukatai and the red stone Rehutai.[249]

248 Deleuze and Guattari, *A Thousand Plateaus*, 453

249 I describe these stones in Section 1.1.4.1

Figure 155.
Onekaka Iron Works.
Te Waka Huia o Mohua Golden Bay Museum 201826-7.

Figure 156.
Whites aerial photograph of Onekaka Iron Works.
Te Waka Huia o Mohua Golden Bay Museum

Figure 154. (previous pages)
Inside the Onekaka Iron Works
Blast Furnace, Johansson collection, Te Waka Huia o Mohua Golden Bay Museum.


PARAPARA IRON & MUD FLAT
TYREE PHOTO 10165

Figure 157.
Parapara Iron & Mud Flat. Nelson Provincial Museum, Tyree Studio Collection: 178535

Figure 158
Iron ore quarry, Parapara.
Johansson collection,
Te Waka Huia o Mohua Golden Bay Museum

Figure 159
Iron ore quarry, Parapara.
Te Waka Huia o Mohua Golden Bay Museum.
NPM C3250.

Figure 160.
Clydesdale horse pulling a cart of molten iron, Onekaka. Bruere, D I (Mrs) : Photographs of Onekaka Iron and Steel Company Ltd. Ref: 1/2-029351-F. Alexander Turnbull Library, Wellington, New Zealand. /records/23050713

Figures 161–162.
Inside the iron works.
Johansson collection, Te Waka Huia o Mohua Golden Bay Museum

Figure 163.
Workers at Onekaka, 1921
Te Waka Huia o Mohua Golden Bay Museum.
1985.25.01

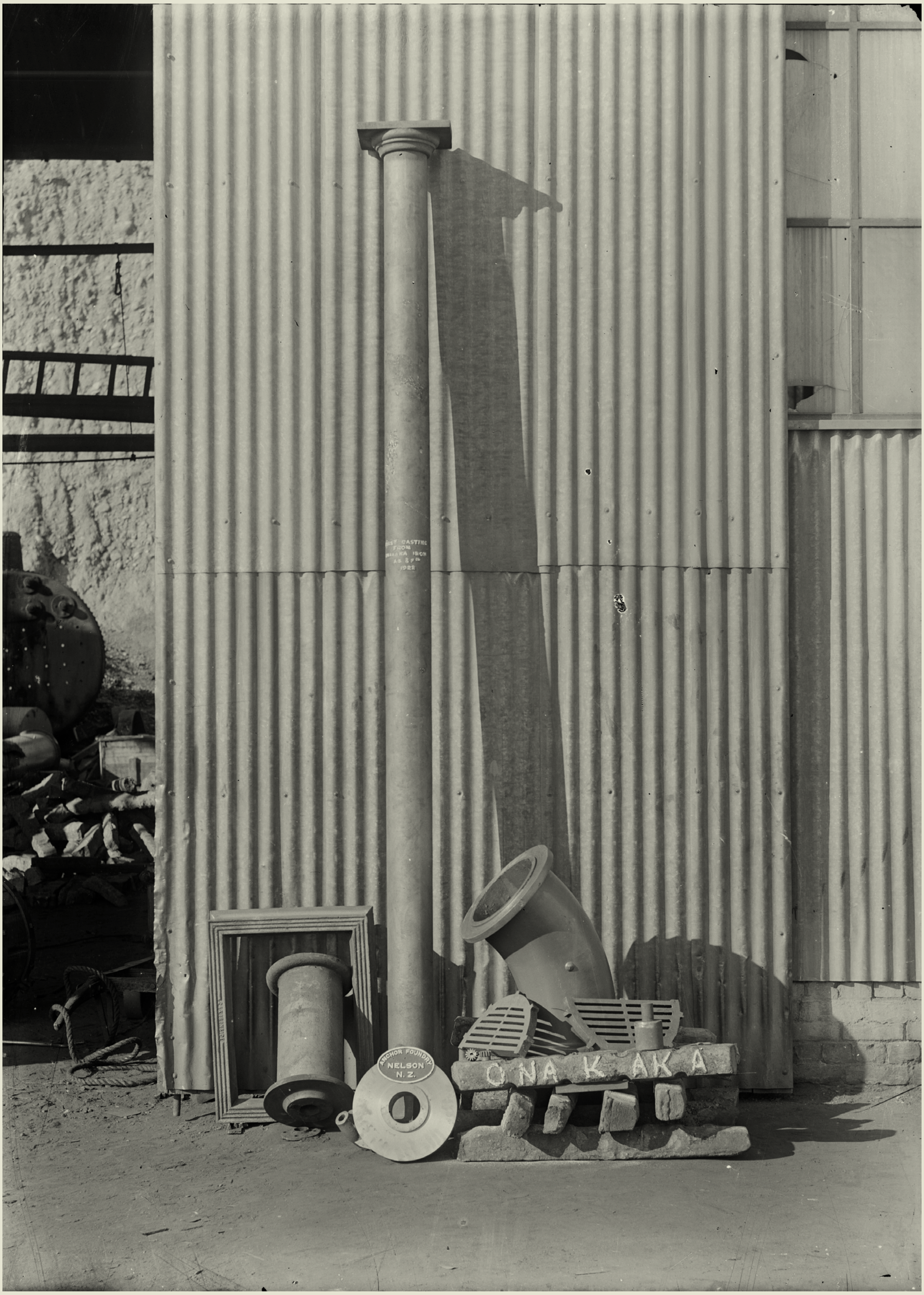
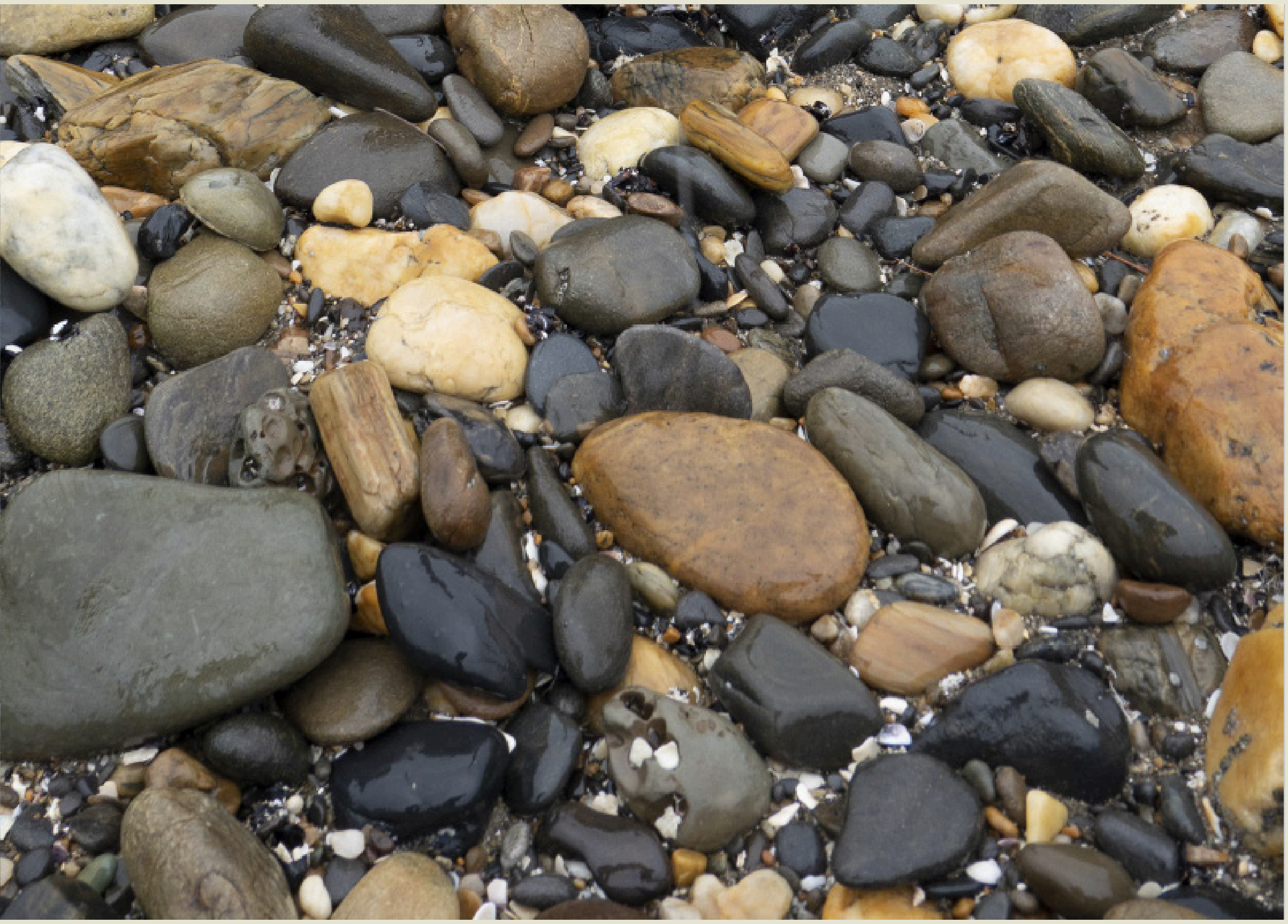


Figure 164.
Onekaka display. Nelson Provincial Museum,
F N Jones Collection: 312264



Figures 165–166.
Left: The concrete of the Onekaka Hydro Dam
Right: Pebbles on Onekaka Beach.
Photographs: Shelley Simpson.

The remaining piles of the wharf reach out into the sea (figs. 180-182). The artist Doris Lusk spent years visiting the wharf and painting it (figs. 178, 179). The wharf is slowly disappearing. What Doris Lusk painted is not there now. Then, the wharf still had boards across the top. Now there are only the piles—dark wood and rusting steel. I can see steel pins through them, perhaps where cross beams supported the uprights. The water rushes past them twice a day with the tide, slowly wearing them away. When it was built, this wharf was the longest in Aotearoa. It had an 'endless rope' device to pull heavy freight on to the wharf. Archival photographs show a man in a diving bell assisting with the wharf construction (fig. 177); hundreds of pig iron ingots wait on the wharf to be loaded; and ships arrive and leave.

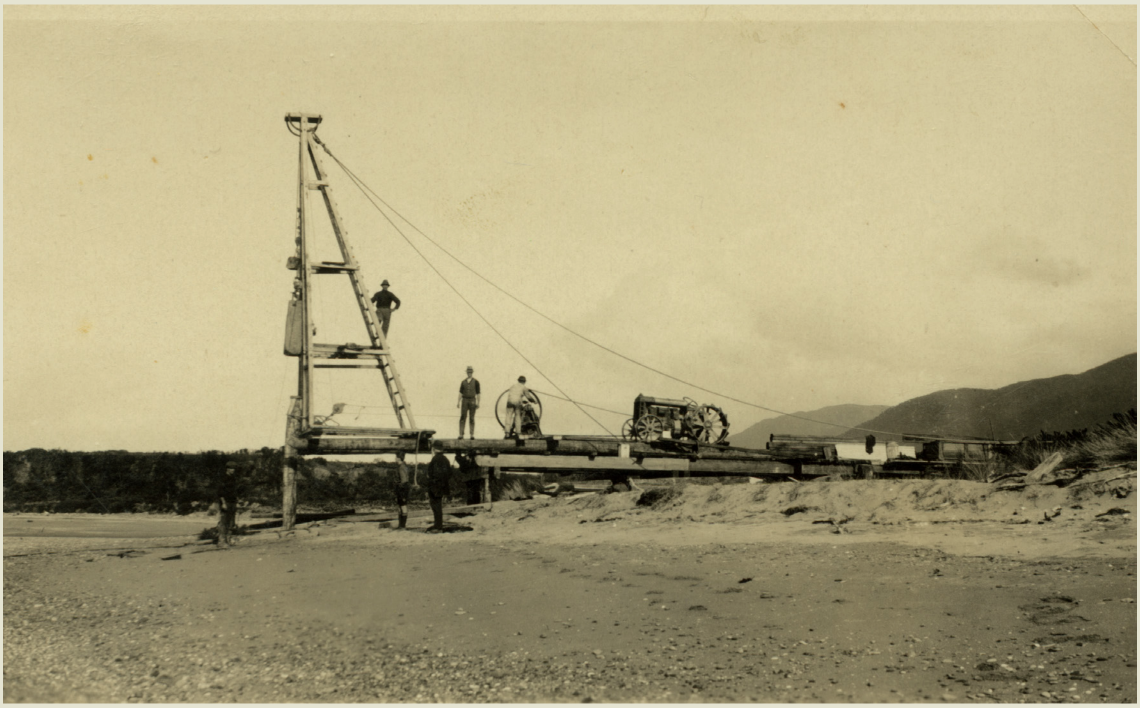
I find stones on the beach that feel and look like iron ore. There are also red stones that remind me that there had been a paint pigment industry by the beach, on Washbourn Road. Te Waka Huia o Mohua Golden Bay Museum has an exhibition while I am there that showcases the Māori use of this pigment, kokowai. The utensils for making and using the pigment and the variety of pigments are shown in glass cases.[250]

Onekaka Iron Works and the infrastructure that still exists reaches through time and space and finds Glenbrook Steel Mill. And there is a direct connection, at least anecdotally. I am told a local story about the iron sands from Taharoa, exported now to China, which were brought down to Onekaka and tested out using the furnaces there to smelt the iron from them. I can't find any refence to this in *True Grit*, the book about Glenbrook—the author of that book talks about the testing being done at Waihi.

My experience with Onekaka was, in part, a series of non-engagements, as the difficulties in accessing sites prevented much of my planned activity.

250 Te Waka Huia o Mohua Golden Bay Museum, "Our Exhibitions," accessed May 12, 2024, http://goldenbaymuseum.org.nz/our-exhibitions/.

I am reminded again and again to hold a diffractive approach towards my expectations and to see the changes of plans as opportunities. Instead of visiting the iron works themselves, I examine archival photos at the museum. The idea of making an underwater moving image work of the wharf piles was obviously impossible, as soon as I saw the swift tidal water. Just as had happened in Whakatū and the Mineral Belt, my experience was an alternative to the one I had hoped for. However, this does not take anything away from my experience, but rather works with a diffractive approach; what I desire is met with the desires of others, both human and more-than-human, with resulting ripples of experience. Preparations must be made while also remaining open to change and serendipity. This brings me to the next section, in which I explore my preparations for diffractive engagement, and the ethics of such an engagement.



Figures 167–168.
Constructing the wharf at Onekaka.
Persson Collection,
Te Waka Huia o Mohua Golden Bay Museum.

Figure 169.
Constructing the wharf at Onekaka.
Hidden T and O Collection,
Te Waka Huia o Mohua Golden Bay Museum.

Image removed for copyright reasons.

Figure 170.
Doris Lusk (1916 - 1990). *Onekaka Wharf. 1969.*
Watercolour.

Image removed for copyright reasons.

Figure 171.
Doris Lusk (1916 - 1990). *Onekaka. 1977.*
Watercolour.

Figures 172-174.
Onekaka Wharf in 2022.
Photographs: Shelley Simpson.

Figure 175.
Onekaka hydro dam, built in 1929 to provide power for the iron works.
NPM C3274
Te Waka Huia o Mohua Golden Bay Museum.

Figure 176.
Onekaka hydro dam, 2022.
Photograph: Shelley Simpson.

Figures 177-178.
The steel ore buckets lie where they fell in the bush when the cable was cut.
Photographs: Shelley Simpson.

Figures 179-180.
Top: Tram tracks from Wellington form the struts of a cable tower.
Bottom: The original pipe that carried water from the dam to the hydro power plant below.
Photographs: Shelley Simpson.

3.8 Ethics of Engagement—Becoming a (Mutated) Modest Witness

Donna Haraway 'queers' (her word) the 17th century concept of the modest witness in scientific experiments: the contained, uninvolved, separate, and always male figure who could observe phenomena with detachment in her 1997 book *Modest_Witness@Second_Millennium. Female Man_ Meets_ OncoMouse: Feminism and Technoscience*. This was seen to be the only way that 'truth' was revealed. Haraway offers a mutated modest witness, one who recognises their situated knowledge. This witness is never completely modest but brings their own position to the act of witnessing. She writes, "a valid witness depends not only on modesty, but also on a nurturing and acknowledging alliances with a lively array of others, who are like and unlike, human and not, inside and outside what have been the defended boundaries of hegemonic selves and powerful places."[251] This is, at its core, a diffractive approach to observation and witnessing as a relational phenomenon. We can also consider an ethics that can only be understood and experienced, as Peter Van Wyck suggests, from "having been somewhere."[252] An ethics dependent upon place.

Also of relevance to my field work approach, Myra J. Hird's chapter "On Preparations: Engaging with Inhuman Materialities," in *A Feminist Companion to the Posthumanities*, describes her preparation for a year of fieldwork with biologist Lynn Margulis. She asks, "What relationships do I navigate between epistemology and ontology in the laboratory, field, text and other sites from which I draw my research?"[253] She writes that she proceeds from the Baradian premise that phenomena are, "always already intra-acting in relational materiality,"[254] while recognising that her main

251 Haraway, *Modest_Witness@Second_Millennium*, 269.

252 Hird, "On Preparations," 141.

253 Myra J. Hird, "On Preparations: Engaging with Inhuman Materialities," in *A Feminist Companion to the Posthumanities*, ed. Cecilia Åsberg and Rosi Braidotti (Cham: Springer International Publishing, 2018), 142, https://doi.org/10.1007/978-3-319-62140-1_12.

254 Hird, "On Preparations," 144.

epistemic window (in this specific engagement) is that of science and engineering. Her interest lies with the matter that scientists are engaging with, and it is this interest that enables her to engage ethically. The way in which she takes seriously what the scientists take seriously provides her with the language with which to modestly witness and engage with them.

Blanche Verlie and Astrida Neimanis expand on the modest witness in their 2023 article "Breathing Climate Crisis." Here, Verlie and Neimanis coin the phrase 'conspiratorial witnessing,' where to conspire is to breath together (although not all breathing the same). Conspiratorial witnessing is an embodied attunement, following Haraway's situated knowledge, where the self is both the witness and the witnessed.[255] The world is experienced and known through the entanglements 'one' is manifest within. They note that a methodology of immersive approaches,[256] entangled situated witnessing, is called for by writers such as Anna Tsing and Deborah Bird-Rose, focusing on more-than-human worlds. This is a field philosophy, situating research in the field. They write that, for Bird-Rose, to witness is to be "called into connection … bridging distance across difference."[257] Modest witnessing is therefore a situated immersion in the world.

As an artist, visiting sites where the land, and often the accompanying tangata whenua (people of that land), have been traumatised, how do I engage as a valid, modest witness in my art-making practice? My body carries with it a politics, as a lithic body with associated relationships and responsibilities, and as a white, Pākehā, Tangata Tiriti body. As I move through the landscape of Aotearoa, the body that I inhabit carries with it political and social pasts and presents that work to inform the types of engagements that I have.

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255 Blanche Verlie and Astrida Neimanis, "Breathing Climate Crisis," *Angelaki* 28, no. 4 (2023): 126.

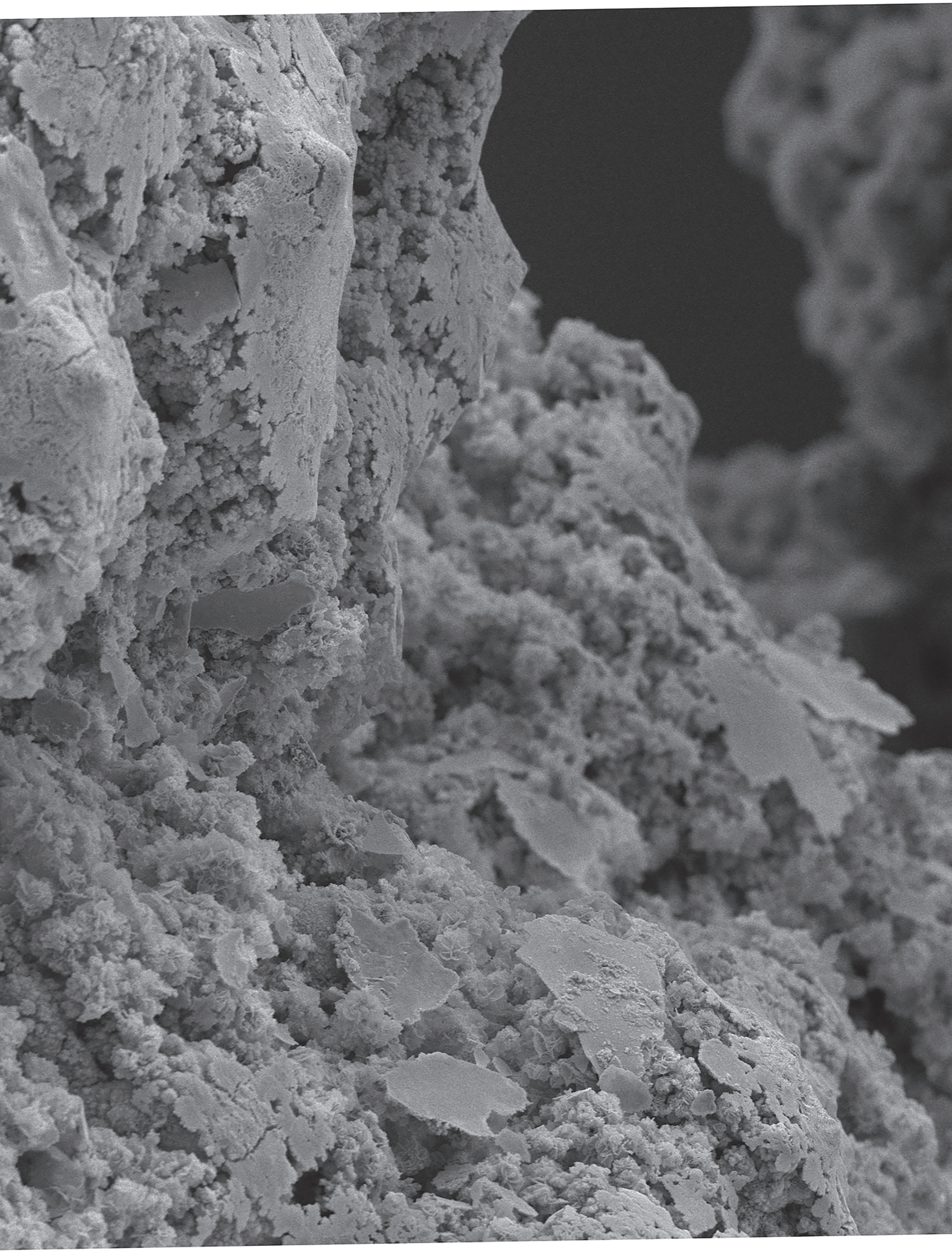
256 Verlie and Neimanis, "Breathing Climate Crisis," 118.

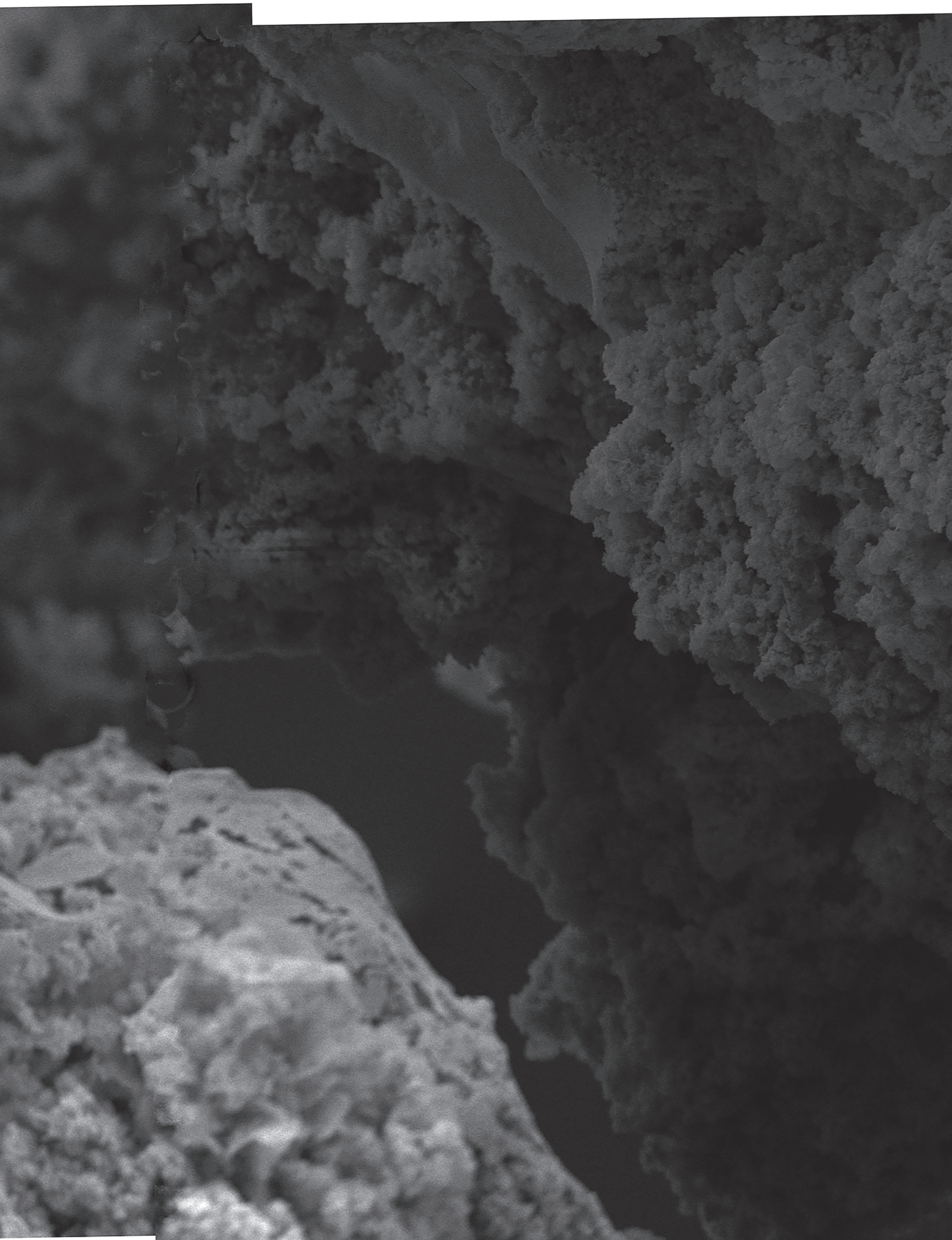
257 Verlie and Neimanis, "Breathing Climate Crisis," 119.

As I consider both the practice of lithic thinking in my own research practice, and fold lithic thinking together with my position as a Tangata Tiriti art-maker and researcher engaging with the whenua in Aotearoa, I am able to consider what my ethics and responsibilities are, as I work to nurture and acknowledge alliances with a lively array of others, as I recognise the Baradian premise of already/always intra-acting phenomena, and as I work with the feminist politics of location.

3.9 Conclusion

In my research and art-making, field work and the diffractive exploration of land and sites of mining provide tools with which to think and lead into art-making. Lithic thinking and my position as Tangata Tiriti have woven together a curiosity and an approach to particular types of sites in Aotearoa, sites that form a lithic field. These sites are locations of human engagement with the lithic earth, specifically extraction and transformation. I have suggested earlier that the story of my conception 'up the quarry' acts in my life as a lodestone, a lithic kernel that has grounded my own personal lithic turn. Engaging with places allows for, as Bird-Rose calls it, field philosophy. 'Being there' in this way allows a type of witnessing: entangled and situated. Sites of human/lithic relations enable me to reckon with my colonial ancestry and explore the relationship between colonialism and resource extraction. Through approaching these sites in the landscape as diffractive engagements, I can explore ideas of human hope and hubris and how meaning is created in the world. I have described in this chapter how a diffractive encounter with place means paying attention to both the human and the more-than-human there, and how it is the relations between entities within the landscape that creates meaning. In addition, I have looked at how specific sites have acted as key provocations for my research; allyship as Tangata Tiriti in relation to historic mining activity at Kawau and Whakatū; the material-discursive at Glenbrook and Waiuku Forest; and being a diffractive modest witness in my reflections on Onekaka. Field work and site visits are densely woven through my art practice. My experience of these places is recorded through writing responses, imagery, and moving image, some of which is included here in this exegesis. My sculptural practice often involves materials that have their origins in or at these sites, and this is the subject of the next and final chapter in this exegesis, Lithic Matter. In this chapter I look at using earthly materials in art-making and the questions this raises, here in Aotearoa.





Chapter Four
Lithic Matter

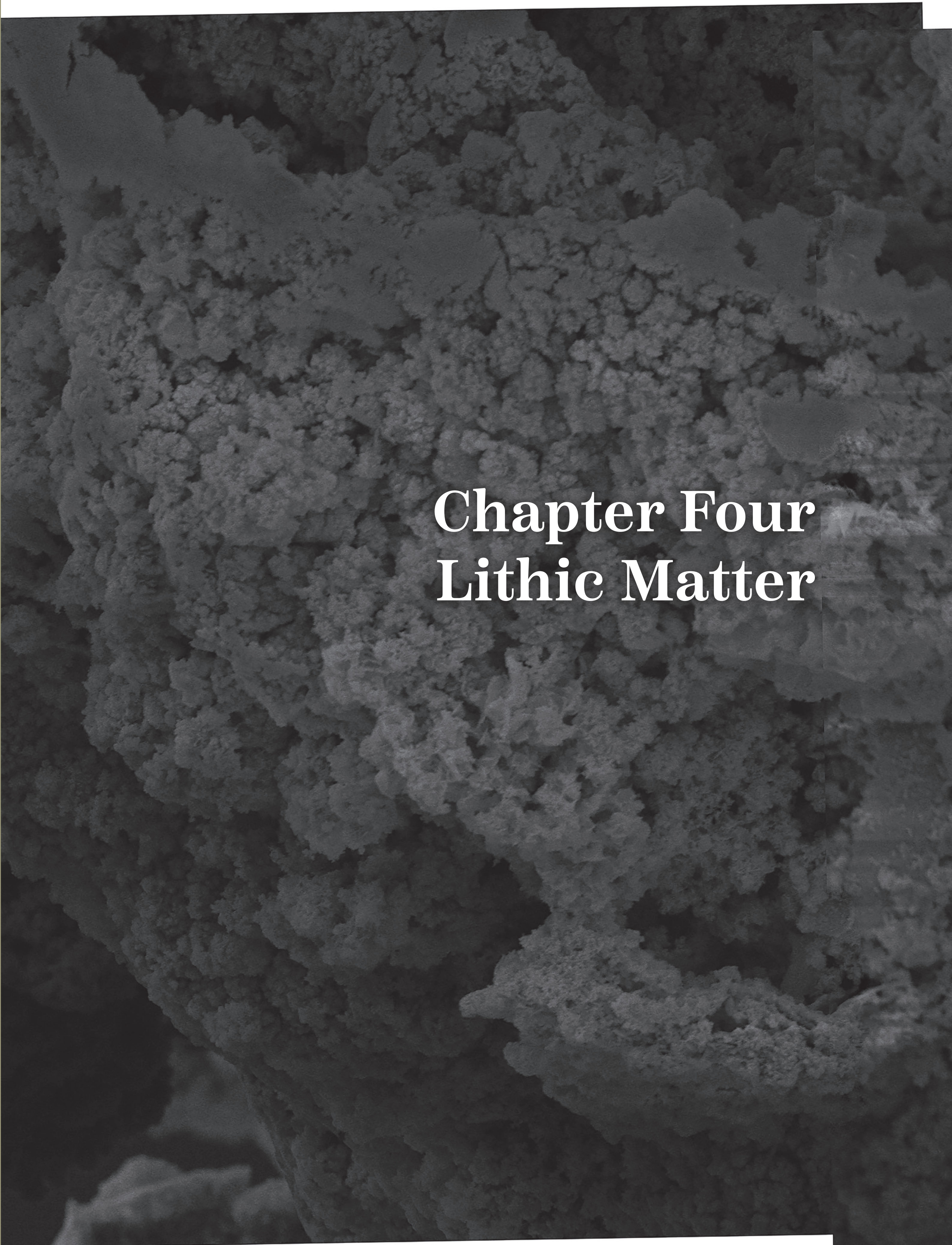


Figure 181.
Rough iron, from Glenbrook Steel Mill.
Photograph: Shelley Simpson.

> Whether biotic or not, matter in every form is a meaning producing embodiment of the world, or 'storied matter'; a material 'mesh' of meanings, properties and processes, in which humans and nonhuman players are interlocked in networks that produce undeniable signifying forces.
>
> —Serpil Oppermann and Serenella Iovino[256]

Introduction

In the previous chapter, The Lithic Field, I explored how particular kinds of sites in the landscape form material-discursive nodes, where people and the lithic earth relate in complex ways. Now, I turn to considering those earthly materials that are produced through extractive activities and how I incorporate these materials into my art practice. I employ a material feminist lens to define what matter is, specifically agential realism.[257] In addition, I draw on the concept of storied matter[258] to think through matter as active and agential, considering how agential material collaborators in an art practice contribute towards a more ethical approach to the earth and the more-than-human. I look at the practices of artists Pauline Rhodes and Open Spatial Workshop and see how they approach materiality. I ask how a lithic feminist approach to an art practice shapes how I approach the use of earthly materials, through my recent work with iron and the processes of casting, electroforming, and evaporation: *Evaporation Disc* (2023), *Not Rocks* (2022-ongoing), the iron electroforming in *From things flow* (2021), *Mineral Thinking Table* (2023), and *Hand Held* (2023-ongoing). I also consider how Māori artists approach the incorporation of earthly materials in their practice, specifically Ruakura Turei and Te Ara Minhinnick, and how a non-Māori might do so.

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256 Serpil Oppermann, "Storied Matter," in *Posthuman Glossary*, ed. Rosi Braidotti and Maria Hlavajova (London: Bloomsbury Academic, 2018), 411.

257 Barad, *Meeting the Universe Halfway.*

258 Serenella Iovino and Serpil Oppermann, eds., *Material Ecocriticism* (Bloomington: Indiana University Press, 2014).

4.1 Mattering (as a Verb) Or, What is Matter?

In Chapter Two, I introduced feminist posthumanism and vital materialism, with its focus on bringing the material back into discussions of power. This material turn is key to my theoretical construct for this thesis, as I locate my project in a materially lithic world, and myself as a lithic body. I now turn to the question of what matter is, and, more specifically, what lithic matter is. This question may seem to have an obvious answer: lithic matter is mineral, it is stone, rock, and metals. Yet, from a lithic feminist position, matter becomes that which is entwined with all else. Rather than a universe of discrete objects and materialities, there is a field with concentrations of material coalescing for a time. The seventeenth century philosopher Baruch Spinoza defined matter as a 'body' of whatever kind, and, however small, made up of an infinite number of particles that had different speeds and slownesses. These motions and rests, coupled with the capability to affect and be affected by other bodies, defined what a body (or matter) was. A body was not defined by its form or function, but rather by the affects of which it is capable.[259]

My understanding of matter returns to Barad's agential realism, touched on briefly in the last chapter. In *Meeting the Universe Halfway, Quantum Physics and the Entanglement of Matter and Meaning,* Barad explores the intersections of feminist theory and science, particularly focusing on the implications of quantum physics for understanding the nature of reality and agency. Their concept of agential realism proposes that the world is made up of phenomena that are produced through intra-actions and emphasises the inseparability of the observer and the observed. Barad draws on insights from quantum physics, particularly the notion of atomic level entanglement, to argue that matter and meaning are not separate entities but are co-constituted through various intra-actions. They write, "Matter is neither fixed and given nor the mere end result of different

259 Gilles Deleuze, *Spinoza: Practical Philosophy* (San Francisco: City Lights Books, 1988), 123.

processes. Matter is produced and productive, generated and generative. Matter is agentive, not a fixed essence or property of things."[260] The concept of intra-action is central. Rather than presupposing relationships between already independent entities (which would be interaction), it is through intra-action, Barad writes, "that the boundaries and properties of the components of phenomena become determinate and that particular concepts (that is, particular material articulations of the world) become meaningful."[261]

In relation to my art practice, this sense of intra-action, of reality being co-created through relation, is a guiding principle in my choice and use of materials and the ways in which materials are experienced and presented. The sense in which the world is a "dynamic process of intra-activity"[262] is woven through my art practice, reflected in the ways in which I engage with materials and material processes. The concept of the lithic body works to challenge the subjective-bound individual, and my approach to material exploration acts as a further provocation.

To paraphrase Barad, we humans don't create the world, at least not on our own. They write, "We have to meet the universe halfway, to move toward what may come to be in ways that are accountable for our part in the world's differential becoming. All real living is meeting. And each meeting matters."[263] I now turn to the concept of storied matter, in which theorists Serpil Oppermann and Serenella Iovino propose that all matter holds narrative agency and meaning, with which we, as humans, can participate and sometimes co-create; *meeting the universe halfway*. Storied matter informs my approach to materials, particularly in providing a conceptual basis for considering relationality and entanglement in art-making.

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260 Barad, *Meeting the Universe Halfway*, 137.
261 Barad, *Meeting the Universe Halfway*, 139.
262 Barad, *Meeting the Universe Halfway*, 140.
263 Barad, *Meeting the Universe Halfway*, 353.

4.2 Storied Matter

Storied matter is a conceptual tool of material ecocriticism, a generative embodiment of worldly forms, developed and articulated primarily by Oppermann and Iovino. Ecocriticism emerged in the late 1970s to recognise that a text always has a relationship to the earth and the processes occurring in the world. Text and world are always connected. In literature, a text might mirror the outside world, describing ecologies and responding to crisis. In ecocriticism, all the world becomes a text in which nature and culture are written, a text which has its own narrativity. This is not just a narrative that can be expressed by a human interpreter but a deep-time text, an onto-tale, which is held through the materiality of the world.[264] Recently, ecocriticism has developed to include material ecocriticism,[265] where matter is foregrounded in two ways. Firstly, matter (the material that makes up the world) is formative and creative. Secondly, matter is interlocked with meaning and entwined with discursive practices such as race, gender, identity, and power. Matter itself becomes 'corporeal text,' in which express forces and practices are at work in natural cultural dynamics.

Serpil Oppermann writes that matter is lively, agential, and generative.[266] Extending beyond living entities, the narrative agency of matter is more than communication between organisms, like the chemical communication of bacteria. She writes that all agencies, from sub-atomic particles to cosmic forces, are "storied subjects of an ever unfolding onto-tale."[267] Some of this narrative is vivid, some barely legible, and some unable to be translated, but we are dwelling among expressive beings, and we need to

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264 Iovino, "(Material) Ecocritism," 113.

265 Serenella Iovino, "Material Ecocriticism: Matter, Text, and Posthuman Ethics," in *Literature, Ecology, Ethics: Recent Trends in Ecocriticism*, ed. Timo Müller and Michael Sauter, 51–68 (Heidelberg: Universitätsverlag Winter, 2012); Serpil Oppermann, "Storied Seas and Living Metaphors in the Blue Humanities," Configurations 27, no. 4 (2019): 443-461, https://doi.org/10.1353/con.2019.0030.

266 Serpil Oppermann, "Storied Matter." In *Posthuman Glossary*, edited by Rosi Braidotti and Maria Hlavajova, 411–14. London: Bloomsbury Academic, 2018. 411.

267 Oppermann, "Storied Matter," 413.

be more attentive to their stories. As human entities, we become the narrative agencies of storied matter, and therefore active co-authors, shaping the world.

The concept of storied matter shifts the anthropocentric way humans locate ourselves in the world, so that rather than seeing ourselves as the centre of the universe, we can shift our focus and take into consideration the multitude of more-than-human entities, materials, and the non-physical that make up the universe. In this way we can situate ourselves back into the world around us. However, not every story is ours. Not every story is accessible to us. Many articulations are in languages we cannot access. Not every story is ours to tell, or to hear.

In my art practice, storied matter and the co-creation of story becomes a technique that I am actively engaging with. In parallel with my reading of material ecocriticism and material feminism, I explore properties of metals and their stories. The prompt of storied matter offers a way of recognising and reconnecting ourselves (as much as we are ourselves) into the world, into the relational milieux of the universe. I began to ask, how might an artwork 'work' in this way? How can an artwork retain "storying porous boundaries"?[268] Perhaps an artwork that foregrounds process, in which activity is occurring, an artwork in which the end is not the object, or the object is not the end. Indeed, each engagement with a material opens up a realm of story, always being co-composed and spatio-temporally shifting. In some more process-based artworks I am working specifically with this concept. One of these is the project *Evaporation Disc*.

268 Kate Judith, "How Mangroves Story: On Being a Filter Feeder," *Swamphen: A Journal of Cultural Ecology* 7 (2020): 8, https://openjournals.library.sydney.edu.au/Swamphen/issue/view/1006.

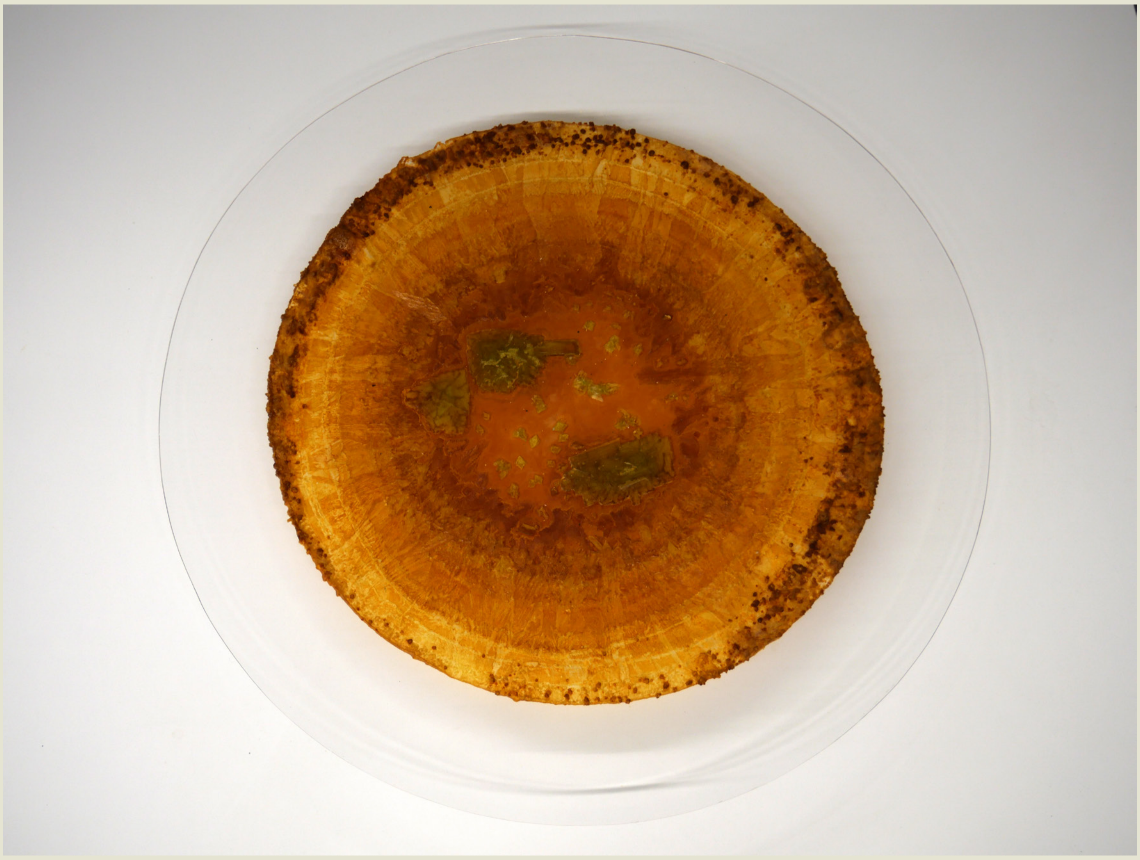

Figure 182.
The first iteration of this work.
Shelley Simpson. *Evaporation Disc*, 2021.
Photograph: Shelley Simpson.

4.3 *Evaporation Disc*

During a long 2021 COVID-19 lockdown, a small clear tank sat in my studio, full of iron sulphate liquid that had been used to electroform iron during my exhibition *From things flow*.[269] When I came back to the studio after many weeks had past, the liquid had evaporated, and the inside of the clear acrylic tank was coated in beautiful orange/brown crystalline residue. To extend this serendipitous occurrence, I made a shallow acrylic disc, which I filled with iron sulphate liquid. The disc sat in my studio at home, getting plenty of sun.

On sunny days, the liquid evaporated, leaving behind iron sulphate crystals. Each period of evaporation left a line of crystals around the disc. The crystals themselves formed patterns, hatch marks, bubbles and growths, speaking of the mineral accretion of the iron sulphate, bringing to attention the way in which the material of the liquid was behaving and expressing itself in the processes it was going through. The metal salts, previously held in liquid, were being organised in configurations proper to themselves, reacting to and bonding with their neighbours in particular ways. At the end of a three-week period, all the liquid had gone, leaving a circular banded coating of yellow-brown crystals and three large green crystals in the centre.

What stories were being expressed in the materiality of this artwork? *Evaporation Disc* spoke of elemental forces and life-giving processes. It is the sun, the origin of all energy on Earth, that caused the evaporation of the liquid and the formation of the salt crystals, and as I observed this process, I was reminded that it is the process of energetic state change that makes life on this planet possible. I was also reminded that the slow pace of the process was a way of focusing, allowing space for consideration of what was occurring. While the process was happening too slowly for

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269 The exhibition *From things flow* was held at RM Gallery in July 2021, with Kate van der Drift, Kathryn Tulloch and Teresa Peters. See http://art.shelleysimpson.co.nz/fromthingsflow/.

Figures 183–188.
Evaporation Disc, showing the progression over time as the iron sulphate evaporates and crystals form.
Photographs: Shelley Simpson.

the human eye to see in real time, the daily changes were very clear (figs. 183-188). The lens shaped disc was a container that allowed the process to occur, and a metaphor for seeing, as the lens focused attention on the occurrences within it. The crystalline patterns were writing their storied matter, expressing the story of crystalline evaporation: the temporality of the process, the daily intensity of the sun, the dryness of the air.

Evaporation Disc also told the story of the porosity of the human body, returning to Alaimo's sense of transcorporeality, where human corporeality in all its fleshiness becomes inseparable from the environment.[270] As the liquid in the disc evaporated, traces of the iron salts were (most likely) carried into the air of my studio and then into my lungs as I breathed. Then, what occurred next when the mineral salts incorporated into my lithic body? As I have described in Chapter Two, the transcorporeal body takes in material from the environment, either toxic or benign, but always in relation and never discrete. By seeing matter as storied, specifically earthly matter, humans can be reminded that we are embedded and relational, that our existence is deeply entwined with the more-than-human, and that, rather than single individuals, we are more accurately described as systems, groupings, amalgamations, or conglomerates, held together by the agreement of many, with porous boundaries and an agency that is distributed.

As I consider the concept of storied matter, I am reminded of the work of eminent New Zealand artist Pauline Rhodes, whose work often includes processes such as rusting. Her attentiveness to process and material has informed my work since I saw her exhibition *Dark Watch* in 2016, at Te Wai Ngutu Kākā Gallery, Tāmaki Makaurau (figs. 189, 190).

270 Alaimo, "Trans-Corporeal Feminisms," 238.

Figures 189–190.
Installation view and detail of rusty surfaces.
Pauline Rhodes, *Dark Watch*, 2016,
Tāmaki Makaurau, Te Wai Ngutu Kākā Gallery.
Courtesy of the artist and Michael Lett.

4.4 Rusty Liveliness in the Work of Pauline Rhodes

Rhodes (born in 1937) began her art career in the 1970s and exhibits regularly. Most recently, in 2023, her work *Pleasure and Pain* was on display at Toi o Tāmaki Auckland City Art Gallery. In her installations, Rhodes uses materials such as volcanic rock, plants, stone, wood, recycled materials, and offcuts from industrial processes. Art historian Christina Barton writes that Rhodes, "demonstrates that art-making can (and should) be a mode of thinking and a means of living vitally, an ongoing interrogation of and a profound mediation on the nature of being, here and now."[271] Rather than exploring traditional sculptural concerns of mass and volume, her work is a "dynamic set of responses to the contingent relations between the artist, her materials and the actualities of context."[272]

In Rhodes's work, *process* is a dominant mode of investigation. Her materials perform in response to forces such as gravity, light, geological time, wind, tide, and with natural effects of decay, such as rusting. Rhodes seeks to blur the boundaries between her surroundings and the art she creates. Rhodes constantly negotiates the thresholds between nature/culture and inorganic/organic, recognising both her difference to her environment and her dependence on it. A sense of kinship replaces a desire for control. Her installations do not impose order on her materials, but, rather, "defer to matter's inherent energies and processes."[273]

In an essay to accompany *Dark Watch*, art historian Charlotte Huddleston draws out the relationship between Rhodes's practice and the theory of new materialism. Huddleston writes that Rhodes embodies "a sharing of agency with matter in 'compassionate fellowship' with materials and environments. Considering her work in this way enables a position where agency is not something someone possesses but is in the relationship be-

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271 Christina Barton, *Ground/Work: The Art of Pauline Rhodes* (Wellington: Adam Art Gallery; Victoria University Press, 2002), 12.

272 Barton, *Ground/Work*, 15.

273 Barton, *Ground/Work*, 25.

Figures 191–193.
Pauline Rhodes, *Rising Again*, 2023,
Tāmaki Makaurau, Courtesy of the artist and Michael Lett.

tween the inextricably entangled matter and material that makes up the world."[274]

Rust is a manifestation of these fuzzy borders. Rhodes's use of rust in her work is a "mechanism to directly transfer the workings of nature into the field of art."[275] Rust is a way of allowing the boundaries between herself, the materials she is using, and the surroundings to become blurred, making visible the interactions of light, air, and water. In 2023, Rhodes exhibited *Rising Again* at Michael Lett Gallery in Tāmaki Makaurau (figs. 191-193). In that exhibition, she used iron-oxide to treat materials such as paper, ply, wood, acrylic, and canvas to achieve rusty, active surfaces, evoking the intertidal zone, the artist's preferred locale, neither land or sea.[276]

Considering Rhodes's work through a lithic feminist lens, this blurring of boundaries and the focus on interaction feels like a recognition of the embeddedness of the lithic body in the lithic landscape. Using rust, Rhodes is invoking deep geological time, shifting the scale of human perception, providing a glimpse into the slow vitality of metal, in this case iron. Her approach to her materials, whether they are physical, processual, or forces, reveals to me an artist who is both allowing her materials to speak as well as becoming a part of the story they tell. Rhodes is working with storied matter. Iron rusts in contact with air, blurring boundaries.

To further explore how an art practice incorporates matter as storied, I turn to Open Spatial Workshop (Australia), a group of artists who work collaboratively to explore diverse relationships of objects and site, offering sophisticated approaches to earthly matter in a settler country. Open Spatial Workshop (OSW) are Terri Bird, Bianca Hester, and Scott Mitchell. Their diverse practice includes experiments with "techniques, technologies, machines and materials to research projects."[277]

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274 Abby Cunnane and Charlotte Huddleston, eds., *Pauline Rhodes: Dark Watch* (St Paul St Publishing; The Physics Room, 2016), 16.

275 Barton, *Ground/Work*, 17.

276 "Pauline Rhodes," Michael Lett, accessed April 21, 2024, https://michaellett.com/exhibition/pauline-rhodes-2/.

277 Terri Bird, Bianca Hester, and Scott Mitchell, "Open Spatial Workshop: Con-

Figure 194.
Open Spatial Workshop, *Converging in Time*, 2017,
Melbourne, Monash University Museum of Art.
Image courtesy of the artists.

Figure 195.
Open Spatial Workshop, *Converging in Time*, 2017,
Melbourne, Monash University Museum of Art.
Image courtesy of the artists.

4.5 The Storied Matter of Open Spatial Workshop

In 2017, Open Spatial Workshop's exhibition *Converging in Time* was held at Monash University Museum of Art (figs. 194, 195). In the exhibition catalogue, OSW provide archival photographs, newspaper articles, maps, and plans, as well as contemporary images of places and objects (fig. 197) divided into several sections of inquiry, each with links to specific works in the exhibition. For this collection of work, OSW employ a mode of investigation that occupies a "more speculative space about the human attempt to make sense of what often appears abstract and distant to us."[278] One work in the exhibition was a fossil of a 416-443 million year old sea lily (*Helicocrinus plumsus*), from the Museum's Victoria collection, which had been found in the Brunswick clay pits around 1900. Saskia Bruedel writes that OSW use the sea lily fossil to "think through and uncover diverse temporalities that link together site, deep time and material objects, along with natural, social and economic histories."[279] The sea lily, found in a clay pit that provided clay for the brick industry in Melbourne, Australia, begins an investigation that stretches back into deep time of the past, exploring the origins of the geology of the area and the clay making industries themselves, with the associated social, political, and environmental impacts. OSW created a video work related to the sea lily, *FAULT* (2015) (fig. 196). They write that *FAULT* represents "a range of temporal fragments that document the movement of matter across various durations."[280] Through the lens of storied matter, it is possible to see the sea lily as densely storied, and that, in collaboration with the artists of OSW, a multiplicity of stories is perceived. Additionally, this relational approach can be seen as diffractive, as serendipitous findings such as the sea lily fossil begin a material-discursive investigation that folds in a variety of materials, activities, and outcomes.

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verging in Time," in *Open Spatial Workshop: Converging in Time* (Melbourne: Monash University Museum of Art, 2017), 3.

278 Bird, Hester, and Mitchell, "Open Spatial Workshop," 6.

279 Bird, Hester, and Mitchell, "Open Spatial Workshop," 29.

280 Bird, Hester, and Mitchell, "Open Spatial Workshop," 29.

Figure 196.
Open Spatial Workshop, *Glimpse*, 2015, 5 minutes 26 seconds,
in *Converging in Time*. Melbourne, Monash University Museum of Art.
Image courtesy of the artists.

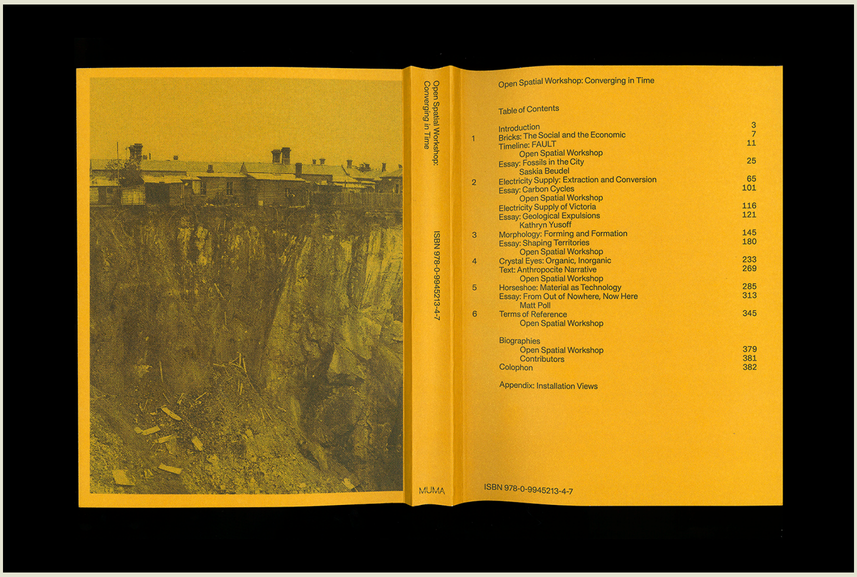

Figure 197.
Catalogue.
Open Spatial Workshop, *Converging in Time*, 2017, Melbourne,
Monash University Museum of Art.
Image courtesy of the artists.

OSW interrogates objects and specific landscapes—"ghost landscapes," looking at the deep past, the recent past and the colonial past. The artists write, "Experimental interrogation of geological specimens together with the history of the sites where the specimens were discovered can reveal the dense mesh of things, systems and narratives that might not ordinarily be engaged with simultaneously. This mesh of things might include material objects (such as fossils and ancient sediments) colonial histories and acts of dispossession—of both people and nature."[281] Like Pauline Rhodes, OSW allow a sharing of agency in an art practice, a "compassionate fellowship."

Although primarily sculptural, their practice also works with an expanded concept of 'site.' Charlotte Day, in her introduction to *Converging in Time*, writes that this expanded notion of site includes gallery art production that includes the viewer in time and space, community supported art-making in local and domestic sites, and a recognition of Melbourne suburbs, regional Victoria, and the Australian continent, as "ancient geological and historically rich sites of critical political, ecological and cultural significance."[282] Their engagement with multiple temporalities, objects, sites and archival material is a material-discursive one, as OSW weave together stories of matter and meaning. In my own work with site and related materials, I too attempt to remain open to the various stories, agencies, and relationalities at play in my interactions. Thinking lithically about earthly matter, my own movements and actions become part of a much larger world-making. I now turn to consider the ethical implications of working with earthly matter.

281 Bird, Hester, and Mitchell, "Open Spatial Workshop," 25.
282 Bird, Hester, and Mitchell, "Open Spatial Workshop," 4.

4.6 Lithic Thinking and Ethical Living

In the room sheet of the 2021 exhibition *From things flow*, I quoted a passage from Italo Calvino's novel *Cosmicomics*, in which the characters are packed tightly together at the beginning of the Universe. They are all together, with no separation between them. My *Stonesense* project is an attempt to grapple with the sense of separateness we have in the world and to try and build a kind of ethics, or mode of being, that might work to reach across the perceived distances between us, including the more-than-human. *Stonesense* uses lithic materialities to build knowledges and techniques to do this.

> Pitch-dark it was—old Qfwfq confirmed—I was only a child, I can barely remember it. We were there, as usual, with Father and Mother, Granny Bb'b, some uncles and aunts who were visiting, Mr Hnw, the one who later became a horse, and us little ones. I think I've told you before the way we lived on the nebulae: it was like lying down, we were flat and very still, turning as they turned. Not that we were lying outside, you understand, on the nebula's surface; no, it was too cold out there. We were underneath, as if we had been tucked in under a layer of fluid, grainy matter. There was no way of telling time; whenever we started counting the nebula's turns there were disagreements, because we didn't have any reference points in the darkness, and we ended up arguing. So we preferred to let the centuries flow by as if they were minutes; there was nothing to do but wait, keep covered as best we could, doze, speak out now and then to make sure we were all still there; and, naturally, scratch ourselves; because—they can say what they like—all those particles spinning around had only one effect, a troublesome itching.[283]

283 Italo Calvino, *Cosmicomics*, trans. William Weaver (New York: Harcourt Brace, 1968), chapter 2.

This story prompts me to think about an ethics of relation where we only exist as particles in a soup of time. How might we think about such an ethics? An ethics of interdependence is proposed by Eileen A. Joy's *You Are Here: A Manifesto.* Her ethics involves four steps: firstly, that the human being becomes a kind of slow recording device, listening carefully to the "figurative chatter, songs or screams" of the nonhuman.[284] Step two might be recognising that everything is a person of sorts, and step three, making ourselves hospitable "so that the world can happen to us for a change."[285] We might make space "for the arrival of strangers whose trajectories are unmappable in advance."[286] And step four is to make new objects, whether literature or art, that contain the capacity to see ourselves from the outside. She writes, "In the end, this is what ethics is all about: Slowing down, paying better attention to what is close at hand and always already intimate with us—which is everything— welcoming the Other, not taking ourselves too seriously, and working together to add something of beauty to the world, which is always more than the truth could ever calculate or bear."[287] In their varied art-making practices, both Open Spatial Workshop and Pauline Rhodes can be seen to practice this ethics of interdependence through careful attentive noticing; through welcoming the agency of the more-than-human, reaching across distances towards the other, within and without.

In a similar vein, in her book *Matters of Care*, Maria Puig de la Bellacasa "invites a speculative exploration of the significance of care for thinking and living in more-than-human worlds."[288] She devotes a chapter to considering soil and care. She looks at the difficulties in encouraging care for something like soil, with its distance and separateness, and with a variety of biological and mineral constituents. She suggests that haptic knowl-

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284 Eileen A. Joy, "You Are Here: A Manifesto," in *Animal, Vegetable, Mineral: Ethics and Objects* (Washington, DC: Oliphaunt Books, 2012), 169.

285 Joy, "You Are Here," 170.

286 Joy, "You Are Here," 171.

287 Joy, "You Are Here," 172.

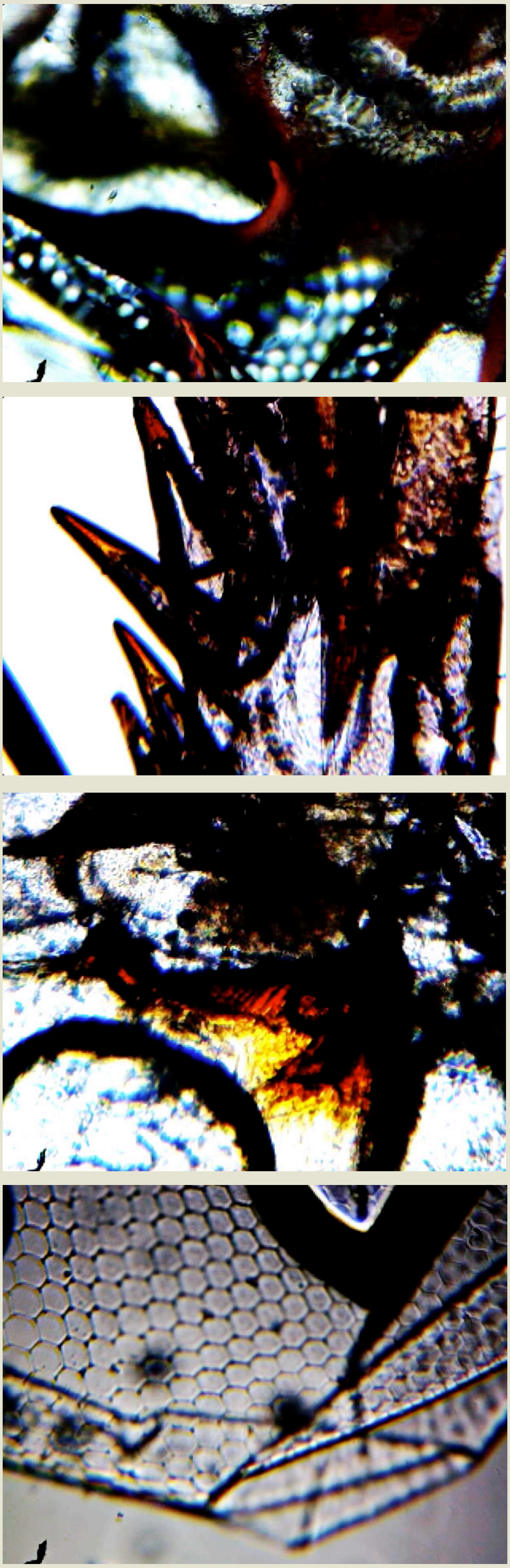
288 Maria Puig de la Bellacasa, *Matters of Care* (Minneapolis: University of Minnesota Press, 2017), 1.

edge of soil can foster a closeness, reminding me of how it felt to run the cool, filtered sand through my fingers at Glenbrook. She writes, "alterontologies happen as particular humans create more-than-human rearrangements with particular nonhumans."[289] In my sculptural art practice, as in the work of artists such as Open Spatial Workshop, artworks gesture towards such alterontologies. Running alongside my sculptural practice is a practice of image making, acting in part as an expanded drawing practice. Rather than gaining knowledge through drawing in an empirical sense, with a sense of mastery or domination, I endeavor to work with a sense of empathy, desiring to *know differently.* For me, image making is a way of extending the exploration of a subject, whether it be enhancing understanding through a technology such as a microscope or creating images through methods such as cyanotype and Risograph printing (figs. 208-210).

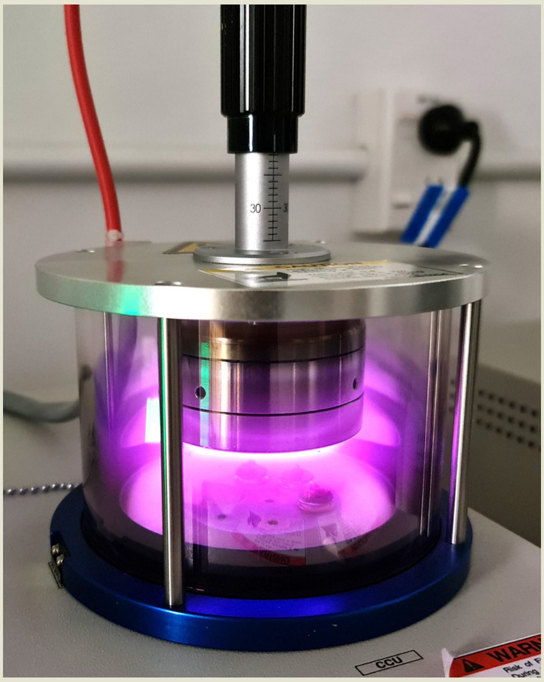
4.7 Knowing Differently though Image Making

When working with microscopes, I am less interested in their standard use as a scientific apparatus used to understand something thoroughly than as a way to undermine the desire to extract understanding (figs. 198-201). I want to trouble the process by which taxonomy (specifically imaging and naming) is the process of owning, controlling, and exerting power. A taxonomy is the result of the desire to describe and extract and is tightly related to colonisation; resources must be named and categorised before they can be exploited. In *Unthought*, one of the artworks was a moving image work of imagery created by looking at copper with a Scanning Electron Microscope (SEM), an image-making practice that I continued with iron (figs. 202-206). Throughout this exegesis, beginning with the inside cover, there is a continuous SEM image of electroformed iron, acting as a visual layer or seam connecting the sections of the document (see fig. 207). When I created these images, I worked with the AUT SEM operator, Yuan Tao, who is highly trained to use the microscope successfully

289 de la Bellacasa, *Matters of Care*, 199.



Figures 198-201.
Shelley Simpson, *Microscope images of insect carapace and plant material*, 2023.



Figures 202-204.
From top: iron samples affixed to base, samples being coated with platimum ready for SEM, and samples with platinum coating.
Photographs: Shelley Simpson

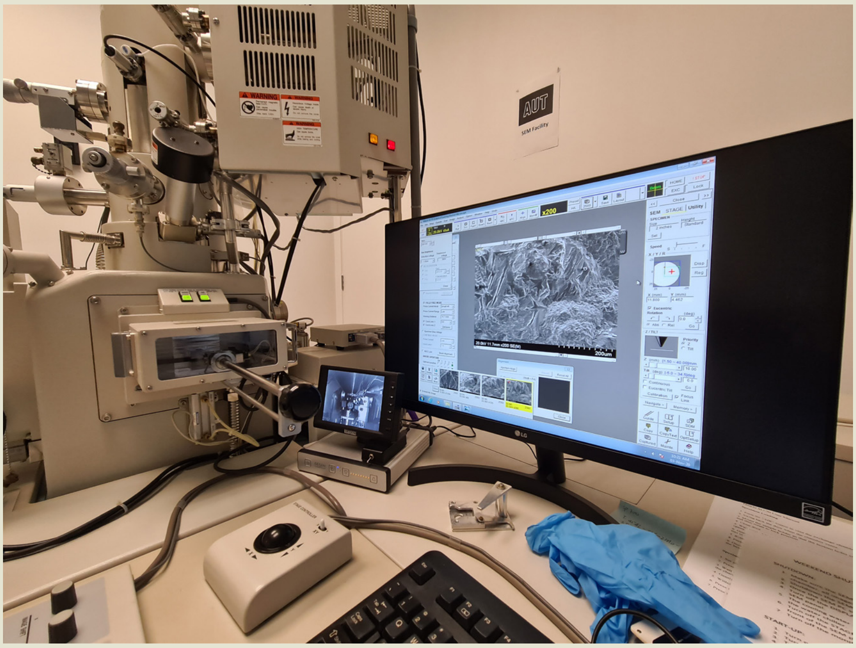


Figure 205.
The Scanning Electron Microscope at AUT with scanning of the iron samples in progress.

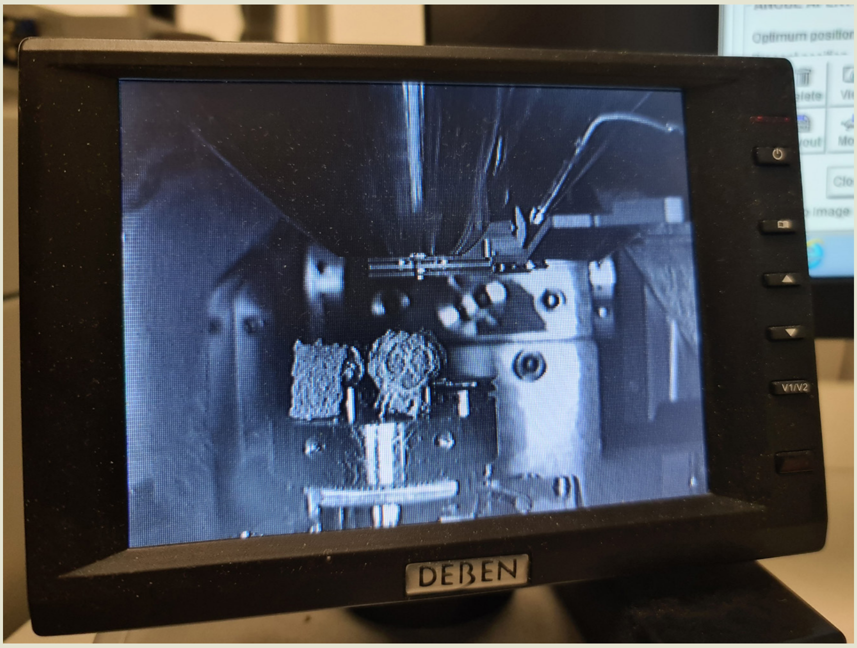
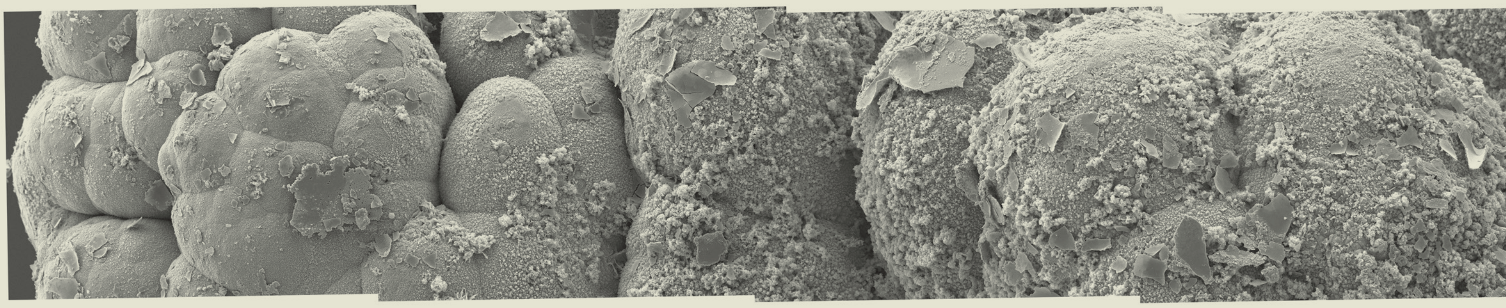
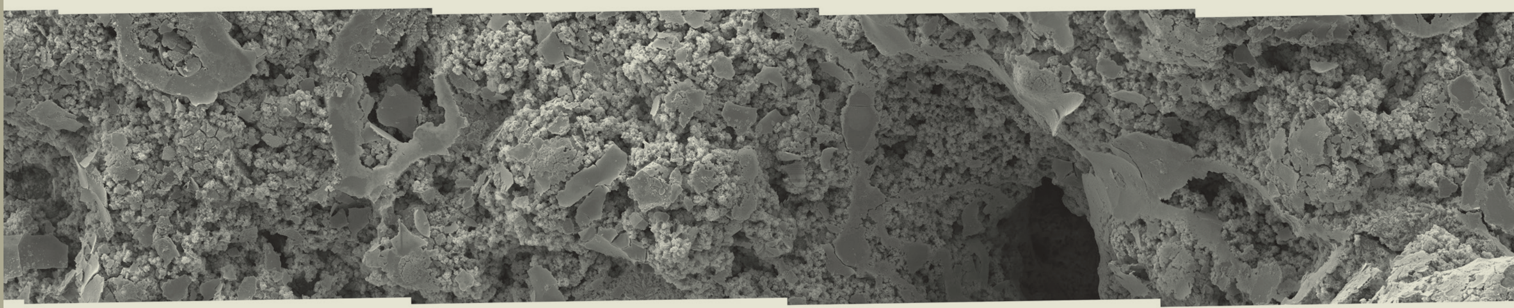
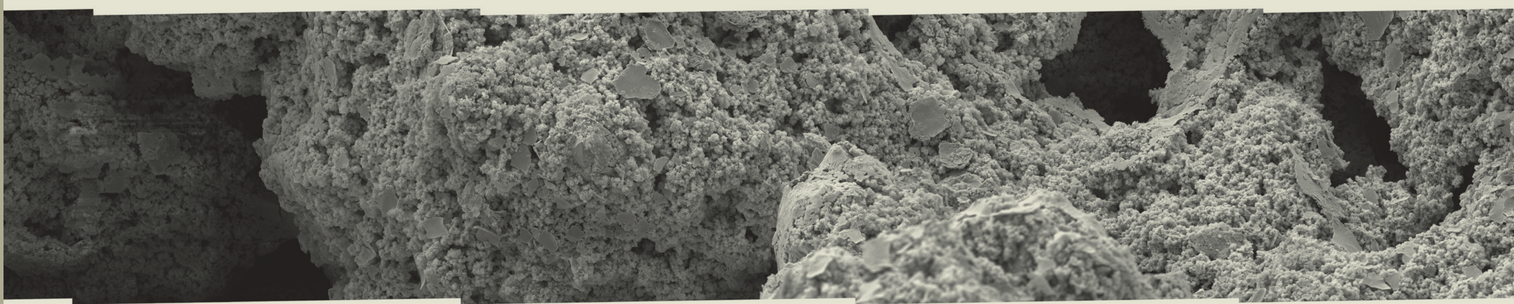


Figure 206.
On the small screen the samples can be seen inside the machine.
Photographs: Shelley Simpson







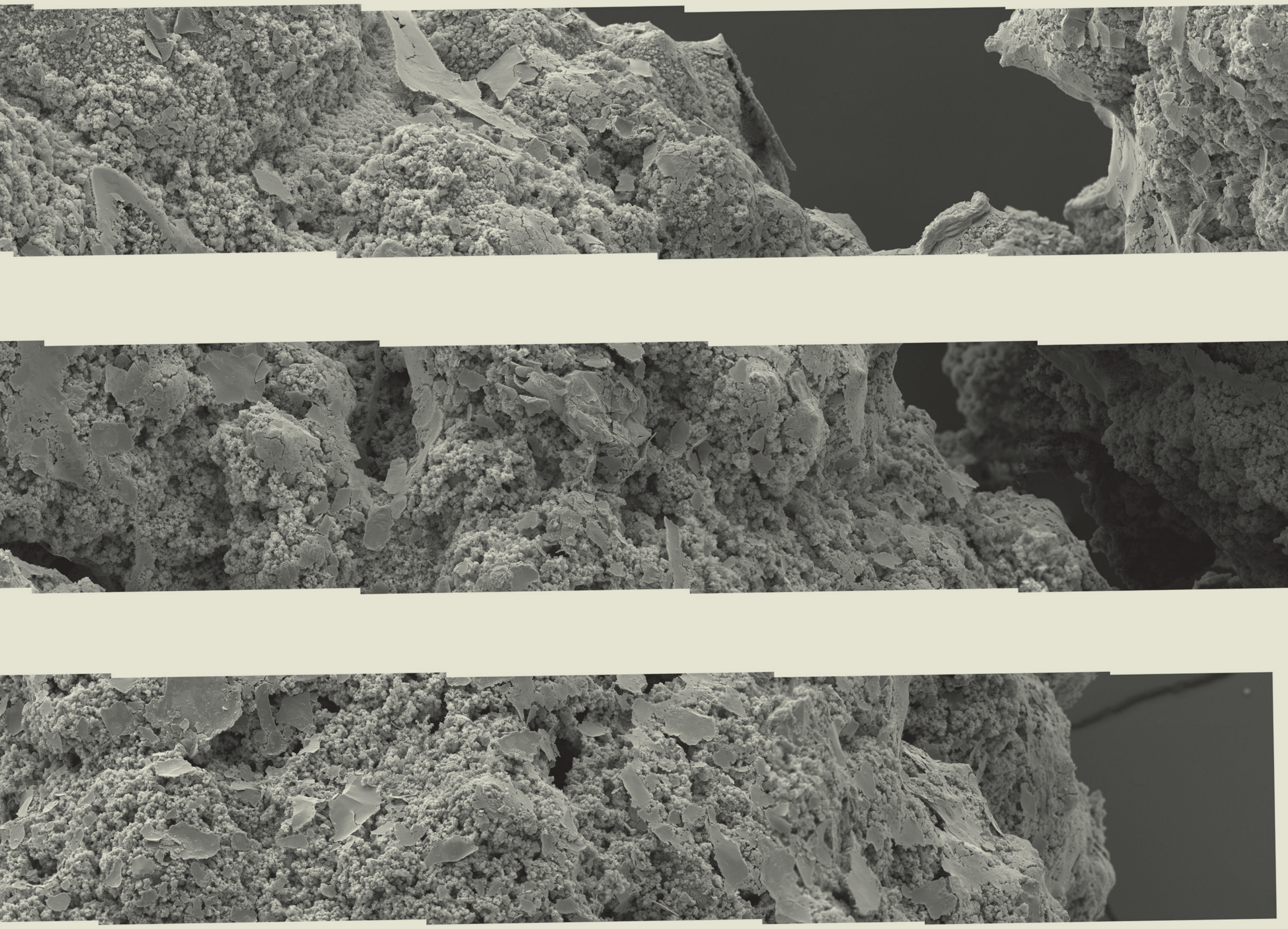


Figure 207.
A small piece of electroformed iron scanned in the SEM. This image appears throughout this exegesis in sequential order from the inside cover through to the endsheet.
Photograph: Shelley Simpson.

Figures 208-209.
Shelley Simpson, *Risograph prints of electroformed copper*, 2023.

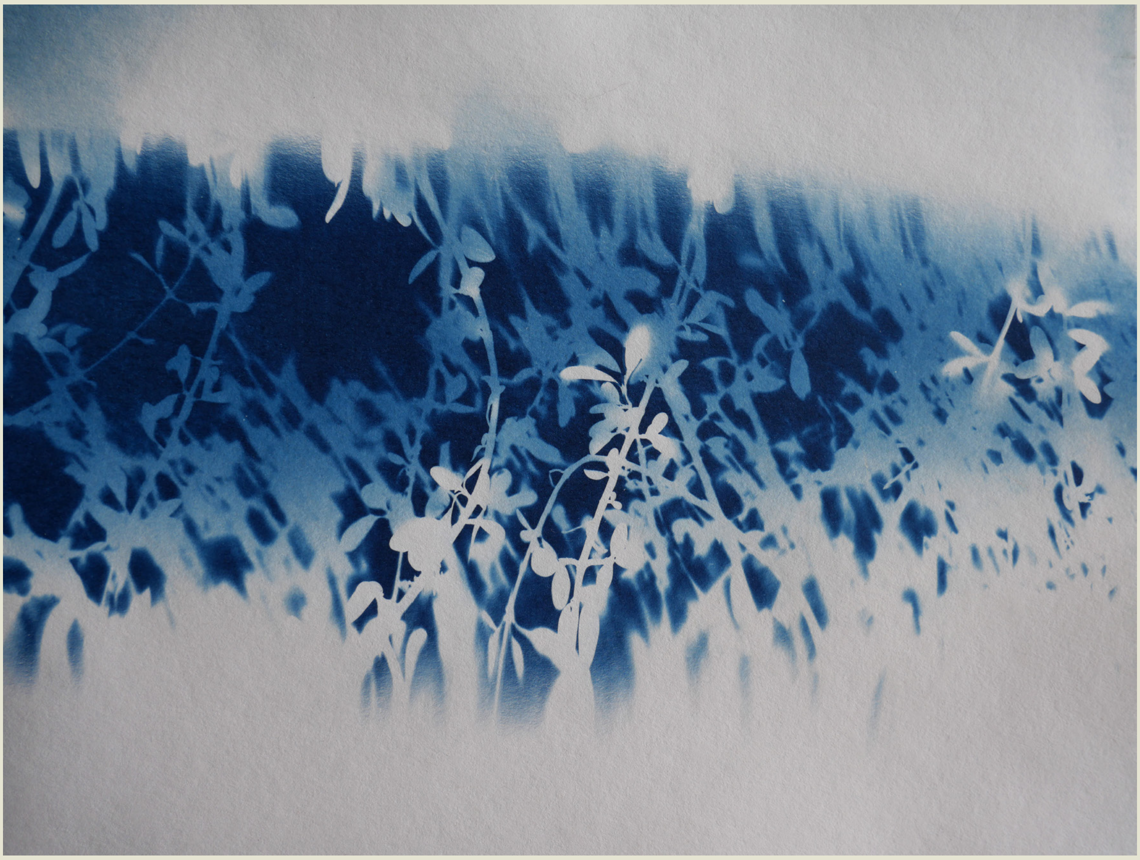


Figure 210.
Shelley Simpson, *Cyanotype print*, 2022.

and is looking for different outcomes than I am. The images I want are often seen by her as errors or mistakes. For Yuan, the images I choose have disturbances; surfaces are not clean enough; there is oxidisation, rust, and dirt. She is looking for the areas that reveal most cleanly the true nature of the material, singled out, isolated, not in relation to anything else; quantifiable. She also wants to zoom in as far as it will go. My choices were more instinctive, responding to the imagery aesthetically, looking for areas that felt generative.

In contrast to the desire to extract information, I hope to offer this provocation—what are our motivations in needing to know every single thing there is to know about a material? In *Wanting all the Species to Be: Extinction, Environmental Visions and Intimate Aesthetics*, Stacy Alaimo describes the links between imaging of the natural world, the desire for biodiversity, and the legacies of colonial science and extractive industries. The categorisation of people, plants, animals, and other 'resources' may manifest colonial epistemologies, in that the sense of care and sincere concern may veil a white settler possessiveness.[290] Important to her argument are the politics of visual representation: a tool of counting, categorization, and understanding. She invokes Donna Haraway's critique of "transcendent vision." Haraway argues that post-modern visualisation techniques are without apparent limit, that vision "in this technological feast becomes unregulated gluttony" with "cameras for every purpose."[291] SEM and other microscopes are such tools. Alaimo agrees with Haraway, but she also calls for "aesthetic modes that do not compound the meanings of disembodiment, or gluttonous consumerism."[292] A more situated implicated aesthetics (with Haraway) or a transcorporeal aesthetics (with Alaimo), could be "stretching through intimacy and mediation."[293] Microscope imaging with this intention could serve as counter-colonial, rather

290 Stacy Alaimo, "Wanting All the Species To Be: Extinction, Environmental Visions, and Intimate Aesthetics," *Australian Feminist Studies* 34, no. 102 (2019): 403, https://doi.org/10.1080/08164649.2019.1698284.

291 Alaimo, "Wanting All the Species To Be," 404.

292 Alaimo, "Wanting All the Species To Be," 404.

293 Alaimo, "Wanting All the Species To Be," 404.

than as a precursor to the process of taxonomy and therefore ownership. The intimacy of these images can be read as co-habitative rather than investigative. My microscope imagery, rather than taxonomic, operates as collaborators in storied matter.

I now turn to considering an ethical approach specific to my position in Aotearoa New Zealand, as it relates to the use of materials in an art practice.

4.8 Working with Earthly Materials in Aotearoa: A Lithic Ethics

As I have described in Chapter 3, lithic thinking contributes to a complex ethical position regarding earthly materials in my art practice, the whenua from contested mining sites. By recognising the agency of the more-than-human, and by decentering the human, a posthuman approach allows materials to speak and participate, yet the struggles of mana whenua, the people of the land, over sovereignty and appropriate use of their land cannot be flattened or reduced. By considering this alongside how to behave as Tangata Tiriti, my approach to the use of earthly materials can be folded into a framework that goes some way towards an ethical engagement and might contribute to a decolonial approach towards material use in Aotearoa. The work of other non-Indigenous artists, such as Rhodes and OSW, and their thoughtful approaches to materiality and the environment in an art practice contribute to these understandings.

Kauae Raro Research Collective offer some guidelines for non-Māori who work with matter from the whenua. The artists of Kauae Raro are "dedicated to researching and sharing our mahi looking at whenua as an art material, a component of ceremony, for personal adornment and as rongoā."[294] In her essay *Advice for Non-Māori*, Sian Montgomery-Neutze writes that there are two key concepts to keep in mind: that of accountability, which in te ao Māori is largely guided by whakapapa, and that of tikanga, a system of engagement with all things, places and people, which is also intertwined with whakapapa. They write:

> In order for Pākehā in Aotearoa to understand their relationship to this whenua, they need to intimately understand their own whakapapa. This

294 "Kauae Raro Research Collective," He Kapunga Oneone, accessed December 18, 2023, https://www.kauaeraro.com/about.

> is the most basic tikanga of engagement in Te Ao Māori—that is, establishing relationships to one another through whakapapa. Understanding who you are, where you come from and how exactly you came to be here will not only give meaning to your relationship to this land, but provides the fundamental basis for engagement with mana whenua and Te Ao Māori.[295]

For Kauae Raro, it is important for non-Māori to recognise that they are manuhiri, or guests. As a guest there are certain expectations, including respect, reciprocity, and rules of engagement. Montgomery-Neutze writes, "Being a good manuhiri includes waiting to be invited, respecting the tikanga (correct procedure) of the hau kāinga/mana whenua, never taking advantage of their generosity, and ensuring that that generosity is reciprocated. This creates a balanced dynamic and is an integral part of our relationships in Te Ao Māori."

With these guidelines in mind, I consider my relationship to the materials I work with in my art practice.

As discussed in a previous chapter, my whakapapa leads me to Whakatū, specifically to the Maitai Valley (the place of my conception), and to Takaka, the birthplace of my father. These connections do not however, give me the right to use materials from the rohe (land), either in Whakatū, Tākaka or elsewhere in Aotearoa. To be a responsible manuhiri, I need to follow the advice of Māori; to respect tikanga and ensure that generosity is reciprocated. A Māori artist would be expected to follow the same protocols. Raukura Turei and Te Ara Minhinnick are two artists working with materials from the whenua, including onepū (black sand), a material crucial to my own practice, and I now turn to their work to consider how they fold tikanga Māori into their use of earthly matter.

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295 "Earth Pigment Practices in Aotearoa: Advice for Non-Māori," He Kapunga Oneone, accessed December 18, 2023, https://www.kauaeraro.com/akoranga-1/advice-for-nonmaori.

4.9 Raukura Turei

In mid-2022, I encountered the work of Raukura Turei (Ngāi Tai ki Tāmaki, Ngā Rauru Kītahi) at Objectspace, Tāmaki Makaurau. Her wall work *Te Poho o Hinemoana* (now in the Chartwell Collection) (fig. 211) was part of an exhibition called *Make Work*. *Te Poho o Hinemoana* is made up of six panels, with the foregrounded material unmistakably onepū, creating a shimmering, textured surface, a repeating pattern of what seems like thumbprints (made with an oil stick—earlier work was made with fingers, but this caused the artist to suffer pain in her hands, so she shifted to oil stick to create the patterning). As Turei says,

> The materials I use in my artwork carry the whakapapa of my tīpuna (ancestors) and their connection with the whenua (land) of Tāmaki Makaurau. This connection spans many generations and traverses the east coast of Tikapa Moana to the rugged west coast of Te Tai Hau a Uru—Te Mānuka o Hoturoa.[296]

Her grandmother was taken by the sea while fishing from the rocks at Te Henga Bethels Beach. Turei explains, "I collect the onepū, the black manganite sands of the West Coast, the children of Hine-oneone and Hine-tūakirikiri, to honour my Kuia. While she was prematurely taken by Hine-Moana, it is the ocean that connects me back to her. The ocean has the ability to strip away the generational trauma that has calcified itself between lost whakapapa and a stolen generation."[297]

Turei works with other whenua materials too, including aumoana, an iridescent blue aluvial clay that dries to a chalky blue-grey. She collects this clay from from the shore of Tīkapakapa Moana close to Umupuia marae

296 Raukura Turei, "Texture of Practice: Raukura Turei," *Vessel Magazine*, accessed December 18, 2023, https://vessel-magazine.no/issues/3/embodiedknowledge/texture-of-practice-raukura-turei.

297 Turei, "Texture of Practice."

Figure 211.
Raukura Turei, *Te Poho o Hinemoana,* 2021,
onepū (iron sand), raw pigments and oil on linen,
Tāmaki Makaurau, Chartwell Collection, Auckland Art
Gallery Toi o Tāmaki, purchased 2022
Image courtesy of the artist.

Figure 212.
Te Ara Minhinnick, *He Taonga te Ware*, 2022,
Uku, onepū, kerewhenua.
Tāmaki Makaurau, Artspace Aotearoa.
Image courtesy of Artspace Aotearoa.

which her whānau is connected to. Turei uses the materials from the earth that she has a direct family relationship with. In using these materials, she follows tikanga Māori, recognising that one is connected through whakapapa to places in the landscape. Te Ara Minhinnick also works with earthly materials from her iwi whenua.

4.10 Te Ara Minhinnick

Te Ara Minhinnick (Ngāti Te Ata) is from Waiuku and works with whenua from that area, including onepū. Her work *He Taonga te Ware* (Fig. 212) was shown at Artspace from November 2022-January 2023, in the group exhibition *Between the Gift and its Reprisal*. In the exhibition, six tall, rectangular, and seemingly solid structures stood in a row, each made of an earthly material ranging from black glittery onepū to the warm ochre of uku (clay). Minhinnick said of the work, "As a whakapākehātanga (English translation), he taonga te ware or the gift of forgetting acknowledges what needs to be remembered when forgetting exists. In my mahi, I built this whakaaro, of taonga, of ware around whenua as a source to remember physically in texture, smell, and, feel and in its history, presence and, politics as a subsequence."[298] For Minhinnick, working with earthly materials is a genealogical connection (whakapapa) to Papatūānuku. The mining that occurs at Waiuku, where she and her whanau are from, might act as a break in whakapapa; the forgetting that she speaks of.

Minhinnick is a member of Kauae Raro Research Collective. Kauae Raro write, "our focus is to model our reciprocal, responsible practice of relating to the land in the hopes that others find their way own way of enacting kaitiakitanga too."[299] The Minhinnick whanau is a prominent family in Waiuku. Dame Ngāneko Minhinnick (1939-2017) was a foremost Ngāti Te Ata leader, whose work helped form the Resource Management Act in

298 "Emerging Artist Continues Whānau Legacy through Art Exhibition," *Te Ao Māori News*, accessed April 25, 2024, https://www.teaonews.co.nz/2023/01/19/emerging-artist-continues-whanau-legacy-through-art-exhibition/.

299 "Kauae Raro Research Collective."

1991 and who represented her iwi at the United Nations Human Rights Council in 1988.

As Māori, Turei and Minhinnick both engage with onepū and other earthly materials in their art practice, informed by kaupapa Māori methodologies. Minhinnick says, "As an artist, no matter where you go mainstream or not—having a base of protocols is key and acts as a guide and a safety blanket when needed."[300] Non-Māori can engage with materials from the whenua, taking in to account a Tangata Tiriti whakapapa, and without treating the materials of the world as passive resources for human use and exploitation. How does my relationship to earthly materials and place play out in my art-making? My own onepū project has spanned the period of my PhD candidature, in which I have created artworks and conducted research about the iron created from onepū.

In this project, rather than collecting materials such as onepū directly from the land, I am working with materials, specifically iron and slag, that have been modified and transformed through the smelting process. This is political—the very system that produces the materials I work with is what I am critiquing through my art practice. Additionally, the question of the mauri of the onepū is one I am aware of—does the sand lose its mauri through the transformation process? Does my engagement with the iron and the slag further erode mauri or work to preserve and possibly restore a sense of liveliness? My intervention removes the material from the industrial process it is part of. The question of whether the materials are in any sense restored through this activity is not possible to answer. The material is certainly transformed through my own actions, and in turn it transforms me and hopefully others who encounter it.

In Section 4.5 I introduced the concept of storied matter as a critical theoretical concept for this PhD thesis, providing an important tool in my approach to working with the material world and a framework for a

300 "Emerging Artist Continues Whānau Legacy."

considered approach to materials. Storied matter recognises that matter itself becomes corporeal text, itself speaking. In my art-making practice, as in the practices of Pauline Rhodes and OSW, I endeavour to make space for the utterances of the materials I am working alongside. Perhaps this is where, from my Western perspective, the mauri of matter is expressing itself and how I am able to engage with it as a non-Māori.

I now return to the material art practices that resulted from my engagement with Glenbrook and the onepū mine at Waiuku, and the two materials that resulted from my visits to those sites: the slag (a byproduct of the iron making process); and the iron itself, from the mill. I consider how these materials engage with the concept of storied matter, with lithic thinking, and with a Tangata Tiriti ethical approach. These projects are *Not Rocks*, the iron electroforming in *From things flow*, *Mineral Thinking Table*, and *Hand Held*.

4.11 The Strange Enigma of *Not-Rocks*

> Give me one matter of concern and I will show you the whole earth and heavens that have to be gathered to hold it firmly in place.
> —Bruno Latour[301]

When I visited the steel mill at Glenbrook, we were driven past the area where the slag was poured down a slope in great, fiery molten streams and left to cool and harden. Slag is the byproduct of iron making, the impurities that separate out from the iron. Once cool, the slag is smashed up into aggregate, which is sold as a landscaping, drainage, and roading material. Slag had caused many problems throughout the process of figuring out how to smelt iron from onepū, coating the crucibles with 'skulls' and blocking the works.[302] As a material, the slag interested me as the unwanted and undesirable result of the process. I organised with the aggregates manager at Glenbrook for me to come out to the mill and pick up some pieces. Slag is incredibly heavy. The Safety Data Sheet for the slag tells me that it is made up of titanium (over 30%), aluminium (18%), calcium (14-17%), magnesium (13%), silica (12-15%), and iron oxide (3-6%), as well as other materials.

Approaching the slag as storied, I asked, what language do these pieces of slag speak? Rather than a single individual object, a cascade of associations and relationships revealed the lump of slag to be connected to innumerable others. The slag and I were also intertwined, neither of us individual—indeed we were connected to each other, co-creating our worlds and stories as lithic bodies.[303]

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301 Bruno Latour, "Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern," *Critical Inquiry* 30, no. 2 (2004): 246, https://doi.org/10.1086/421123.

302 Larsen, *True Grit*, 56.

303 Other ways of appraching the storied matter of the slag emerged: I could begin with Becky Nunes, and our initial idea for a collaboration, with her project about Taharoa sand exporting, with our plan to visit Glenbrook, and with her falling in love

Figures 213-214.
Slag from Glenbrook. Slag is an extremely hard material, and looks very much like scoria, the volcanic rock common in Tāmaki Makarau.
Photographs: Shelley Simpson

The slag in its current form had been created recently, in the past year, perhaps. Slag looks remarkably like scoria, which, for those living as I do in Tāmaki Makaurau, is a very present material, quarried from local volcanoes and used to build walls and buildings. The name of this project, *Not Rocks*, gestures to this; the slag is not stone, not ancient, not created by the earth, but recent, human made, not rock. The components that make it are, like all of us, as old as the stars, and so hold stories of starburst, of deep space and deep time, as we all do. It is in the mineral matrix that these stories are held, told in physics, in binding, in crystalline formations, told in processes, reactions, and entanglement. The iron in the slag continues to interact with the oxygen in the air, rusting. The iron in our blood is part of the complex system that delivers oxygen for our bodies to burn as energy, instead of rusting. I am returned to the idea of transcorporeality. Each breathe we take pulls oxygen (poisonous at concentration) deep into us, along with much else, both benign and troublesome.

The slag, in relation to me, holds all these stories. It is this fuzzy, entangled space between the slag and myself which informed the casting exploration that was the culmination of a series of slaggy engagements I embarked on. I cast a small piece. I wanted to see what the surface of the slag was in reverse; the space between the shape of the slag and the air around it (figs. 219, 220). I contacted Glenbrook and asked if it was possible to get iron to use in the casting project. As soon as I realised that I was able to work with iron from the mill, the project shifted. I was now working with both the iron and the slag, and a direct conversation occurred between these two materials. The iron was in small (although heavy) pieces, rusted and rough, skin-like, and it was impossible to tell what phase of produc-

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and relocating back to England after decades here, which ended our plans. I could begin with COVID, which stymied Glenbrook visits and prevented any long-distance collaboration between Becky and I. I could begin the story with my communications with the aggregate manager at Glenbrook, or with the trip I finally made to the steel mill, or with the Glenbrook website which tells me about slag, how it is made and what it is useful for. Or I could begin with the lump of slag I held in my hand at the mill, comparing the weight to a piece of the local rock the mill is built on—slag is much heavier. Or I could begin with the onepū the slag is made from, or the coal, water, and limestone that facilitate the making of the slag.

tion they were from (figs. 215, 216). This iron had been picked up from the floor of the smelter and would have been tossed back into the process to be remelted, except for my intervention.

During the casting process the iron had a mind of its own. As it melted, the iron pieces behaved differently, some sparking spectacularly and off-gassing. This iron was feisty and boisterous (figs. 217, 218). When we were finished, the iron cast and the slag fitted roughly together. I placed them on their side so that the space between the two could remain open. It is this space between the slag and the iron cast which seems to me to hold a cushion of air, a thickness, a bouncing, pulsating space. This is the space that holds the stories, the storied matter, quivering with story. Earlier, I asked whether working with slag and iron erodes the mauri of the material, or perhaps works to restore it. Perhaps it is this space between the two material objects that holds the potential for answering this question. In Chapter One I wrote of how Hoskins and Jones describe their uncertainty about how to work across Māori ontology and Euro-American concepts, writing, "Maybe the provocation is to encounter uncertainly the object world. This suggests method as an ongoing struggle and as constant attempts at connection rather than a set of rules for procedure."[304] In this casting project, the iron and slag, both made from onepū, sit roughly together, their surfaces pitted and rough. This casting is an attempt at connection, but fraught with difficulty, misfires, dangerous off-gassing, scraped fingers, and uncertainty.

My work with slag and iron from Glenbrook continued throughout the PhD candidature. In 2024, iron from onepū dovetailed to join another ongoing project, exploring the process of iron electroforming, which I describe in the next section.

304 Hoskins and Jones, "Non-Human Others," 53.

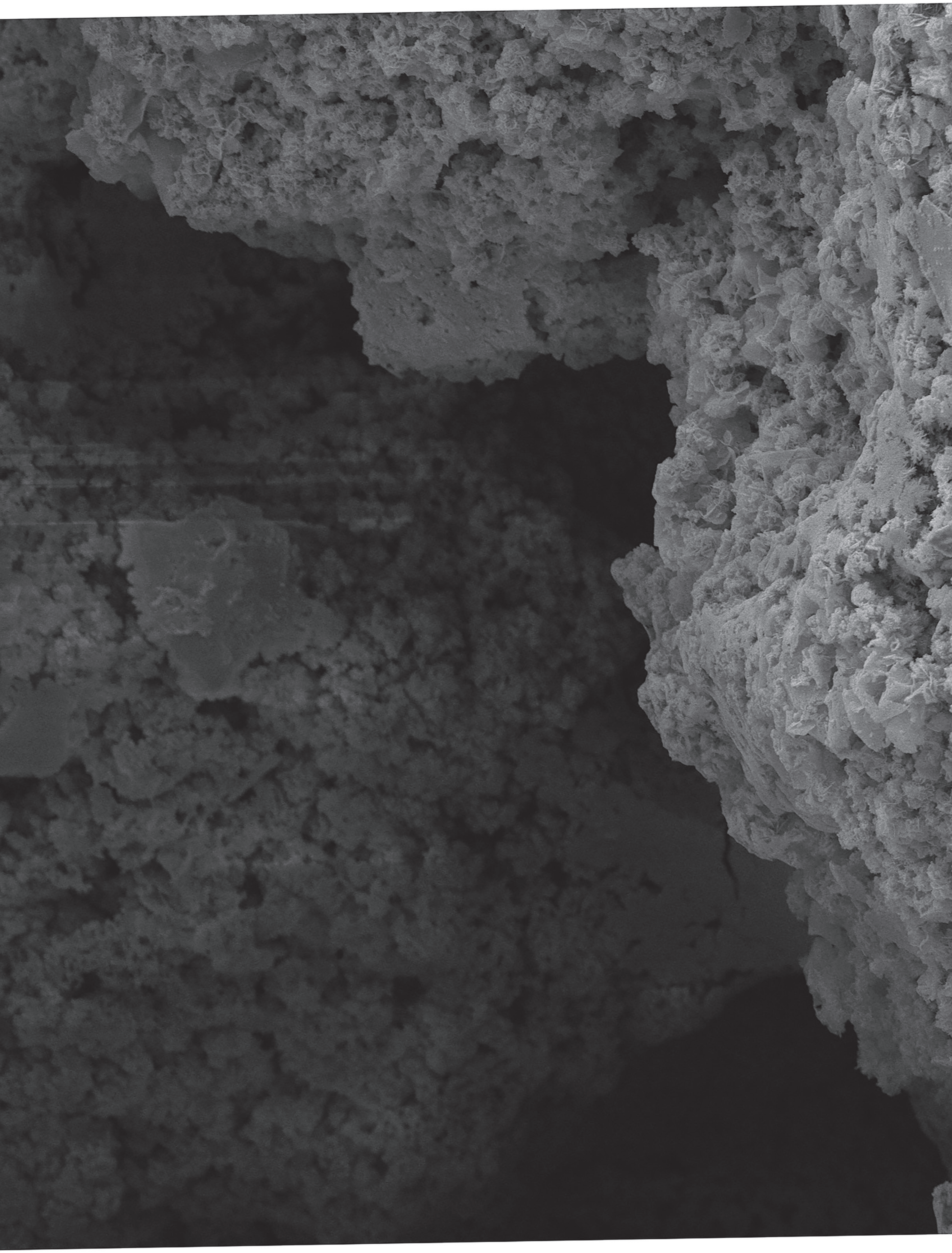


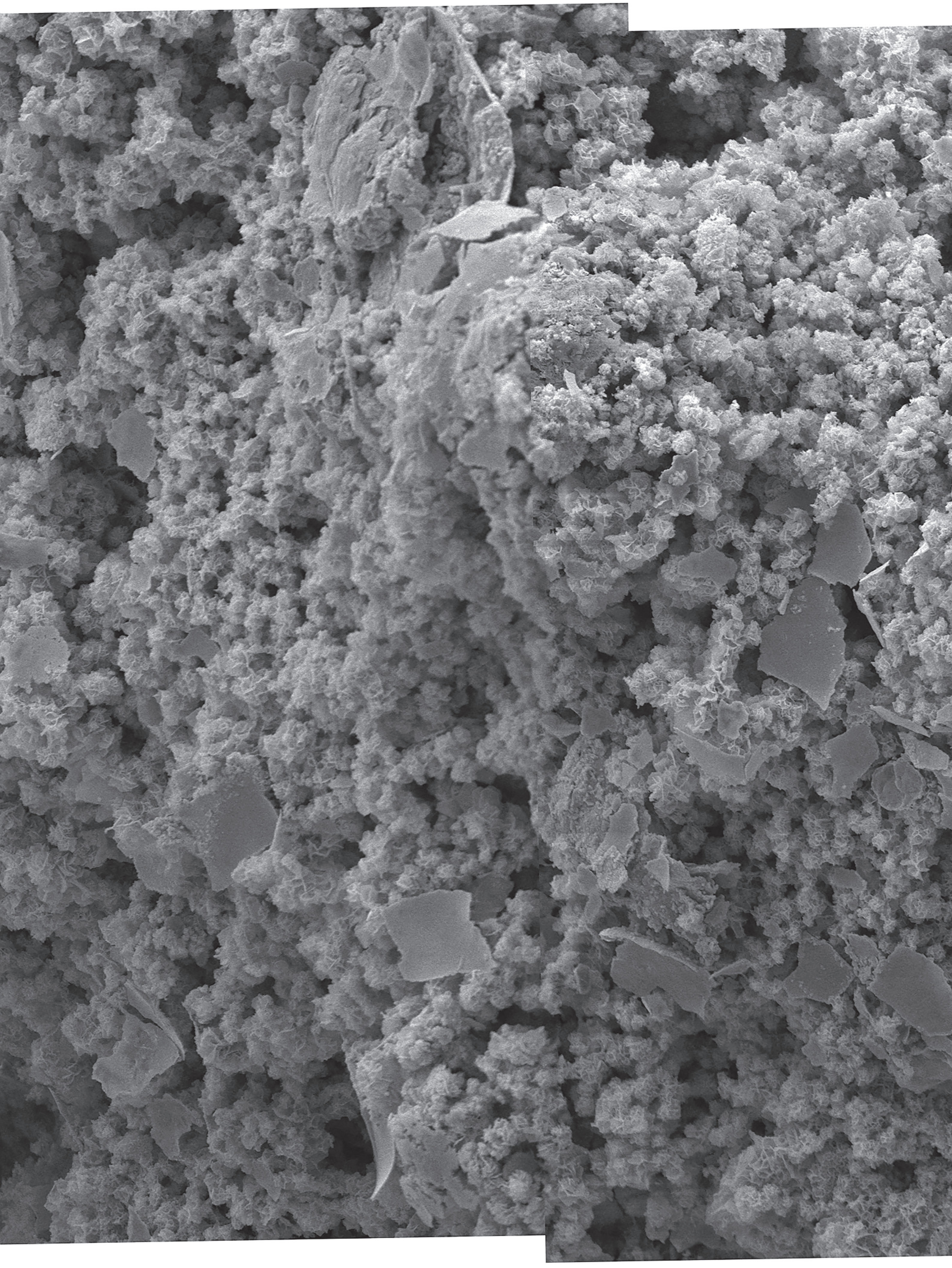

Figures 215-218.
Melting iron from Glenbrook in the forge. Iron has a very high melting point.
Photographs: Shelley Simpson.

Figure 219.
An early attempt at casting with onepū iron. I cast the shape of a piece of slag.

Figure 220.
The slag (the bottom object) and the iron cast (on top) fitting together.
Photographs: Shelley Simpson.

Figures 221-224.
Grinding and polishing one face of a peice of onepū iron. I created a series of these works.
Photographs: Shelley Simpson.



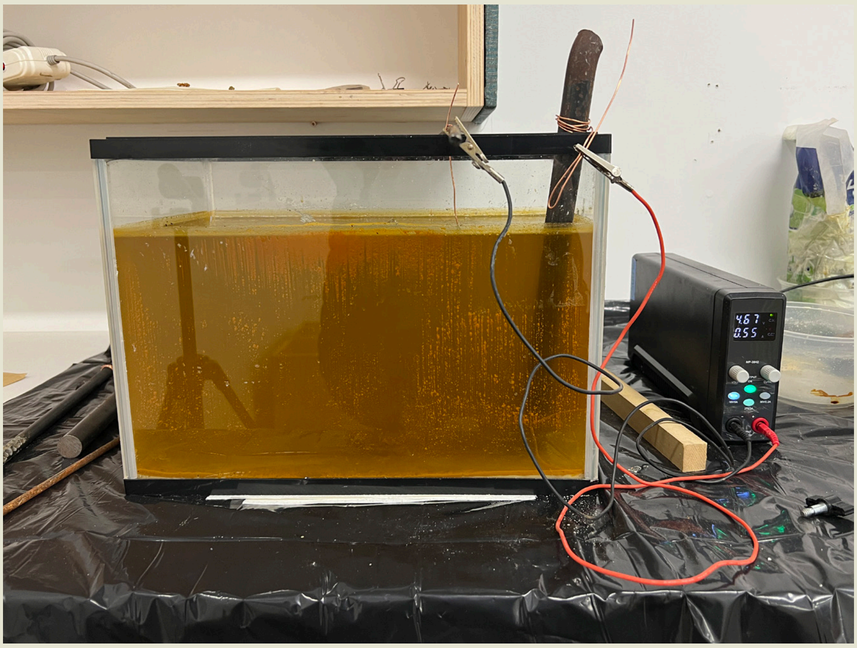


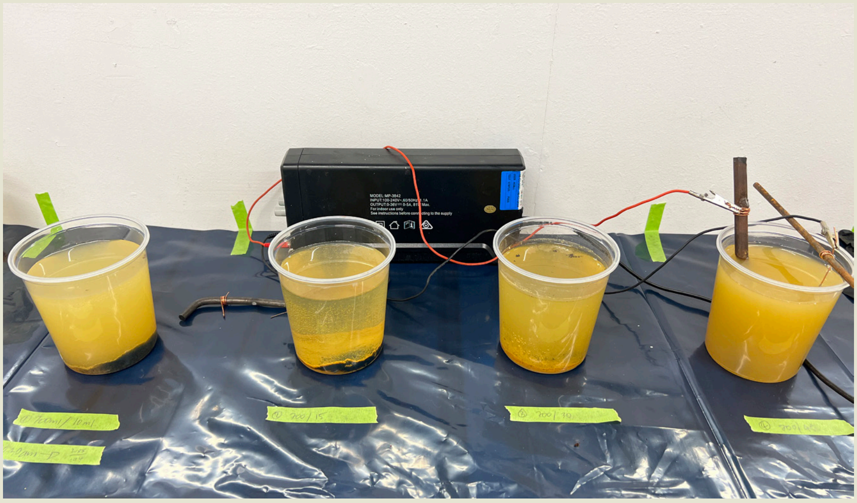
4.12 Back to the Future: Iron Electroforming

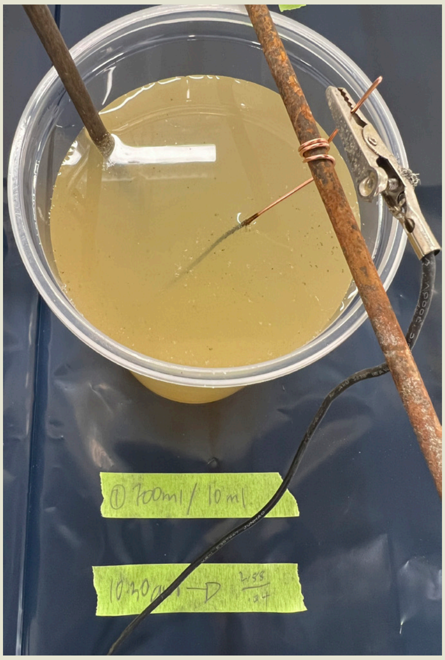
In 2021, I created a work for a group exhibition, *From things flow* (with Kate van der Drift, Kathryn Tulloch and Teresa Peters), at RM Gallery and Project Space, Tāmaki Makaurau (figs. 225-227). This project was an extension of my previous electroforming with copper; in this work, I electroformed iron. The shift from copper to iron was in response to the research and work I was doing with onepū. Electroforming with iron is not a common process, unlike with some other metals, and there were no guidelines available on how to create the process. Using the knowledge I had gained through my experimentation with copper, I was able to create a system that worked using iron sulphate (a common chemical used in gardening and available at garden centers) and iron or steel as my source metal. I found that the electroformed iron accretes in exuberant and delicate leaf or plant like structures. For *From things flow*, I built a tank and a table for the process. In addition, I imaged some of the iron using a Scanning Electron Microscope (SEM), printing the results as a nine-meter scroll which hung down the wall and across the floor of the gallery. I also included a moving image work of the activity inside the tank. Electroforming is a process of releasing the ions of metal from the source object, which, as a pipe or rod, is an industrial, human-made creation, and allowing the metal ions to configure themselves in the form that they might naturally do. As figs. 233-234 show, there is a distinct visual similarity between electroformed iron and wild iron ore. I can see the electroforming process as a form of reparative intervention, gesturing towards allowing the iron to have its own agency.

As I worked with iron, I found that I was exploring the material in a variety of forms, and through these forms I was developing a familiarity with the material that I was interested in presenting to others. This led to an iteration of the project that did exactly that, offering the breadth of explorations for close engagement: *Mineral Thinking Table*.

Figures 225-227.
Shelley Simpson, *From things flow*, 2021, Tāmaki Makaurau, RM Gallery and Project Space.
Photographs: Kate van der Drift.
Clockwise from top: iron electroforming tank; SEM image of electroformed iron; moving image work
The publication for this exhibition is available at shelleysimpson.co.nz/stonesense







Figures 228–231.
Testing for optimal growth.
Clockwise from top: iron electroforming test; testing iron sulphate strength; resulting iron growth; test detail.
Photographs: Shelley Simpson.

Figure 232.
Activity in the electroforming tank.

Figure 233.
Electroformed iron with the distinctive organic growth shapes.
Photograph: Shelley Simpson.

Figure 234.
Iron ore from Parapara,
Pupuri Taonga o Te Tai Ao Nelson Provincial Museum.
Photograph: Shelley Simpson.

Figures 235- 236.
On the left, electroformed iron growth and on the right the anode, (the source for the iron), showing how it has worn away through the process.
Photographs: Shelley Simpson.

4.13 An Invitation: *Mineral Thinking Table*

Mineral Thinking Table was an installation of objects placed on a long work bench (figs. 237-240). These objects and materials related to my exploration of iron made from onepū and the process of electroforming. Some of the smaller pieces of iron I had worked on by grinding and polishing one side into a highly shiny, almost liquid surface (figs. 221-224). Unassuming lumps of rough matter were transformed into mysterious objects, and some people responded with a sense of confusion, thinking the lump had been dipped or the surface painted on. Closer inspection, including picking up and holding the object, revealed the nature of the intervention. The shiny surface invited touch.

My intention was that the installation would encourage handling and close examination of the works. The development of the concepts of lithic thinking and the lithic body in my research had corresponded with the desire to create objects that extended these ideas into haptic experience. Through close examination, touch, and smell of the processes and objects I had been working with, I was hoping that others might experience the sense of closeness with the mineral that I felt, and it would invite a wider consideration of the material world and our position as humans within it. This is the core of lithic thinking, the recognition that our bodies are mineral, that we are deeply embedded within the world, and the world is embedded within us. *Mineral Thinking Table* evolved into a later work, *Hand Held*, which forms an element of my PhD exhibition. The table itself as a support structure continues to be a key aspect of my installation strategy, and, as I discuss later in this chapter, has developed throughout recent projects.

Figure 237.
Mineral Thinking Table,
2023

Figures 238-240.
Details, *Mineral Thinking Table,*
2023
Photographs: Shelley Simpson.

4.14 Holding Mineral Hands with *Hand Held*

I return now in more detail to *Hand Held*, a series of sculptural forms cast in iron created from onepū. These forms are casts of the space between my hands cupped loosely together. They are intended to be held, potentially accompanying a person who is engaging with my PhD exhibition.

In 2022, I presented polished uncast iron forms (at AUT Talk Week) alongside other, less shiny pieces which had been sand-blasted to reveal a surface also appealing to touch and hold. I facilitated this experience of holding by passing the pieces around the people gathered there. It was a cold day, and my presentation was outside, in a courtyard space. When the iron was handed back to me, I was struck by the warmth of it. Passed from person to person, the iron had retained the body heat of those that had held it. Iron is very conductive, and holds heat well, which is why it is excellent for cooking pots and pans. The ability of the iron to hold heat had resulted in a gift of warmth that had accumulated from each person and ended up with me. The buildup of heat in the iron mirrored the layering of ideas that formed within the group discussing the work I had presented. Watching people hold the iron, I was struck by the way in which people cupped it in their hands, feeling its weight and texture, and, in some cases, lifting it to their nose and taking a sniff. Afterwards, several people spoke of the scent of the iron, which had reminded them of menstrual blood and the smell just before vomiting. It is this haptic, bodily relationship that I wanted to explore further. Earlier, in Chapter One, I identified holding as one of the three methods in my practice. Through holding the iron and experiencing the bodily contact with it, people were experiencing associations. Could I make the associations more accessible? What if the invitation to hold the iron was more explicit?

Initially, I pressed clay between my palms as a way of embodying and containing the gesture of holding and to create a shape I could cast in iron. I wanted a material that would feel more voluminous, that would represent the space between my two clasped hands with more fidelity than the clay. By using Plaster of Paris and allowing it to set for the right amount of time before clasping it, I was able to create a shape that had a fuller sense of space and volume. In addition, the plaster held the details of the space between the palms, between fingers, the texture of the skin; as the plaster escaped through the gaps, an object was created that felt very alive, very bodily, creaturely, like a fossil, perhaps a long-forgotten Cambrian animal. The plaster escaping between fingers and palms gestured to the release that is the antonym of holding. Using Plaster of Paris meant that I needed to sit with my hands clasped together for at least 12 minutes, unable to do anything except sit quietly. Once the plaster was set, I was able to slowly peel my hands away from the form and see what creature had been created. I made many of these objects, each one slightly different to the others. As they dried, they became light in weight and very white. These are the objects that I cast in iron (figs. 94-105).

There are many examples of artists using their body to create cast objects. Aotearoa artist Kate Newby has used her thighs (and those of others) to create half pipe shapes that she has incorporated into drainage canals.[305] Chris Braddock recorded his bodily impressions in a variety of materials, including silicon rubber, plaster, and epoxy clay, in works including *Bodylogue* (2003), *Fleshly Worn Series* (2004), *Sculpsit* (2002), and *Take Series* (2007) (figs. 89, 90). Gabriel Orozco created *My Hands Are My Heart* in 1991, a simple gesture in which he created a form using his hands and photographed himself holding the object in his heart position (fig. 88). Orozco states: "*My Hands Are My Heart* is a work that is made out of clay from this classic material for brick making, and instead of the mold, I'm using my hands as a mold. I think in my work the idea of receptacle, or the idea of the recipient is important. And in this case, the photography of the work represents both the area of containing the clay between the hands and opening up and having that space in between."[306] This is similar to the

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305 Previously mentioned in Section 2.2.5

306 Gabriel Orozco, "Gabriel Orozco. My Hands Are My Heart," interview by Glenn Lowry, The Museum of Modern Art, accessed October 30, 2023, https://www.moma.org/audio/playlist/240/3084.

Figure 241.
Plaster casts of the space between cupped hands.
Photograph: Shelley Simpson.

way that Braddock created casts of the space between parts of his body for *Take Series*, subsequently exhibited on ply and trestle tables, with participants invited to handle the objects against their own bodies in search of correspondences. My process of making the plaster casts brings such entangled correspondences to mind, as well as Orozco's observation of the relationship between containment and release, in that my hands are the mold that forms clasped hands which participants, in turn, hold in their hands, themselves entangled as molds, holding my hands. As each mold or cast is created, imprints of story are retained in the material; each becoming, or participating in, storied matter.

The iron objects have had minimal intervention after casting, although I have removed any sharp areas to make them safe for handling. I have rubbed a beeswax polish over their surface to make handling them a pleasant experience, although I am hopeful that, on a molecular level, iron will still pass into the body of the person holding the shapes, as their body heat activates the surface, and their cupped hands hold and release.

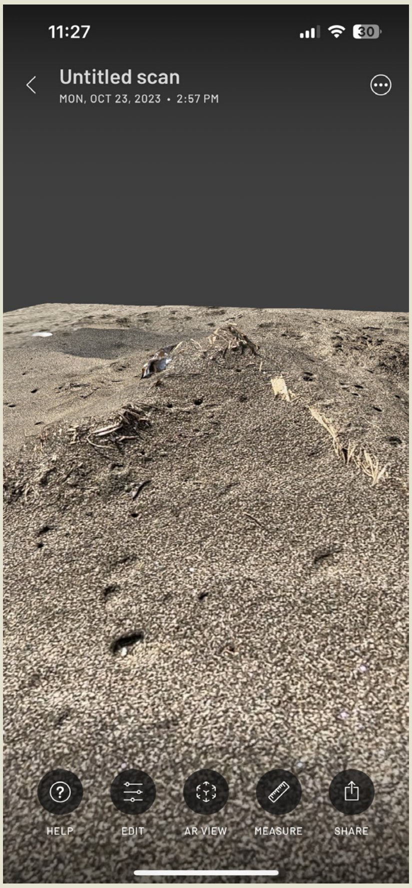
The works that I discuss above form the bedrock for my examination exhibition, to be held in Te Wai Ngutu Kākā Two. I now turn to the exhibition itself and discuss my current thinking about the works that will be included, and the installation strategy that is key to the concept of the exhibition. I base the strategy on the three methods that I have worked with throughout this project: floating/sinking, holding/releasing, and layering/wearing away.

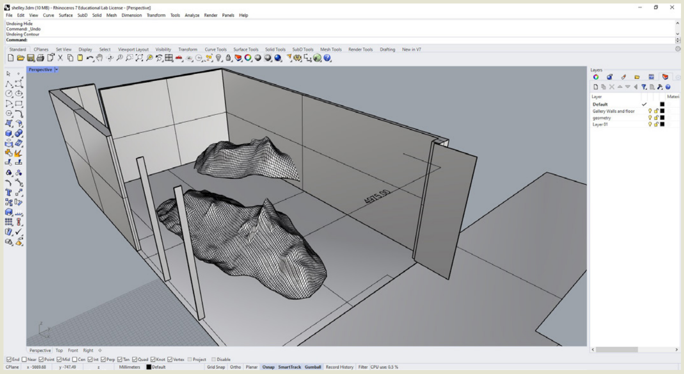
4.15 *Stonesense* Exhibition Planning

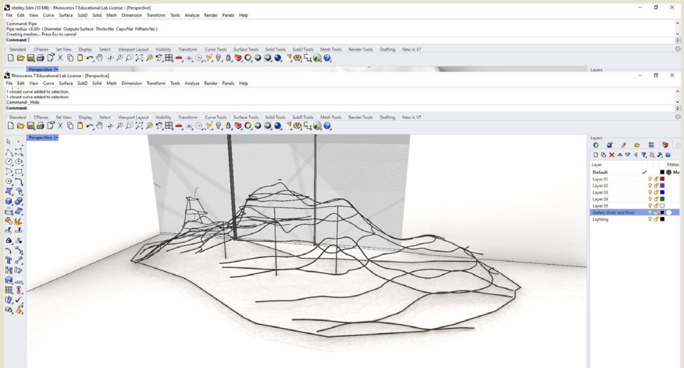
The strategy for the examination exhibition is guided by the questions which form my PhD enquiry, namely exploring how lithic thinking manifests in art-making and opens worlding pathways, making space for reimagining inorganic relationality. The exhibition will explore the techniques of iron electroforming and iron casting which reach across perceived ontological differences in search for points of similitude. The three methods that inform my art-making practice, along with a practice of lithic thinking, inform these techniques. The artworks will be variably held in containers (electroforming in hand-blown glass vessels), on built steel support structures and shelving, all within the gallery space—itself a container.

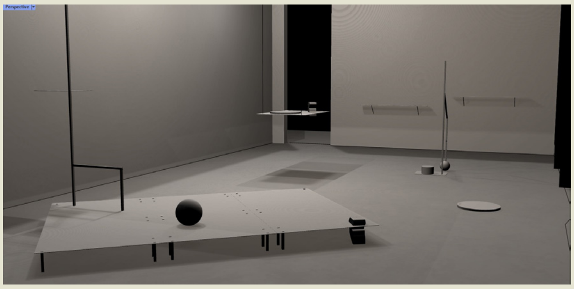
Holding as a technique of relation will be evidenced in *Hand Held*, in which cast iron objects are made for holding and passing around. A slag block may also be used as a door stop to hold the gallery door open (as it is used at Glenbrook, in the reception office). Slag could be used to prop up a large plate steel stage. The heavy metal of the stage might minutely wear away the slag it rests on. In the electroforming vessels, anodes and cathodes will wear away and build up. Layering will be evident in the gallery through the placement of objects: some on the floor, some on a low stage structure, and some on wall shelving. Floating will be evident in these metals in liquid, and there may be works which are partly held in suspension above the floor, in which large pieces of slag will be used as an anchoring device for a work hung in space by recycled copper cable.

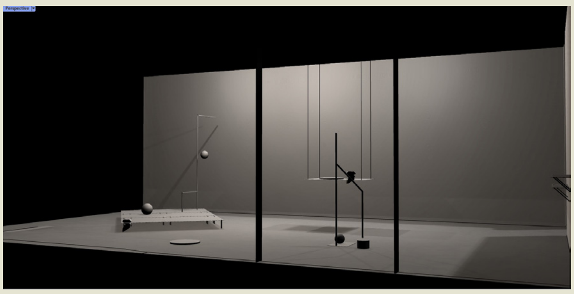
When I began electroforming, I experimented with a variety of methods for containing or holding the process, including plastic and glass found containers and acrylic tanks that I constructed. For the final exhibition, I have worked with glass blowers at Monmouth Glass, and we have created three vessels, specifically made to facilitate the process and to enable people to experience it (figs. 257-260). The glass vessels are made from recycled glass. Glass itself is made from sand, which gestures to the onepū











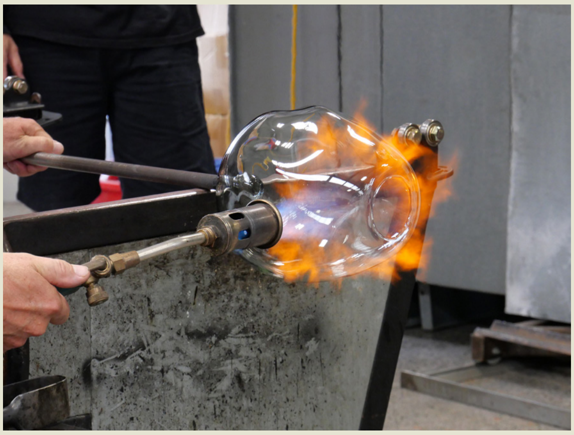
Figures 242-246.
Early exhibition planning for *Stonesense*, I initially worked with a 3D scan of sand at Waiuku Forest, considering possible support structures based on the wind blown sand. I also digitally tested out sheet steel as a support structure.

used to create the iron in my project. The vessels have been made with two indents on the top rim to hold the wires through which the electricity runs. The sides of the vessels are slightly crumpled, which is an effect of the glass being heated right up to the limit of its ability to stay coherent. This point at which the glass is on the brink of collapse speaks of the agency of the glass itself. Glassblowing is a dance between control and release; the desires of the glass itself are constantly in negotiation as the glassblower's heat and cool the glass, stretch it, pour it, roll and spin it. Watching the four glassblowers at work, I was struck by the sense of calmness, of bodies working together, of quiet communication and cooperation. The glass itself seems to float through the air, in and out of the furnace, spinning and shape shifting.

For the exhibition, the electroforming process will use cast iron rods made from onepū iron which will continue the transformation of this material. The resulting iron growths will allow the iron to form itself through accretion into shapes that seem to reflect natural iron ore. New iron forms will be hung in the gallery, as the exhibition continues and they are created inside the vessels. Visitors to the exhibition will be able to hold and carry with them the iron cast objects of *Hand Held*. There will be at least 18 of these objects sitting on wall-hung shelves, accompanied by an express invitation (potentially as a wall text) to be picked up. There will be encouragement to pass these objects to others, to experience the transferal of body heat that was one of the generative observations for this work.

The main support structure in the space will be a either large, low stage made of sheet steel and a supporting steel footing, or a series of smaller 'dunes' or 'archepelegoes'. This stage (or stages) may be on a slight angle, raised up along one end. The steel of the footing(s) is recycled steel that I have acquired and prepared from AUT, previously used in classroom dividers. The stage(s) will also be supported in part by pieces of slag. Although the steel plate will be purchased, it does have a percentage of recycled steel. I will be welding these structures myself. The steel sheet will also be used for shelving for the *Hand Held* objects. This staging concept is a development of a series of tables, either purpose built or existing, that have formed an important aspect of my practice over the candidature period. Tables are not just display apparatus but are integral to the work, in that they relate to the processes occurring within the materials themselves. In the exhibition *Unthought*, the large tank sat on a table that I built to facilitate the electroforming processes in the tank. Later electroforming works had their own purpose-built tables which enabled access to the tanks, as well as enhancing visibility of what was occurring inside the tank itself. In *Mineral Thinking Table*, an existing high workbench was used, which I covered with opaque plastic sheeting to protect the bench surfaces from spillages. The table/stage in the thesis exhibition will hold and layer the sculptural elements of the show, suggesting the plane of the earth that holds metal materials. During early planning for the exhibition, I did consider creating a support structure that reflected more closely the sand formations at Waiuku (see figs. 242-246).

Figures 247-256.
Studio material explorations in preperation for the *Stonesense* exhibition.
Photographs: Shelley Simpson.



Figures 257–260.
Observing the glass blowing process at Monmouth Glass as the glassblowers create the three electroforming vessels for *Stonesense* from recycled glass. Photographs: Shelley Simpson.

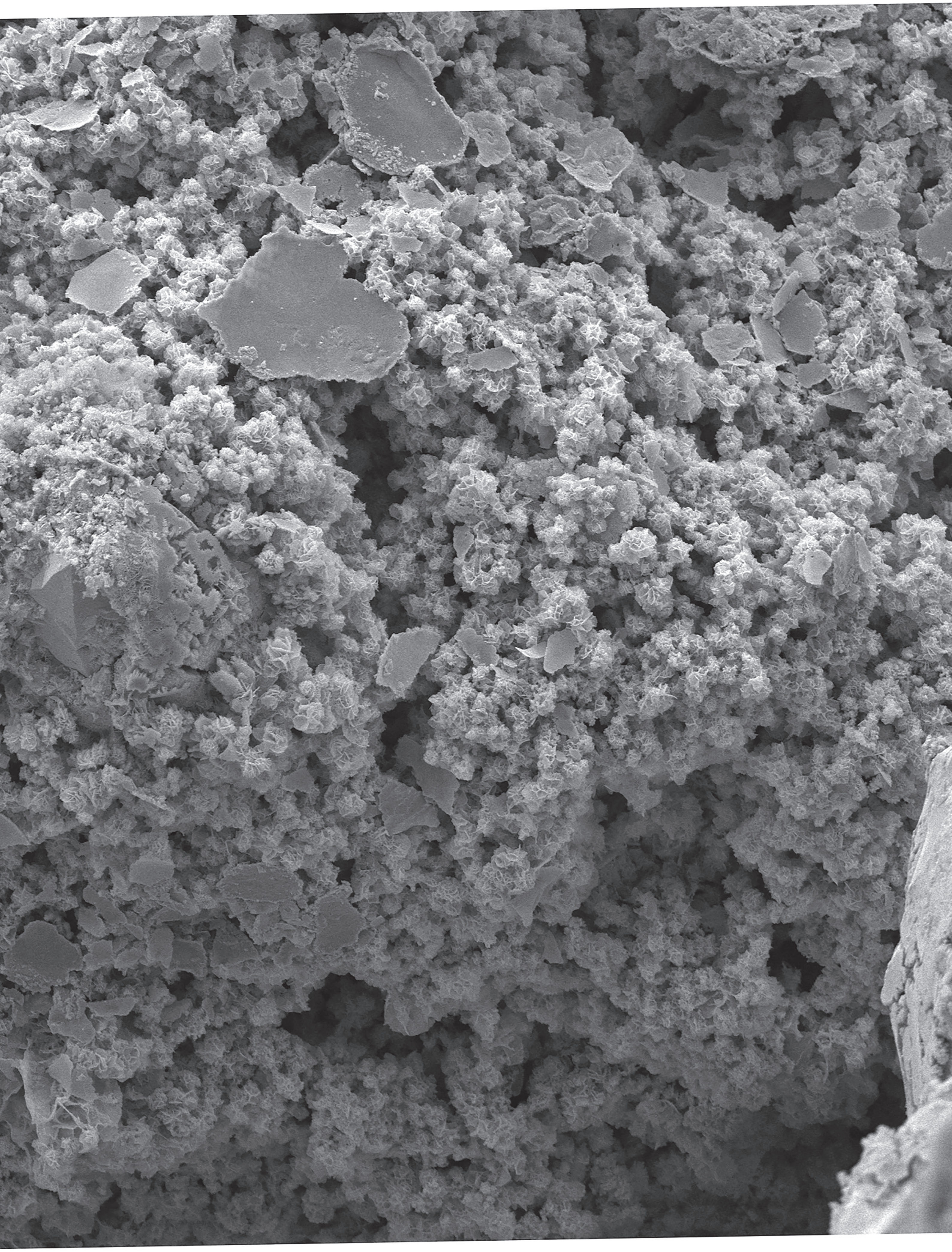
4.16 Conclusion

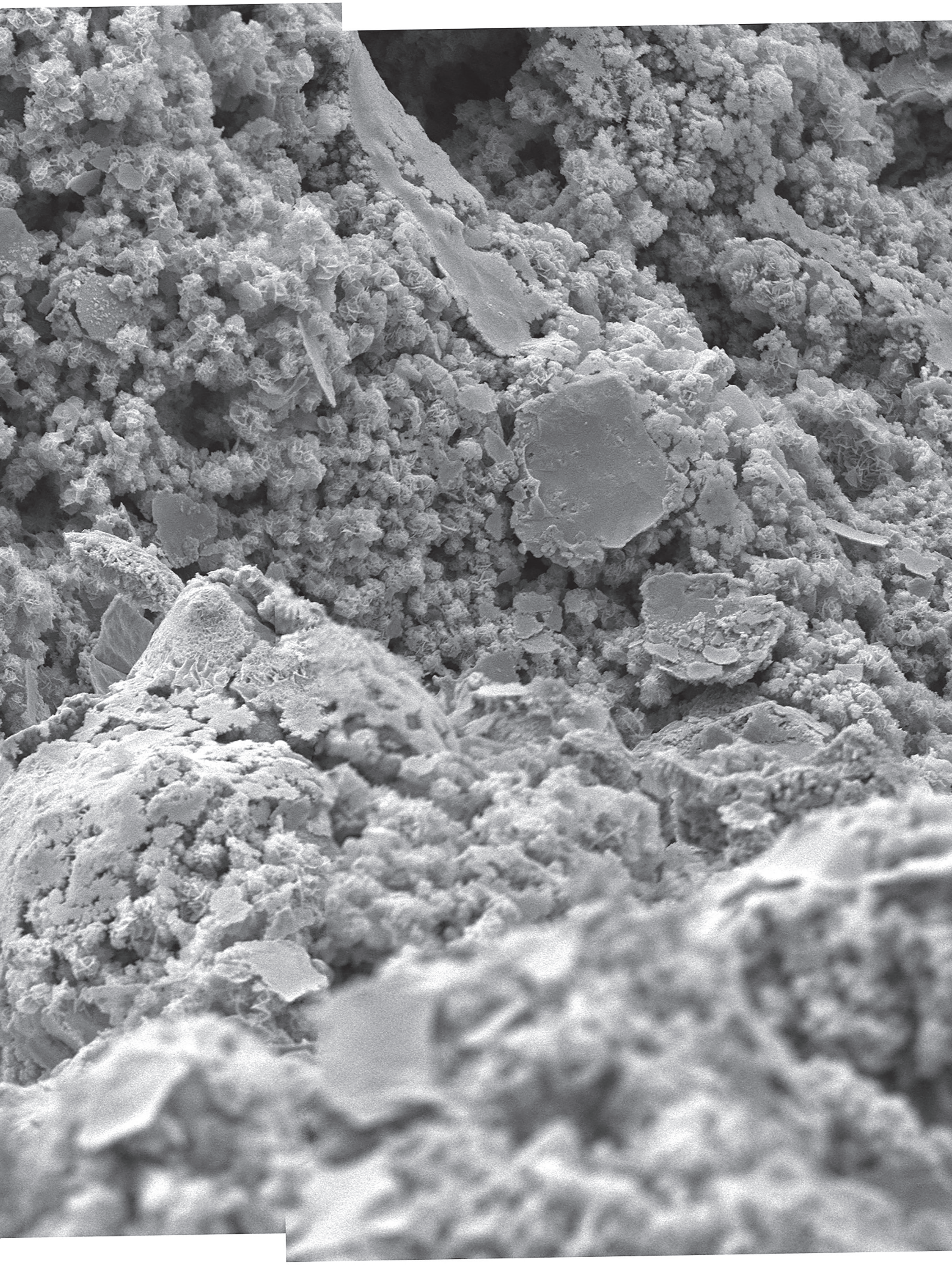
If matter always exists in relation, the concept of storied matter brings attention to the expressiveness of the material world as realised through relation. Considering this approach to materiality leads to questions about ethical frameworks of engagement. In Braidotti's posthuman ethics of affirmation, along with de la Bellacasa and Joy, creativity has a place in the exploration of potential and actualised futures in an entangled and relational world. In *Posthuman Feminism*, Braidotti defines an ethics based on posthuman feminism: "It proposes an affirmative relational ethics, based on a pacifist ontology that predicates generosity and care in cross-species relationality."[307] She argues that feminism is "a relational ethics that assumes that one gives enough of a damn about the world to look at the broader picture and try to minimize the fractures."[308] In my art practice, I extend a lithic feminist ethics to encompass the more-than-human, beyond the biological, to consider the myriad ways the mineral builds relationality across difference. I explore how working with storied matter involves an attentiveness to waste or to less useful metals, through iron and slag casting projects (*Not Rocks, Hand Held*), electroforming projects (*Unthought* and *From things flow*), and evaporation (*Evaporation Disc*).

The work of artists Pauline Rhodes, Open Spatial Workshop, Te Ara Minhinnick, and Ruakura Turei all have resonance for me in terms of how artists approach materials in their practice, particularly when working with earthly materials. Pauline Rhodes allows processes such as rust to occur, working in sympathetic relation with her materials. Open Spatial Workshop often begin with an object, like a fossil, and allow the entanglements such an object reveals to be brought into focus. Minhinnick and Turei, as wahine Māori (Māori women), use earthly materials according to the expectations of tikanga Māori, and produce guidelines for practice

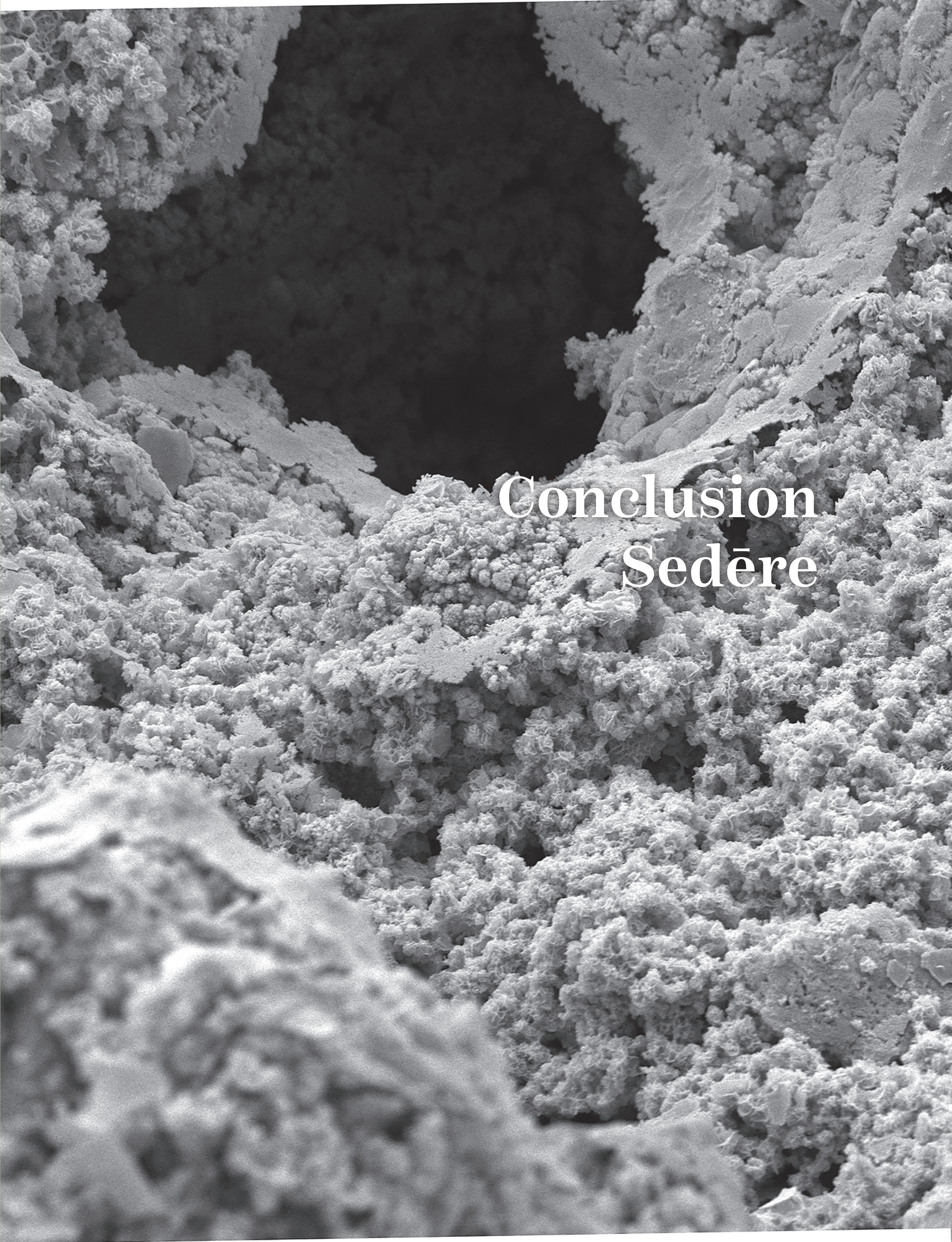
307 Braidotti, *Posthuman Feminism*, 237.
308 Braidotti, *Posthuman Feminism*, 9.

that also extend to non-Māori practitioners. In the conceptual planning for my examination exhibition, I focused on how my three methods of holding, floating, and layering act as a framework for the installation strategies, as well as being present in the works themselves, and how I will take ethical questions into account.





Conclusion
Sedēre



I began this exegesis with Ursula K. Le Guin's poem, "The Marrow," which calls for recognition of the mineral connection between body and stone. This poem acted as a catalyst for the formulation of the core methodology of this project, lithic thinking. *Stonesense* allows that we are mineral beings and hopes that this acknowledgement can shift our understanding of ourselves and the universe we live in. Lithic thinking is not just thinking about stones, rocks, and minerals, but, as Hugo Reinert suggests, is a way "to make space for other questions, other arrangements, other possibilities of existence."[309] How can we think with stone? What petric thoughts might we have?

This exegesis acts as sedimentation, in which layers of thought might settle with others (sedēre), and this structure provokes the research questions that have guided the PhD thesis. I formulated four guiding queries: firstly, considering how lithic thinking manifests in art-making and opens worlding pathways; secondly, how we can make space for reimagining inorganic relationality; thirdly, in an art practice, what 'techniques of relation' extend Povinelli's 'carbon imaginary'; and finally, I considered what a lithic feminist approach to materiality entails. As I have engaged with the materials of my practice, I have reflected on their origins in the earth and the political and social constructions that have accompanied (and continue to accompany) them.

The first question, how lithic thinking manifests in art-making and opens worlding pathways, can be excavated as follows. Visual art and other creative pursuits have a role to play in worlding by offering proxy stories: ways of extending our experience of the world, according to Verlie and Neimanis.[310] For Braidotti, creativity is a way of bridging theory and practice, experimenting with actualising potential and virtual possibilities. In this respect, creativity might provide alterontologies beyond anthropocentric restraints (following de la Bellacasa).[311] Lithic thinking in

309 Reinert, "About a Stone," 112.
310 Verlie and Neimanis, "Breathing Climate Crisis."
311 de la Bellacasa, *Matters of Care.*

art focusses on the lithic, both as a material and as forces at work, as well as scalar and temporal considerations. Worlding is created as a relational entanglement, to return to Barad. An engagement with an art experience or object, with lithic thinking in mind, might create a worlding pathway that draws attention to the materially discursive and entangled mineral, including the awareness of processes occurring below the threshold of attention. From the cellular mineral elements inside biological bodies to the vastly geological, lithic thinking invites an attentiveness to what might not be easily apparent. Furthermore, by recognising that living bodies hold minerals, and that minerals can cross the binary that separates the living from the non-living, as Margulis and Sagan point out,[312] it is possible to loosen the categories that separate entities in the world. I have found that this recognition fosters a sense of connection, along the mineral pathways that connects all.

Lithic thinking within an art-making practice is both scalar and temporal, as I work with ideas and processes that are beyond human scales.[313] In Aotearoa, considering the lithic in an art event directs attention towards our relationship to whenua (land), whether we are Māori or non-Māori. As a non-Māori, lithic feminist artist working with materials that have their origin in the earth, I take into consideration the responsibilities that this position entails. As Tangata Tiriti, I work in a space of uncertainty as to how to bring into relation the philosophical approaches of both Māori and Euro-American scholarship, specifically where the two world views bump up against each other when exploring ideas of material agency and vitality as described by Shearer, and by Hoskins and Jones.[314] In being sensitive to the complexities of this relationship, my art-making practice provides space for consideration of these questions. My position as Tangata Tiriti is one that I carry and that influences my engagement with place. As I have described in this exegesis, my own whakapapa (genealogy)

312 Margulis and Sagan, *What Is Life?*

313 The phrase 'beyond human scales' is from the title of the 8th ASLEC-ANZ Conference Aotearoa: Ngā Tohu o te Huarere: Conversations Beyond Human Scales, held in Whanganui-a-Tara Wellington and online in 2021.

314 Shearer, "Te Oro o te Ao,"; Hoskins and Jones, "Non-Human Others,"

Figure 261.
Iron sulphate crystalisation in my studio.
Photograph: Shelley Simpson.

is entwined with lithic stories, from my Cornish tin-mining ancestors, to The Miners Arms in Whakatū, to my very conception in a quarry. My art-making practice and research follows this mineral path, as I have become increasingly focused on metal and minerals, both as material and as process.

The next two questions are key to my approach for *Stonesense*; working through building 'techniques of relation' that extend the 'carbon imaginary' in order to build inorganic relationality (following Povinelli, Cohen, and Reinert).[315] I identified several methods that have assisted me to this end, namely floating/sinking, holding/releasing, and layering/wearing away, and in Chapter One I described these methods and how they were apparent in a project from the beginning of my PhD candidature, *Unthought* (2020). These three methods led my material explorations, enabling a structure for engaging with the mineral in different ways, but always with the awareness of collaboration, making space for the agency and tendencies of those 'others' in my practice. And indeed, one of the resulting concepts is the interrogation of the idea of the 'other,' so that with the recognition of the lithic body, we can legitimately ask whether there is indeed an 'other,' whether anything is ever separate or 'outside' the body. This ability of the mineral to act as a tool for thinking across binaries extends to the very definition of life and nonlife, as the lithic crosses these categories, troubling and blurring any sense of certainty there might be about these concepts (following Barikin, Cohen, Reinert, and Yusoff).[316]

In the final chapter, I discussed my work *Evaporation Disc* (2021-2023), where the process of evaporation releases iron salts into the air, which may be drawn in to the body through breath, a reminder that the body is porous and holds many more-than-human elements. Focusing on mineral materiality, I followed Barad's agential realism and intra-action to describe matter as always in and created though relation. The concept of

315 Povinelli, *Geontologies*; Cohen, "Feeling Stone"; Reinert, "About a Stone."

316 Barikin, "Sound Fossils,"; Cohen, "Feeling Stone"; Reinert, "About a Stone"; Yusoff, "Geologic Life."

Figure 262.
Iron electroforming, studio experimentation.
Photograph: Shelley Simpson.

storied matter (informed by Iovino and Oppermann) has been a useful framework throughout my project, to explore matter as active, generative, and expressive. My own encounters with sites such as mines, quarries, and industrial places has involved a diffractive approach to site, as I engage with places within the environment that act as nodes of relation between humans and the earth. These engagements are a vital part of both my research and art-making, through the process of being there, allowing a type of witnessing that takes into account the situated knowledges of both witness and witnessed and their relational existence (following Haraway, Hird, Verlie and Neimanis). Approaching these sites as a lithic body, I recognise that I carry a politics with me as I move through the landscape, both affecting and being affected.

When I considered my last question, what a lithic feminist approach to materiality entails, built on Astrida Neimanis' hydrofeminism, I created my own figuration, that of lithic feminism: a feminism that takes into account the minerality of the body and extends Braidotti's posthuman body to a specifically mineral one. In Chapter Two, I described this figuration and the development of a lithic feminist subjectivity, which begins with the mineral, lithic body. From a lithic feminist perspective, working with earthly materials requires a consideration of one's positioning in relationship to their complex material-discursive existences. Lithic feminism calls for an ethics towards the material that crosses the carbon imaginary, embedding our petric bodies among all the other rocky and stony bodies in the world. In Chapter Two, I positioned the artworks of contemporary artists Nina Canell, Anicka Yi, and Cecilia Jonsson as expressions of lithic feminism. I situate my artwork *Hand Held* (2023-ongoing), iron casts of the space between two cupped hands, intended to be held and carried, as a lithic feminist work, gesturing towards the close relationship between the minerals that permeate porous bodily boundaries. The lithic feminist body is material, with a fleshiness and boniness that places it firmly in a material world.

The lithic feminist body is also responsible, recognising the complex and deep connections that cross through the body and the environment (and back). I have suggested that a lithic feminist approach is an ethical one, with questions arising around accountability and responsibility to earthly materials that call for certain responsibilities as we carry our lithic bodies around, recognising our political relationships to other lithic bodies, human and more-than-human. Lithic feminism connects us to the geology of this planet and calls for consideration of our impacts on the Earth and beyond. I discussed the relationship between the lithic body and the lithic earth in Chapter Three, describing my engagement throughout the PhD candidature with sites within the environment that act as material-discursive nodes of relation between humans and the earth. These engagements are a vital part of both my research and art-making, through the process of being there and what knowledge that affords. Chapter Four: Lithic Matter focused on matter itself in relation to my art practice, and I take an affirmative ethical approach to material use in an art practice, both from a posthuman ethical standpoint and as a Tangata Tiriti in Aotearoa. Through the practices of artists Pauline Rhodes, Open Spatial Workshop, Te Ara Minhinnick, and Ruakura Turei, I explored how materiality can be approached as part of an art practice. I found that each of these artists maintains respectful, complex relational engagements with matter and with sites in the whenua.

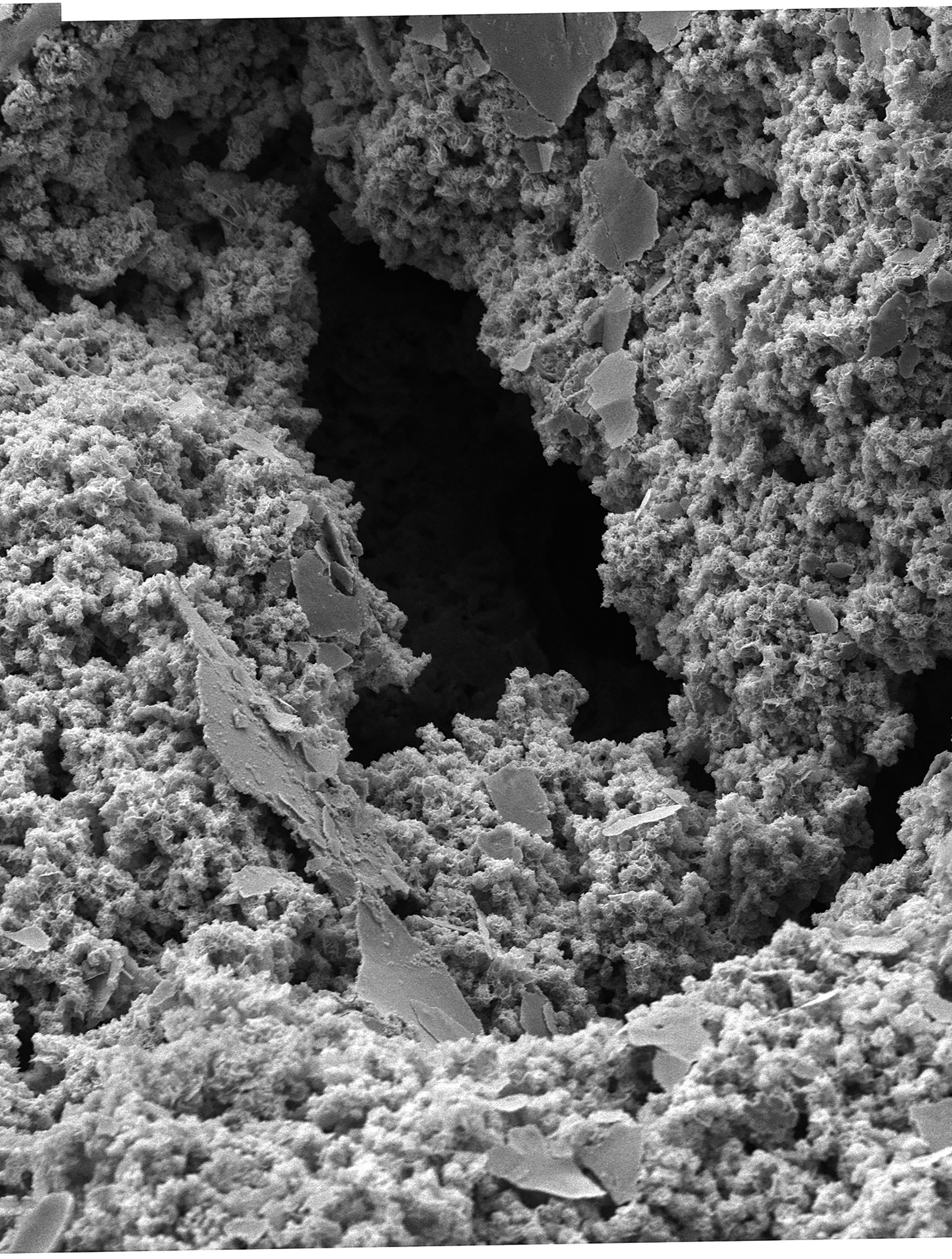
The Significance of *Stonesense*

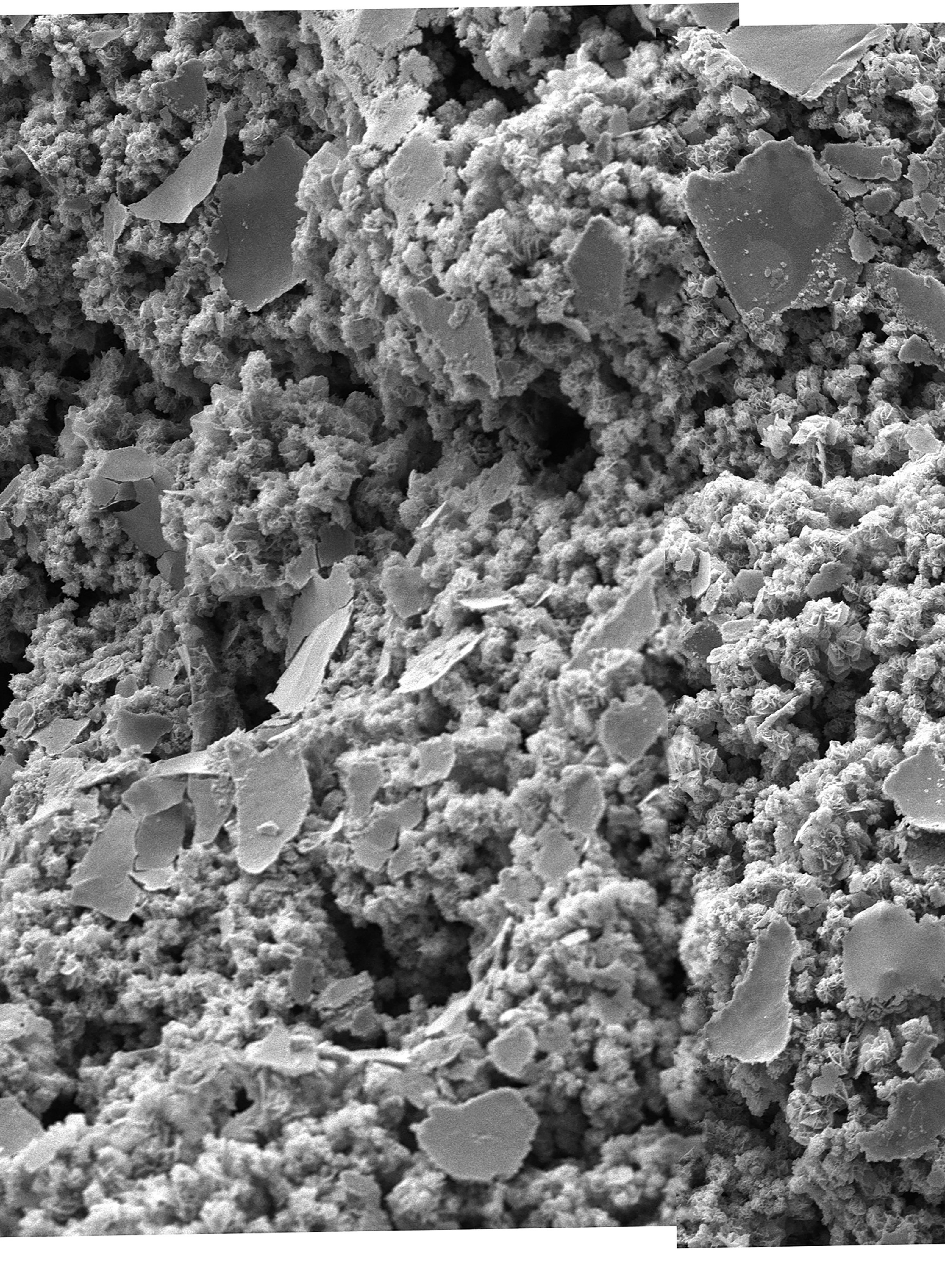
Stonesense has had a deep personal significance for me as I have travelled through the project, widening my understanding of myself and where I stand in the world. I have begun my journey as Tangata Tiriti. As I write these words, a right-wing coalition government in this country is encouraging division and racism, eroding the hard-won gains Māori have made in respect to Te Reo and to Te Tiriti. It is more important than ever to stand in solidarity with Māori and to understand and recognise settler privilege in our society. As an artist, my use of earthly materials in my practice necessitates consideration of the relationship non-Māori have with the land and its materials.

Stonesense contributes to contemporary, material art-making practices in Aotearoa by bringing attention to the considerations of working with earthly matter, specifically for non-Māori. In a wider sense, this project contributes to conversations about approaching extracted materials, both in art and in life. Through considering the question of extending empathy towards those that are ontologically distant, perhaps it is possible to feel into the mineral. My art practice might go some way towards building these empathic, more ethical relationships. A lithic feminist body calls for consideration of the limits of empathy, working to make space for inorganic relationality. With Marder, I have explored how far can we extend our empathy. Can we shift beyond animals to plants and even to the petric? Drawing attention to these questions might be the wider significance of *Stonesense*: paying attention to the lithic within bodies and without; offering ways of reconnecting human bodies within the environment; providing pathways for alternative ways of thinking about the earth and its minerality; and strengthening the connectivity of all entities that share this planet.

The key theoretical significance of *Stonesense* is my development of the twin concepts of the lithic body and lithic feminism, developed as an extension of Astrida Neimanis' generative hydrofeminism, through reading and making, writing and thinking about bodily experiences, as an artist engaging with materials. The artworks in the early project *Unthought* led to further electroforming techniques as I shifted my material explorations to iron, continuing to draw attention to those processes that occur invisibly and always in the world, including the evaporation works which were exhibited in *breathing space / space breathing* in 2023. As evidenced in *From things flow* (2021) and my proposed examination exhibition, iron electroforming explores the transformative qualities of iron. The cast iron shapes of *Hand Held*, heavy in the hand, hope to encourage this sense of transformation and connection through haptic encounter. Image based works throughout this period have continued to act as amplifiers, as Neimanis describes,[317] extending the sensory experience of the material world; through the use of SEM imaging, other microscope imaging (as exhibited in *Fielding*, 2022), and image making techniques such as Risograph printing and cyanotype making.

317 Neimanis, *Bodies of Water*, 55





Future Lithic Pathways

The sedimentations of enquiry throughout this doctoral research will continue in my practice as I extend investigations into the intersection of the lithic human body with the lithic of the earth and the material and discursive enquiries that surface. Concrete, as a material and its components, has been emerging as generative for me. The concrete of the hydropower dam at Onekaka, created with the stone and sand of the beach below, has cemented an interest that has roots in the concrete remains of mining activity at Port Pegasus Rakiura, the ruins of mining houses and hearths in Preservation Inlet, the quarrying activity at Pohara, Mohua, and our own calcite skeletons. Modern concrete making in Aotearoa involves shipping concrete from Japan and storing the powder in enormous silos, which use jets of air to prevent the material settling into a solid mass.[318] Concrete is another not-rock, with a complex lithic story.

As well as lithic bodies, plants have been a companion species for me on this journey. Plants held my attention at Glenbrook, announcing themselves as they could. At Waiuku Forest, the simplified plant diversity of pines and marram grass held a life that seemed beyond what it should have been—a kind of potential that plants hold within themselves. Plants have complex relationships with minerals, in some cases acting as phyto-miners, taking minerals from the soil into their own bodies. Plants are the very basis of complex living systems. Rocks are sometimes part-plant, and plants trouble our concept of rocks as hard and impermeable, splitting them with their roots. New works are emerging for me as I explore the relationships between plants and the mineral.

In 2023, I became a member of the executive committee of the Association for the Study of Literature, Environment & Culture Australia & New Zealand (ASLEC ANZ), as a postgraduate representative. This role enables

318 In-person conversation with Delwyn Smedley, Key Account Manager at Holcim Concrete, March 2024.

me to participate in a professional organisation and connect with other artists and scholars in the ecological humanities. ASLEC ANZ publish the journal *Swamphen* and present a biannual conference. I will be continuing my involvement with this organisation and will participate in the *Strange Letters Rua* conference in Aotearoa (2025) and the upcoming issue of *Swamphen*, titled *Pukeko*, submitting an essay to this issue. I intend to further this research in articles or papers for *The Journal for Artistic Research* (JAR), *Feminist Formations* (John Hopkins University Press), and the APARN Symposium (2025). The JAR channel *Asia Pacific Artistic Research Network* (APARN) focusses on work in the Asia Pacific region and may be fitting for my research as a Tangata Tiriti working with earthly materials. In addition, Cecilia Åsberg runs the *Posthumanities Hub*, with opportunities for publication.

In closing, the philosophy of Rosi Braidotti has been a guiding presence throughout my PhD project. Her philosophy of the posthuman provides ample space for her politics of affirmation: focusing on what can be done to act, at whatever level, as a transformative force. It is, she says, in the space of creativity and critique that we can work to bring about alternative formations of subjectivity, other ways of being human, for anybody (Braidotti 2022).[319] The following phrase of Braidotti's acts as a clarion call for me as I move beyond this PhD process:

> Our task as feminists is to stay grounded, connected and active. Do the most affirmative thing you can do and give it the best you have—for yourself and for the love of the world. Get a Life![320]

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319 Braidotti, *Posthuman Feminism.*
320 Braidotti, *Posthuman Feminism*, 242.

Stonesense, the exhibition
26 July - 16 August, 2024

The final exhibition, *Stonesense*, was a body of work presented in Te Wai Ngutu Kākā Two, with a video projection on the AUT video screen on the outside of the School of Art and Design building, above the windows of the gallery.

The work I presented was based on two bodies of work: iron electroforming and *Hand Held*.

Hand Held
These works were presented on a steel table. The table was created from a sheet of steel (NZ Steel), with a leg device made from recycled square-profile steel tube. The table was attached directly to the wall. A large lump of very heavy iron from Glenbrook held the leg device in the correct position, echoing the large piece of slag that held the gallery door open, which in turn echoed the use of slag at the Glenbrook Steel Mill office. The surface of the steel table was waxed, protecting the steel from moisture in the air, slowing down oxidation. The surface of the steel table, although not shiny, did reflect the cast objects that sat on it. Seventeen cast objects sat on the table, and the invitation to hold the casts was explicit in the floor sheet that accompanied the exhibition. The table was positioned at the entrance to the gallery with the intention that it would provide a place for visitors to pause as they entered the gallery, perhaps engage with the cast objects, and direct their entry into the room and further works.

It was important to me that the objects in the gallery were seen as a layering, both horizontally and vertically. The height of the steel table was modeled on a workbench height rather than a domestic dining table. Three other “tables” held work, one outside the gallery door presenting the floor sheets, and two in the gallery holding electroforming vessels. The heights of the supports were all in relation to the larger table: a quarter, half, and three-quarters (although this last one ended up on its side). There were also many works on the floor, including one of the electroforming vessels.

During the exhibition set-up period, I was able to spend time in the gallery and make installation decisions in response to the space and its qualities. The gallery has large windows, and I was able to observe the way the light and sun moved through the gallery. I oriented the work in relation to these factors. Some works, the steel plates, held on an angle with pieces of slag and rough iron, were oriented to the windows, suggesting a passive energy capture. Two of the electroforming vessels were positioned so that they were caught in a beam of sunlight for a 30-minute period each afternoon.

The steel plates, angled on slag or iron, were an extension of my original concept of reflecting the shape of sand dunes and wind-swept sand of the West Coast. The steel, although purchased new, contains a percentage of recycled steel and is marked NZ STEEL—potentially part of the Glenbrook NZ Steel production line.

The exhibition included three electroforming systems, all active during the period of the exhibition. These systems included hand-blown recycled glass vessels, holding iron sulphate liquid and the anode and cathode; one losing iron and one building up. During the three-week period of the exhibition, I replaced the smaller system once, adding the new iron crystal to the frame holding others. The two larger systems ran for the entire three weeks. The anodes (the source of the iron) became very light in weight and crumbly, breaking apart when I removed them at the end of the exhibition.

The video was projected on to the large external gallery screen and was visible after dark (sunset was around 5 pm at the time). The juxtaposition of the very small (as imaged by the Scanning Electron Microscope) projected on a very large screen was a succesful exploration of macro and micro imaging.

Figure 263
Stonesense, gallery foyer, August 2024
Photograph: Emily Parr.

Figure 264.
Stonesense, floorsheet, August 2024
Photograph: Emily Parr.

Figure 265.
Stonesense, installation, August 2024
Photograph: Emily Parr.

Figure 266.
Stonesense, installation, August 2024
Photograph: Emily Parr.

Figure 267.
Hand Held, August 2024
Photograph: Emily Parr.

Figure 268.
Hand Held, table detail, August 2024
Photograph: Emily Parr.

Figure 269. (over page)
Hand Held, detail, August 2024
Photograph: Emily Parr.

Figure 270.
Hand Held, August 2024
Photograph: Emily Parr.

Figure 271.
Hand Held, August 2024
Photograph: Shelley Simpson

Figure 272.
Stonesense, installation, August 2024
Photograph: Emily Parr.

Figure 273.
Stonesense, electroforming system, August 2024
Photograph: Emily Parr.

Figure 274.
Stonesense, electroforming system, August 2024
Photograph: Emily Parr.

Figure 275.
Stonesense, slag support for steel plate, August 2024
Photograph: Emily Parr.

Figure 276.
Stonesense, electroforming vessel, August 2024
Photograph: Emily Parr.

Figure 277.
Stonesense, iron 'crystals' on steel frame, August 2024
Photograph: Emily Parr.

Figure 278.
Stonesense, electroformed iron ‘crystals,’ August 2024
Photograph: Emily Parr.

Figure 279.
Stonesense, installation, August 2024
Photograph: Emily Parr.

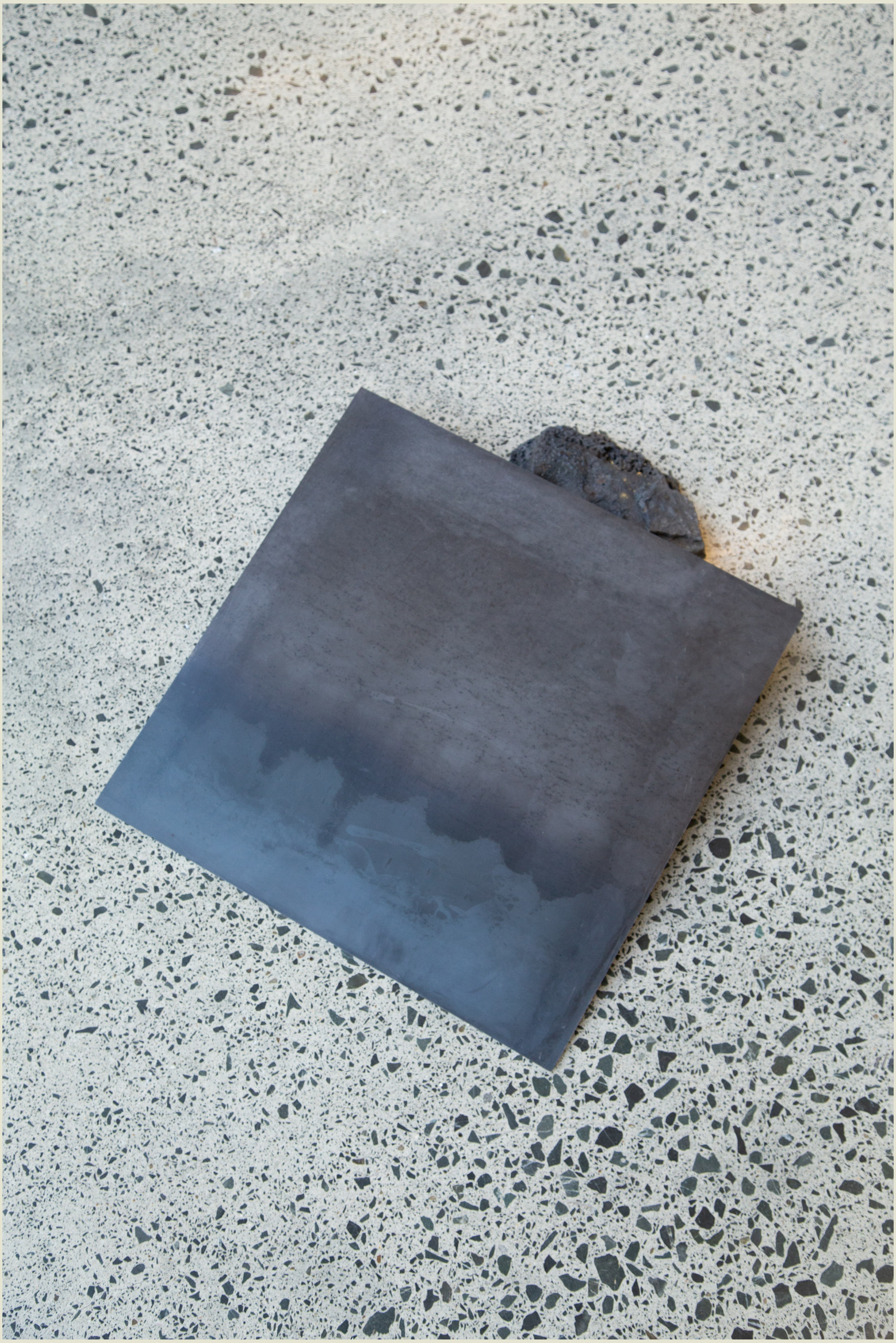


Figure 280.
Stonesense, steel plate, slag, August 2024
Photograph: Emily Parr.

Figure 281.
Stonesense, August 2024
Photograph: Emily Parr.

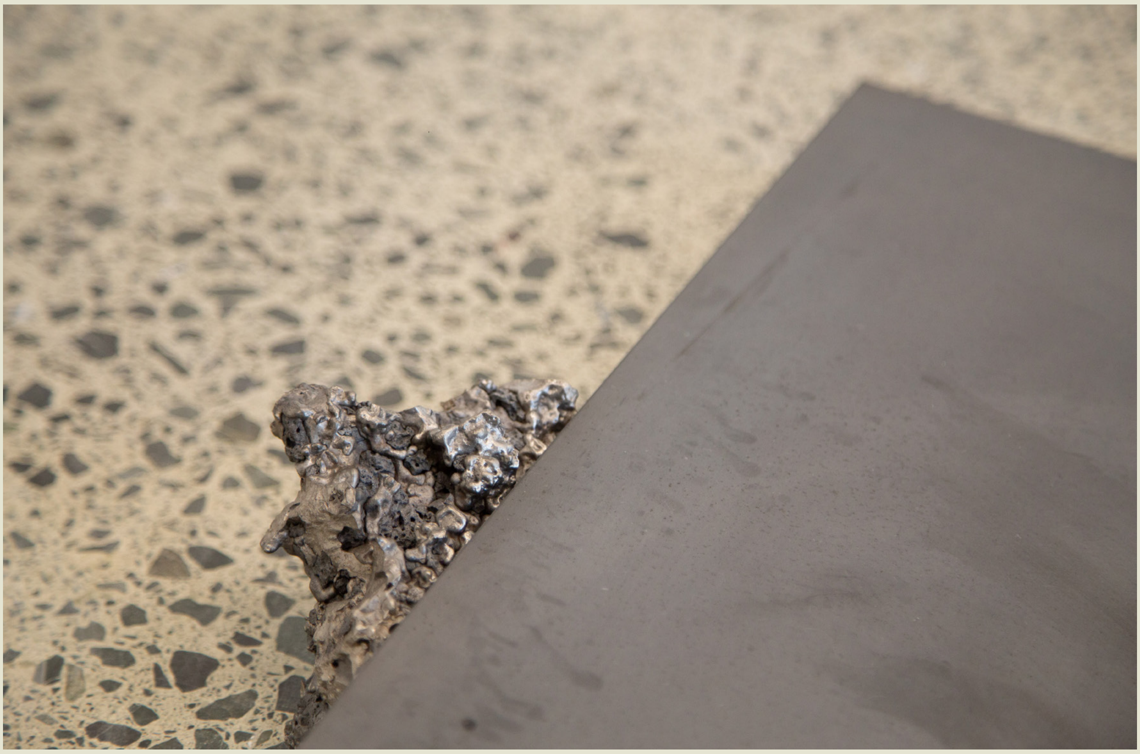


Figure 282.
Stonesense, steel plate, rough iron, August 2024
Photograph: Emily Parr.

Figure 283.
Stonesense, slag, digital print, steel plate, August 2024
Photograph: Emily Parr.

Figure 284.
Stonesense, slag and digital print, August 2024
Photograph: Emily Parr.

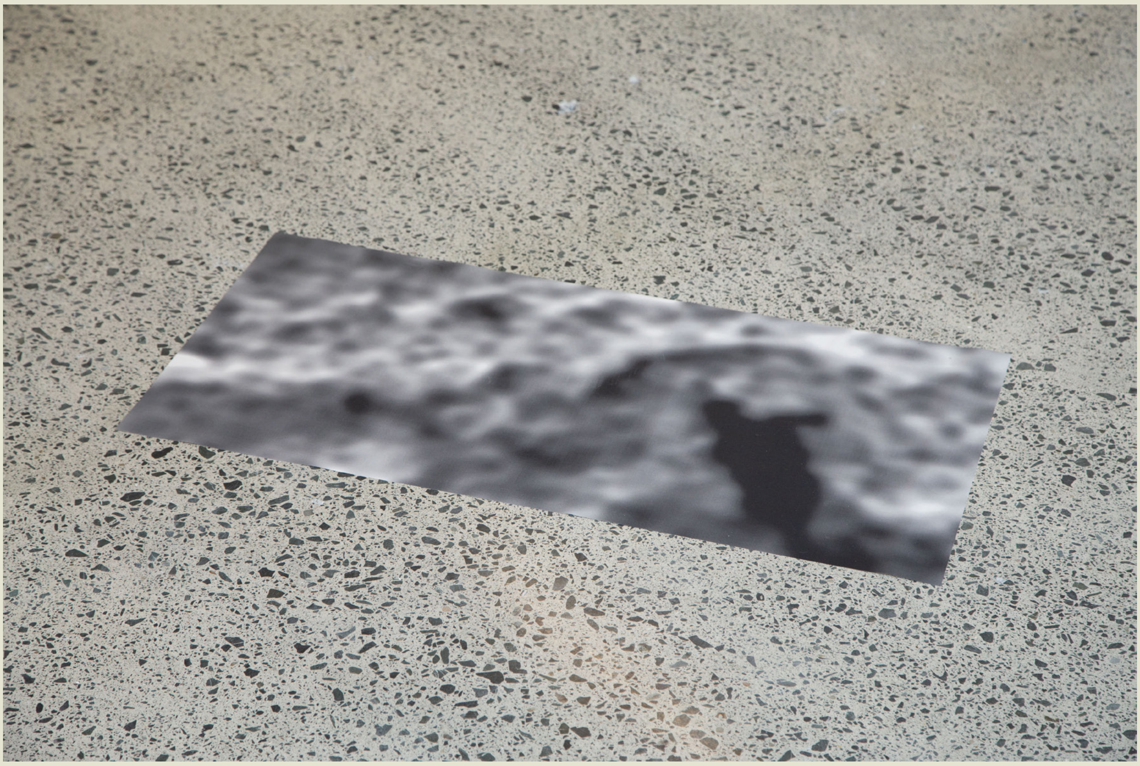


Figure 285.
Stonesense, digital print, August 2024
Photograph: Emily Parr.

Figure 286.
Stonesense, electroforming vessel detail, August 2024
Photograph: Emily Parr.

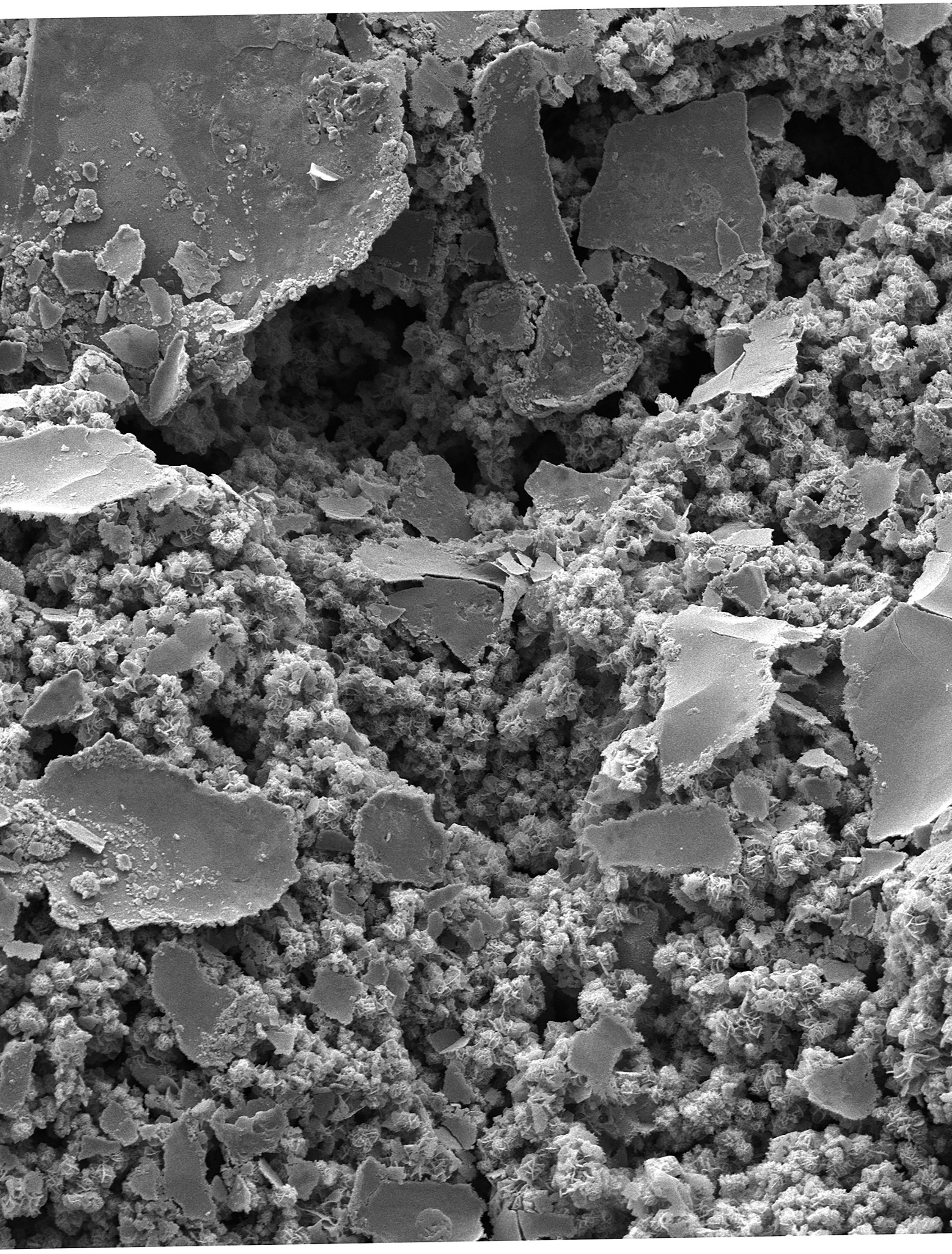
Figure 287.
Stonesense, installation, August 2024
Photograph: Shelley Simpson.

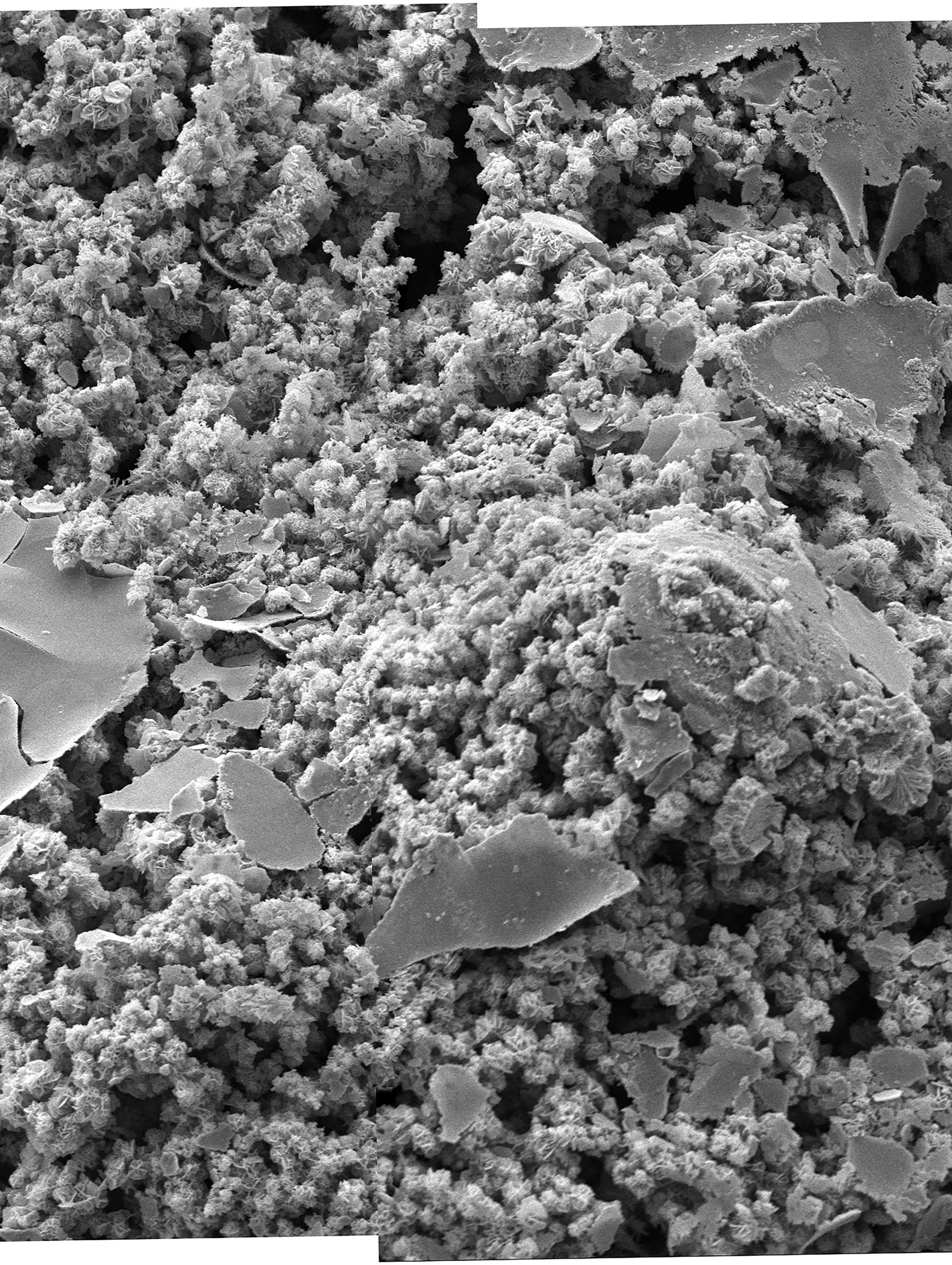
Figure 288.
Stonesense, installation, August 2024
Photograph: Shelley Simpson.

Figure 289.
Documenting *SEM- Fe* video projection.
Photograph: Shelley Simpson.

Figure 290.
SEM - Fe video installation.
Photograph: Shelley Simpson.

Figures 293 - 296.
Interactions in the gallery.
Photographs: Ena Kosovac.





Glossary

All te reo Māori definitions are reproduced from Te Aka Māori Dictionary (https://maoridictionary.co.nz/), except where otherwise indicated.

apparatus A technology, structure, or medium that enables the legibility or measurement of a property. An apparatus is not objective or neutral; it influences measurements in detectable ways and becomes part of the objects it makes legible. Changes in apparatuses can alter history across spacetime (quantum erasure). Apparatuses include not only mechanical parts but also systems of thinking, objects, spatio-temporal properties, humans, and more-than-human entities, and are highly localised phenomena.

atua (te reo Māori) Ancestor with continuing influence, god, demon, supernatural being, deity, ghost, object of superstitious regard, strange being—although often translated as 'god' and now also used for the Christian God, this is a misconception of the real meaning. Many Māori trace their ancestry from atua in their whakapapa and they are regarded as ancestors with influence over particular domains. These atua also were a way of rationalising and perceiving the world. Normally invisible, atua may have visible representations.

iwi (te reo Māori) Extended kinship group, tribe, nation, people, nationality, race—often refers to a large group of people descended from a common ancestor and associated with a distinct territory.

kaitiaki (te reo Māori) Trustee, minder, guard, custodian, guardian, caregiver, keeper, steward.

kaitiakitanga (te reo Māori) Guardianship, stewardship, trusteeship, trustee.

kaupapa Māori (te reo Māori) Māori approach, Māori topic, Māori customary practice, Māori institution, Māori agenda, Māori principles, Māori ideology—a philosophical doctrine, incorporating the knowledge, skills, attitudes and values of Māori society.

mana (te reo Māori) Prestige, authority, control, power, influence, status, spiritual power, charisma—mana is a supernatural force in a person, place or object. Almost every activity has a link with the maintenance and enhancement of mana and tapu. Animate and inanimate objects can also have mana as they also derive from the atua and because of their own association with people imbued with mana or because they are used in significant events. There is also an element of stewardship, or kaitiakitanga, associated with the term when it is used in relation to resources, including land and water.

mātauranga Māori (te reo Māori) Māori knowledge—the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices.

mauri (te reo Māori) Life principle, life force, vital essence, special nature, a material symbol of a life principle, source of emotions—the essential quality and vitality of a being or entity. Also used for a physical object, individual, ecosystem or social group in which this essence is located.

Pakehā (te reo Māori) New Zealander of European descent—probably originally applied to English-speaking Europeans living in Aotearoa/New Zealand. According to Mohi Tūrei, an acknowledged expert in Ngāti Porou tribal lore, the term is a shortened form of pakepakehā, which was a Māori rendition of a word or words remembered from a chant used in a very early visit by foreign sailors for raising their anchor. Others claim that pakepakehā was another name for tūrehu or patupairehe. Despite the claims of some non-Māori speakers, the term does not normally have negative connotations.

pepeha (te reo Māori) Tribal saying, tribal motto, proverb (especially about a tribe), set form of words, formulaic expression, saying of the ancestors, figure of speech, motto, slogan—set sayings known for their economy of words and metaphor and encapsulating many Māori values and human characteristics.

petric From the Greek, petra, a rock, or petros, a stone, of stone or rock. Petric is used in contemporary writing to indicate that which is related to stone or rock.

posthumanism A series of critiques of humanism aimed at a more inclusive understanding of becoming-human. Defined by Rosi Braidotti, posthumanism intersects two discourses: critiquing the universalist, patriarchal, colonial, and Eurocentric standards of humanism, and challenging anthropocentrism, the belief in human exceptionalism. It addresses the historical convergence of the 4th industrial revolution and the 6th mass extinction. The 'post' in posthumanism seeks to transcend Western humanities' restricted definitions of being human.

rohe (te reo Māori) Boundary, district, region, territory, area, border (of land).

Tangata Tiriti (te reo Māori) Often defined as people of the Treaty, active Treaty partners, as opposed to the more passive descriptor Pākehā.

tangata whenua (te reo Māori) Local people, hosts, indigenous people—people born of the whenua, i.e. of the placenta and of the land where the people's ancestors have lived and where their placenta are buried.

taonga (te reo Māori) Treasure, anything prized—applied to anything considered to be of value including socially or culturally valuable objects, resources, phenomenon, ideas and techniques.

tapu (te reo Māori) Be sacred, prohibited, restricted, set apart, forbidden, under atua protection.

tikanga (te reo Māori) Correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention, protocol—the customary system of values and practices that have developed over time and are deeply embedded in the social context.

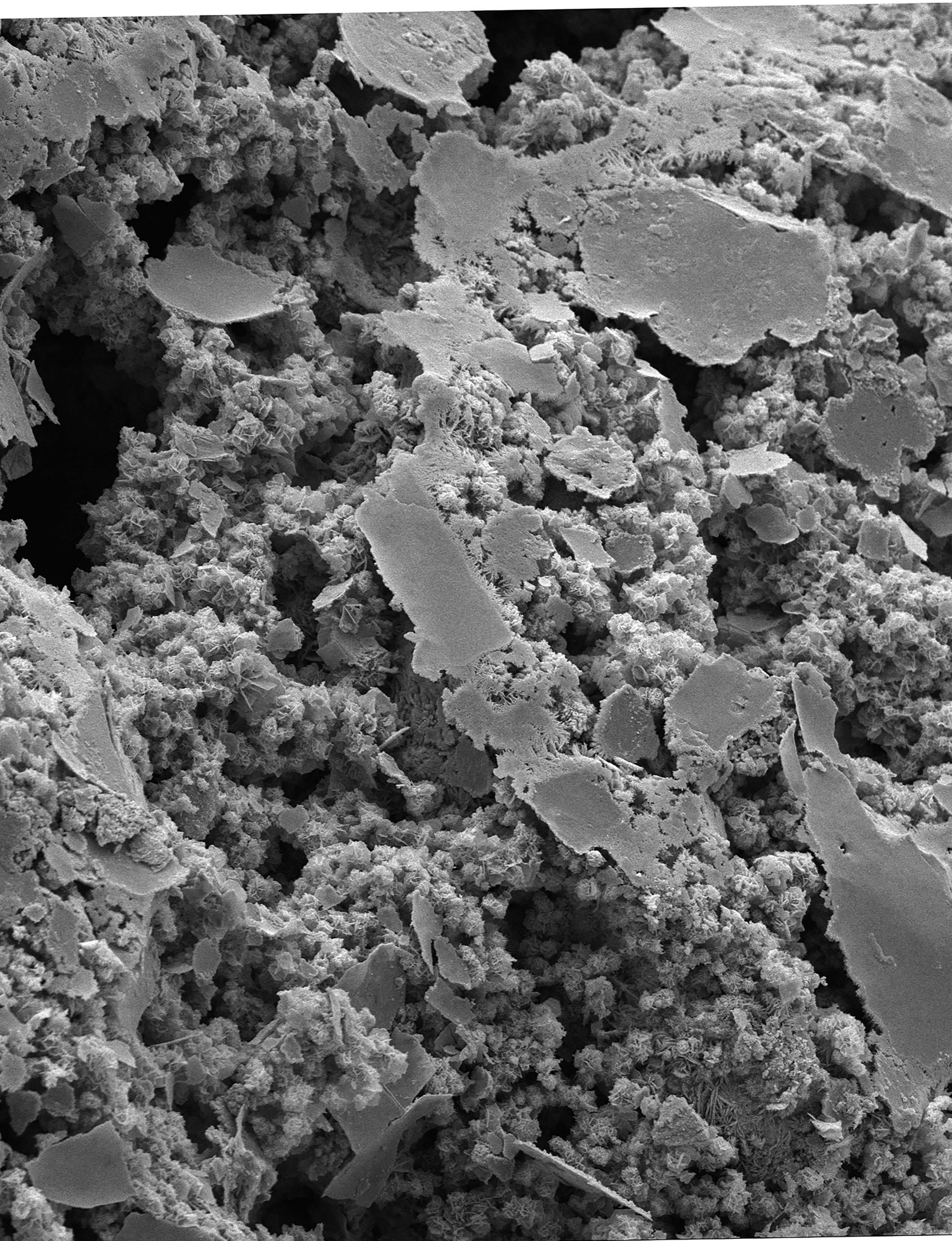
tīpuna (te reo Māori) Ancestors, grandparents—plural form of tipuna and the eastern dialect variation of tūpuna.

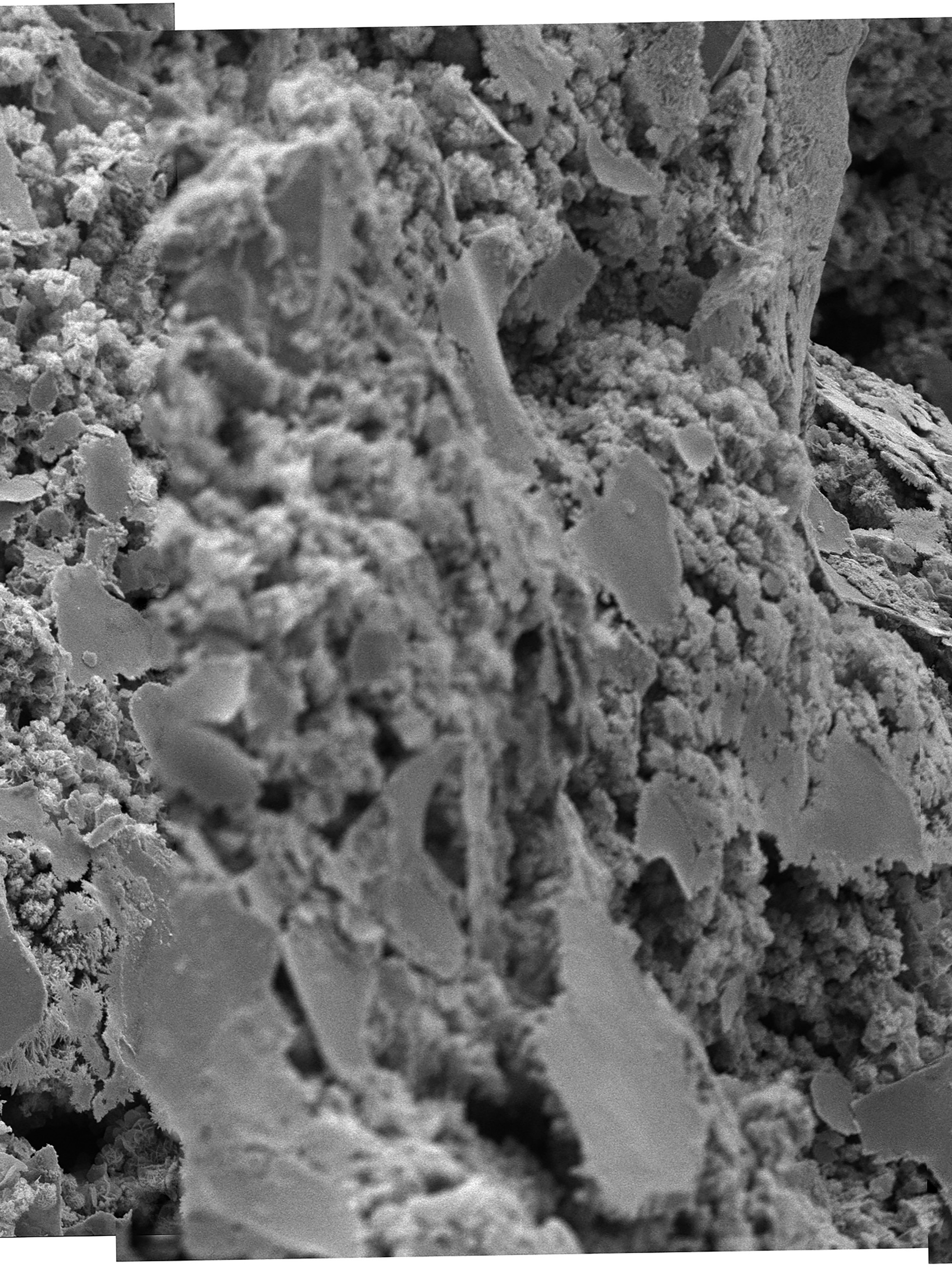
Te Tiriti o Waitangi (te reo Māori) (known in English as the Treaty of Waitangi) An agreement made in 1840 between representatives of the British Crown and (ultimately) more than 500 rangatira Māori. It resulted in the declaration of British sovereignty over New Zealand by Lieutenant-Governor William Hobson in May 1840. Most Māori signed the te reo (Māori language) tiriti. The English treaty and the te reo tiriti held different meanings. Māori and Pākehā therefore had different expectations of the Treaty's terms. Ever since, resolution of these differences has presented New Zealand with challenges.

wairua (te reo Māori) Spirit, soul—spirit of a person which exists beyond death. It is the non-physical spirit, distinct from the body and the mauri. To some, the wairua resides in the heart or mind of someone while others believe it is part of the whole person and is not located at any particular part of the body. The wairua begins its existence when the eyes form in the foetus and is immortal.

whakapapa (te reo Māori) To place in layers, lay one upon another, stack flat. Genealogy, genealogical table, lineage, descent—reciting whakapapa was, and is, an important skill and reflected the importance of genealogies in Māori society in terms of leadership, land and fishing rights, kinship and status. It is central to all Māori institutions. There are different terms for the types of whakapapa and the different ways of reciting them including: tāhū (recite a direct line of ancestry through only the senior line); whakamoe (recite a genealogy including males and their spouses); taotahi (recite genealogy in a single line of descent); hikohiko (recite genealogy in a selective way by not following a single line of descent); ure tārewa (male line of descent through the first-born male in each generation).

worlding An active, ontological process involving deliberate attention and engagement with experiences, places, and encounters. It goes beyond mere existence or passive interaction with environments, involving a conscious, embodied practice of being in the world. Worlding includes the act of ‘wording’ the world, emphasising the importance of how we describe and interpret our surroundings to shape our reality. It is a holistic, whole-person approach of attending to and interacting with the material and contextual aspects of events and interactions.





Bibliography

Abram, David. *Becoming Animal, An Earthly Cosmology*. New York: Pantheon, 2010.

Alaimo, Stacy. *Exposed: Environmental Politics and Pleasures in Posthuman Times*. Minnesota: University of Minnesota Press, 2016.

———. "Material Feminisms," In *Posthuman Glossary*, edited by Rosi Braidotti and Maria Hlavajova, 242–244. London: Bloomsbury Academic, 2018.

———. "New Materialisms." In *After the Human Culture, Theory and Criticism in the 21st Century*, edited by Sherryl Vint, 177–191. Cambridge: Cambridge University Press, 2020.

———. "Thinking as the Stuff of the World." *O-Zone: A Journal of Object-Oriented Studies* 1 (2014): 13-21.

———. "Trans-Corporeal Feminisms and the Ethical Space of Nature." In *Material Feminisms*, edited by Stacy Alaimo and Susan Hekman, 237–64. Bloomington: Indiana University Press, 2008.

———. "Trans-Corporeality." In *Posthuman Glossary*, edited by Rosi Braidotti and Maria Hlavajova, 435–38. London: Bloomsbury Academic, 2018.

———. "Wanting All the Species to Be: Extinction, Environmental Visions, and Intimate Aesthetics." In *Australian Feminist Studies* 34, no. 102 (2019): 398–412. https://doi.org/10.1080/08164649.2019.1698284.

Alaimo, Stacy, and Susan Hekman. "Introduction: Emerging Models of Materiality in Feminist Theory." In *Material Feminisms*, edited by Stacy Alaimo and Susan Hekman, 1-19. Bloomington: Indiana University Press, 2008.

Alaimo, Stacy, and Susan Hekman, eds. *Material Feminisms*. Bloomington: Indiana University Press, 2008.

Anthony, Franz. "Ostracoderms, Armored Fishes without Jaws." Earth Archives. Accessed August 21, 2023. https://eartharchives.org/articles/ostracoderms-armored-fishes-without-jaws/.

Are, Kay. "Touching Stories: Objects, Writing, Diffraction and the Ethical Hazard of Self-Reflexivity." *Text* 22, no. S51 (2018): 1–12, https://doi.org/10.52086/001c.25588.

Åsberg, Cecilia. "Ecologies and Technologies of Feminist Posthumanities." *Women's Studies* 50, no. 8 (November 17, 2021). https://doi.org/10.1080/00497878.2021.1981328.

Åsberg, Cecilia, and Rosi Braidotti. "Feminist Posthumanities: An Introduction." In *A Feminist Companion to the Posthumanities*, edited by Cecilia Åsberg and Rosi Braidotti, 1-22. Cham: Springer International Publishing, 2018. https://doi.org/10.1007/978-3-319-62140-1_1.

Aura. "Ursula K. Le Guin, Keynote 5/8/14." Accessed June 13, 2022. Video. https://vimeo.com/97364872.

Ballance, P. F. *New Zealand Geology: An Illustrated Guide*. Rev. ed. Lower Hutt: Geoscience Society of New Zealand, 2017.

Barad, Karen. "Diffracting Diffraction: Cutting Together-Apart." *Parallax* 20, no. 3 (2014): 168–87. https://doi.org/10.1080/13534645.2014.927623.

———. "Matter Feels, Converses, Suffers, Desires, Yearns and Remembers: Interview with Karen Barad." In *New Materialism: Interviews & Cartographies*, edited by Rick Dolphijn and Iris van der Tuin, 48–70. Michigan: Open Humanities Press, 2012.

———. *Meeting the Universe Halfway; Quantum Physics and the Entanglement of Matter and Meaning*. Durham: Duke University Press, 2007.

———. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." In *A Feminist Companion to the Posthumanities*, edited by Cecilia Åsberg and Rosi Braidotti, 223–39. Cham: Springer International Publishing, 2018. https://doi.org/10.1007/978-3-319-62140-1_19.

Barikin, Amelia. "Sound Fossils and Speaking Stones: Towards a Mineral Ontology of Contemporary Art." In *Animism in Art and Performance*, edited by Christopher Braddock, 253–275. Cham: Palgrave Macmillan, 2017.

Barikin, Amelia and Helen Hughes, ed. *Making Worlds: Art and Science Fiction*. Melbourne: Surpllus, 2013.

Barnett, Cassandra. "Te Tuna-Whiri: The Knot of Eels." In *Animism in Art and Performance,* edited by Christopher Braddock, 23–44. Cham: Palgrave Macmillan, 2017

Barton, Christina. *Ground/Work: The Art of Pauline Rhodes*. Wellington: Adam Art Gallery; Victoria University Press, 2002.

Bennett, Jane. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press, 2010.

Berger, John. *About Looking*. London: Bloomsbury, 1980.

Best, Elsdon. *Maori Religion and Mythology Part 1*. Wellington: Te Papa Press, 2005.

Bird, Terri. "More than Material: Art and the Incorporeality of the Event." *Studies in Material Thinking* 16 (2017).

Bird, Terri, Bianca Hester, and Scott Mitchell. *Open Spatial Workshop: Converging in Time*. Melbourne: Monash University Museum of Art, 2017

Bois, Yve-Alain and Rosalind E. Krauss. *Formless A User's Guide*. New York: Zone Books, 1997.

Bolt, Barbara. *Heidegger Reframed: Interpreting Key Thinkers for the Arts.* London: I. B. Tauris, 2010.

Bozalek, Vivienne, and Michalinos Zembylas. "Diffraction or Reflection? Sketching the Contours of Two Methodologies in Educational Research." *International Journal of Qualitative Studies in Education* 30, no. 2 (2017): 111–127. https://doi.org/10.1080/09518398.2016.1201166.\\uc0\\u8221{} {\\i{}International Journal of Qualitative Studies in Education} 30, no. 2 (February 7, 2017

Braddock, Christopher, ed. *Animism in Art and Performance.* Cham: Palgrave Macmillan, 2017.

Braidotti, Rosi. "Affirming the Affirmative: On Nomadic Affectivity," *Rhizomes: Cultural Studies in Emerging Knowledge* 11-12 (2006).

———. "In Spite of the Times: The Postsecular Turn in Feminism." *Theory, Culture & Society* 25, no. 6 (2008): 1–24. https://doi.org/10.1177/0263276408095542.

———. *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory.* 2nd ed. New York: Columbia University Press, 2011.

———. *Nomadic Theory, The Portable Rosi Braidotti.* New York: Colombia University Press, 2011.

———. *The Posthuman.* Cambridge: Polity Press, 2013.

———. "Posthuman Convergences: Theories and Methodologies." Lecture, Summerschool Utrecht, Utrecht University, August 13, 2020.

———. "Posthuman Ethics in the Anthropocene." Lecture, Summerschool Utrecht, Utrecht University, 2017.

———. *Posthuman Feminism*. Cambridge: Polity Press, 2022.

———. *Posthuman Knowledge.* Cambridge: Polity Press, 2019.

———. *Transpositions: On Nomadic Ethics.* Cambridge: Polity Press, 2012.

———. "'We' Are in This Together, But We Are Not One and the Same." *Journal of Bioethical Inquiry* 17, no. 4 (December 2020): 465–69. https://doi.org/10.1007/s11673-020-10017-8.

Braidotti, Rosi, and Simone Bignall, eds. *Posthuman Ecologies: Complexity and Process after Deleuze.* Washington, DC: Rowman & Littlefield, 2018.

Braidotti, Rosi, and Maria Hlavajova, eds. *Posthuman Glossary.* London: Bloomsbury Academic, 2018.

Braidotti, Rosi, Emily Jones, and Goda Klumbyte, eds. *More Posthuman Glossary*. London: Bloomsbury, 2022. ProQuest Ebook Central.

Calvino, Italo. *Cosmicomics.* Translated by William Weaver. New York: Harcourt Brace,

1968. Originally published in Italian, Turin: Giulio Einaudi, 1965.

Canell, Nina. "Geobiology." Interview by Sophia Roosth. *ARTnews* (blog), November 18, 2022. https://www.artnews.com/art-in-america/interviews/geobiology-1234647255/.

Canell, Nina. "In a Failed System New Systems Have Space to Grow." Interview by Paul O'Neill. *Bomb Magazine*, August 1, 2016. https://bombmagazine.org/articles/2016/08/01/nina-canell/.

Chakrabarty, Dipesh. "Humanities in the Anthropocene: The Crisis of an Enduring Kantian Fable." New Literary History 47, no. 2–3 (2016) https://doi.org/10.1353/nlh.2016.0019.

Chen, Chong, Katrin Linse, Jonathan T. Copley, and Alex D. Rogers. "The 'Scaly-Foot Gastropod': A New Genus and Species of Hydrothermal Vent-Endemic Gastropod (Neomphalina: Peltospiridae) from the Indian Ocean." *Journal of Molluscan Studies* 81, no. 3 (2015): 322–34. https://doi.org/10.1093/mollus/eyv013.

Clark, Nigel, and Kathryn Yusoff. "Combustion and Society: A Fire-Centred History of Energy Use." *Theory, Culture & Society* 31, no. 5 (2014): 203–26. https://doi.org/10.1177/0263276414536929.

———. "Geosocial Formations and the Anthropocene." *Theory, Culture & Society* 34, no. 2–3 (May 2017): 3–23. https://doi.org/10.1177/0263276416688946.

Cohen, Jeffrey Jerome. "Feeling Stone." *SubStance* 47, no. 2 (2018): 23–35. https://doi.org/10.1353/sub.2018.0016.

———. "Geophilia, or the Love of Stone." *Continent* 4, no. 2 (2015): 8-18.

———. *Stone: An Ecology of the Inhuman.* Minnesota: University of Minnesota Press, 2015.

Cohen, Jeffrey Jerome, ed. *Animal, Vegetable, Mineral Ethics and Objects,* Washington, DC: Oliphaunt Books, 2012.

Cohen, Jeffrey Jerome, and Lowell Duckert. "Howl." *Postmedieval: A Journal of Medieval Cultural Studies* 4, no. 1 (March 2013): 1–5. https://doi.org/10.1057/pmed.2012.47.

Cohen, Jeffrey Jerome, and Lowell Duckert, eds. *Elemental Ecocriticism: Thinking with Earth, Air, Water and Fire.* Minneapolis: University of Minnesota Press, 2015.

Colebrook, Claire. "Earth Felt the Wound: The Affective Divide." *Identities: Journal for Politics, Gender and Culture* 8, no. 1 (2011) https://doi.org/10.51151/identities.v8i1.251.

Consolazio, C. Frank, LeRoy O. Matoush, Richard A. Nelson, Richard S. Harding, and John E. Canham. "Excretion of Sodium, Potassium, Magnesium and Iron in Human Sweat and the Relation of Each to Balance and Requirements." *The Journal of Nutrition* 79, no. 4 (1963): 407–15.\\uc0\\u8221{} {\\i{}The Journal of Nutrition} 79, no. 4 (1963

Cunnane, Abby. "These Things Are Agents of the World and They Announce Themselves: The Sculptural Object in Artworks by Maddie Leach and Bianca Hester." MPhil diss., Auckland University of Technology, 2018. https://hdl.handle.net/10292/11888.

Cunnane, Abby, and Charlotte Huddleston, eds. *Pauline Rhodes: Dark Watch.* Auckland: St Paul St Publishing; The Physics Room, 2016.

de la Bellacasa, Maria Puig. *Matters of Care.* Minneapolis: University of Minnesota Press, 2017.

DeLanda, Manuel. *A Thousand Years of Nonlinear History.* New York: Zone Books, 1997.

Deleuze, Gilles. *Pure Immanence: Essays on a Life.* New York: Zone Books, 2001.

———. *Spinoza: Practical Philosophy.* San Francisco: City Lights Books, 1988.

Deleuze, Gilles, and Felix Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia.* Minneapolis: University of Minnesota, 1987.

Dewes, Te Kuru o te Marama. "What Does It Mean to Be Tangata Tiriti?" *The Spinoff*, February 6, 2022. https://thespinoff.co.nz/atea/06-02-2022/what-does-it-mean-to-be-tangata-tiriti.

Dolphijn, Rick, and Iris van der Tuin, eds. *New Materialism: Interviews & Cartographies.* Michigan: Open Humanities Press, 2012.

"Drowning Fatality." *Nelson Evening Mail*, January 26, 1910. https://paperspast.natlib.govt.nz/newspapers/NEM19100126.2.16

Forsyth, Huhana. "An Identity as Pākehā." *AlterNative* 14, no. 1 (2018): 73–80. https://doi.org/10.1177/1177180117752479.

Gabrys, Jennifer. "Sensing Lichens: From Ecological Microcosms to Environmental Subjects." *Third Text* 32, no. 2–3 (2018): 350–67. https://doi.org/10.1080/09528822.2018.1483884.

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

———. *The Nick of Time: Politics, Evolution and the Untimely.* London: Allen & Unwin, 2004.

Grosz, Elizabeth, Kathryn Yusoff, and Nigel Clark. "An Interview with Elizabeth Grosz: Geopower, Inhumanism and the Biopolitical." *Theory, Culture & Society* 34, no. 2–3 (2017): 129–46. https://doi.org/10.1177/0263276417689899.

Grusin, Richard. *Anthropocene Feminism.* Minneapolis: University of Minnesota Press, 2017.

Haraway, Donna J. "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin." *Environmental Humanities* 6 (2015): 159–65.

———. *Staying with the Trouble: Making Kin in the Chthulucene.* Durham NC: Duke University Press, 2016.

———. *Manifestly Haraway.* Minneapolis: University of Minnesota Press, 2016.

———. *Modest_Witness@Second_Millennium. FemaleMan_Meets_OncoMouse: Feminism and Technoscience.* 2nd ed. New York: Routledge, 2018. https://doi.org/10.4324/9780203731093.

———. *When Species Meet.* Minneapolis: University of Minnesota Press, 2008.

Hayles, N. Katherine. *Unthought: The Power of the Cognitive Nonconscious.* Chicago: University of Chicago Press, 2017.

He Kapunga Oneone. "Earth Pigment Practices in Aotearoa: Advice for Non-Māori." Accessed December 18, 2023. https://www.kauaeraro.com/akoranga-1/advice-for-nonmaori.

———. "Kauae Raro Research Collective." Accessed December 18, 2023. https://www.kauaeraro.com/about.

Henare, Manuka. "Tapu, Mana, Mauri, Hau, Wairua: A Maori Philosophy of Vitalism and Cosmos." In *Indigenous Traditions and Ecology: The Interbeing of Cosmology and Community*, edited by John Grim, 197–221. Cambridge, MA: Harvard Press, 2001.

Hird, Myra J. "On Preparations: Engaging with Inhuman Materialities." In *A Feminist Companion to the Posthumanities*, edited by Cecilia Åsberg and Rosi Braidotti, 141–52. Cham: Springer International Publishing, 2018. https://doi.org/10.1007/978-3-319-62140-1_12.

Hoskins, Te Kawehau, and Barbara Jones. "Non-Human Others and Kaupapa Maori Research." In *Critical Conversations in Kaupapa Maori*, Wellington: Huia Press, 2017.

Ingold, Tim. *Making, Anthropology, Archaeology, Art and Architecture.* London: Routledge, 2013.

Iovino, Serenella. "Hybriditales Posthumanizing Calvino." In *Thinking Italian Animals: Human and Posthuman in Modern Italian Literature and Film.* London: Palgrave Macmillan, 2014.

———. "(Material) Ecocritism." In *Posthuman Glossary*, edited by Rosi Braidotti and Maria Hlavajova, 112–115. London: Bloomsbury Academic, 2018.

———. "Material Ecocriticism: Matter, Text, and Posthuman Ethics." In *Literature, Ecology, Ethics: Recent Trends in Ecocriticism*, edited by Timo Müller and Michael Sauter, 51–68. Heidelberg: Universitätsverlag Winter, 2012.

Iovino, Serenella, and Serpil Oppermann. "Material Ecocriticism: Materiality, Agency, and Models of Narrativity." *Ecozon@: European Journal of Literature, Culture and Environment* 3, no. 1 (2012). https://doi.org/10.37536/ECOZONA.2012.3.1.452.

———. "Theorizing Material Ecocriticism: A Diptych." *Interdisciplinary Studies in Literature and Environment* 19, no. 3 (2012): 448–75. https://doi.org/10.1093/isle/iss087.

Iovino, Serenella, and Serpil Oppermann, eds. *Material Ecocriticism.* Bloomington: Indiana

University Press, 2014.

Irigaray, Luce, and Marder Michael. *Through Vegetal Being: Two Philosophical Perspectives.* New York: Columbia University Press, 2016.

Johnson, Chris, Matthew D. Affolter, Paul Inkenbrandt, and Cam Mosher. *An Introduction to Geology*. Salt Lake City: Salt Lake Community College: 2017. https://opengeology.org/textbook/.

Johnston, Mike. High Hopes: The History of the Nelson Mineral Belt and New Zealand's First Railway. Nelson: Nikau Press, 1987.

Jonsson, Cecilia. "Haem." Accessed November 24, 2023. https://www.ceciliajonsson.com/4-haem.

Joy, Eileen A. "You Are Here: A Manifesto." In *Animal, Vegetable, Mineral: Ethics and Objects.* Washington, DC: Oliphaunt Books, 2012.

Judith, Kate. "How Mangroves Story: On Being a Filter Feeder." *Swamphen: A Journal of Cultural Ecology* 7 (2020). https://openjournals.library.sydney.edu.au/Swamphen/issue/view/1006.

Juelskjær, Malou, and Nete Schwennesen. "Intra-Active Entanglements—An Interview with Karen Barad." *Kvinder, Køn & Forskning,* no. 1–2 (March 2012). https://doi.org/10.7146/kkf.v0i1-2.28068.

Kahn, Douglas, ed. *Energies in the Arts.* Cambridge MA: Massachusetts Institute of Technology, 2019.

Keenan, Danny, ed. *Huia Histories of Māori Ngā Tāhuhu Kōrero.* Wellington: Huia Publishers, 2012.

King, Michael. *The Penguin History of New Zealand.* Auckland: Penguin Books, 2003.

Kirby, Vicki. *What If Culture Was Nature All Along?* Edinburgh: Edinburgh University Press, 2017.

Klein, Julian. "What Is Artistic Research?" *JAR Journal for Artistic Research,* Reflection (April 23, 2017), https://jar-online.net/en/what-artistic-research. Originally published in German, *Gegenworte Berlin-Brandenburg Academy of Sciences and Humanities* 23 (2010).

Krauss, Rosalind. "Sculpture in the Expanded Field." *October* 8 (Spring 1979), 30–44.

Kwon, Miwon. *One Place After Another: Site Specific Art and Locational Identity.* Cambridge, MA: MIT Press, 2002.

Larsen, Michael. *True Grit: The Survival and Success of New Zealand Steel.* Auckland: Random House New Zealand, 2015.

Laster, Paul. "Anicka Yi, a Political Interview." Conceptual Fine Arts. Last modified December 3, 2019. https://www.conceptualfinearts.com/cfa/2017/05/09/anicka-yi-and-her-political-statement-to-counter-the-ocular-centric-society-we-live-in-an-interview/.

Latour, Bruno. "Why Has Critique Run out of Steam? From Matters of Fact to Matters of Con cern." *Critical Inquiry* 30, no. 2 (2004): 225–48. https://doi.org/10.1086/421123.

Leadership New Zealand. "Dame Anne Salmond: The Reeves Lecture 2012." Accessed May 14, 2024. https://vimeo.com/49300122

Le Guin, Ursula K. "The Author of the Acacia Seeds, and Other Extracts from the Journal of the Association of Therolinguistics." In *The Compass Rose*. London: Gateway, 2015. Kindle.

———. *Hard Words and Other Poems*. New York: Harper and Row, 1981.

Macfarlane, Robert. *Underland: A Deep Time Journey*. London: Penguin, 2020.

Mackintosh, Lucy. *Shifting Grounds: Deep Histories of Tāmaki Makarau Auckland*. Wellington: Bridget Williams Books, 2021.

Mikaere, Ani. "Are We All New Zealanders Now? A Mäori Response to the Päkehä Quest for Indigeneity." In *Colonising Myths - Maori Realities : He Rukuruku Whakaaro*. London: Huia Publishers, 2013.

Manning, Erin. *The Minor Gesture (Thought in the Act)*. Durham: Duke University Press, 2016.

Marder, Michael. "The Life of Plants and the Limits of Empathy." *Dialogue: Canadian Philosophical Review/Revue Canadienne de Philosophie* 51, no. 2 (2012): 259–73.

———. *Plant-Thinking A Philosophy of Vegetal Life*. New York: Columbia University Press, 2013.

Margulis, Lynn, and Dorion Sagan. *What Is Life?* Oakland: University of California Press, 2001

"Married." *Nelson Evening Mail*, April 30, 1866. https://paperspast.natlib.govt.nz/newspapers/NEM18660430.2.4

Marsden, Māori. *The Woven Universe: Selected Writings of Rev. Māori Marsden*, edited by Te Ahukaramū Charles Royal. Ōtaki: Estate of Rev. Māori Marsden, 2003.Massumi, Brian. *Parables for the Virtual: Movement, Affect, Sensation*. Post-Contemporary Interventions. Durham: Duke University Press, 2002.

Massumi, Brian. *Parables for the Virtual: Movement, Affect, Sensation*. Post-Contemporary Interventions. Durham, NC: Duke University Press, 2002.

———. "The Thinking-Feeling of What Happens." *Inflexions* 1, no. 1 (May 2008). https://inflexions.org/n1_The-Thinking-Feeling-of-What-Happens-by-Brian-Massumi.pdf

———. *Semblance and Event: Activist Philosophy and the Occurrent Arts*. Cambridge, MA: MIT Press, 2013.

McHugh, Susan, and Giovanni Aloi, eds., *Posthumanism in Art and Science: A Reader*. New York: Columbia University Press, 2020.

Meeker, Natania, and Antónia Szabari. *Radical Botany: Plants and Speculative Fiction.* New York: Fordham University Press, 2019.

Mika, Carl Te Hira. “The Thing’s Revelation: Some Thoughts on Māori Philosophical Research.” In *Kaupapa Rangahau: A Reader; A Collection of Readings from the Kaupapa Māori Research Workshop Series,* edited by Leonie Pihama, Kim Southey, and Sarah-Jane Tiakiwai, 2nd ed., 55–62. Hamilton: The University of Waikato, 2015.

———. “Western Fragility: A Maori Philosophical Diagnosis,” *Social Alternatives* 38, no. 4 (2019).

Moore, Phil, and Bruce McFadgen. “Whakapapa of Rocks and Stones: Kōhatu; Māori use of stone; Stone tools.” In Te Ara—The Encyclopedia of New Zealand, June 12, 2006. http://www.TeAra.govt.nz/en/document/8877/whakapapa-of-rocks-and-stones.

Morton, Timothy. *Dark Ecology.* New York: Colombia University Press, 2016.

The Museum of Modern Art. “Gabriel Orozco. *My Hands Are My Heart.* 1991.” Accessed October 30, 2023. Audio recording. https://www.moma.org/audio/playlist/240/3084.

Nagel, Thomas. “What Is It Like to Be a Bat?” Philosophical Review 83 (1974): 435–50.

Nail, Thomas. “What’s the Matter with Life?” In *Life in the Posthuman Condition*, edited by S. E. Wilmer, 241–60. Edinburgh: Edinburgh University Press, 2023. https://doi.org/10.1515/9781399505291-016.

Neimanis, Astrida. “Bodies of Water, Human Rights and the Hydrocommons.” *TOPIA: Canadian Journal of Cultural Studies* 21 (May 2009): 161–82. https://doi.org/10.3138/topia.21.161.

———. *Bodies of Water: Posthuman Feminist Phenomenology.* London: Bloomsbury, 2017.

———. “Feminist Subjectivity, Watered.” *Feminist Review,* no. 103 (2013): 23–41.

———. “Hydrofeminism.” In *Posthuman Glossary,* edited by Rosi Braidotti and Maria Hlavajova, 64–66. London: Bloomsbury Academic, 2018.

———. “Hydrofeminism: Or, On Becoming a Body of Water.” In *Undutiful Daughters: New Directions in Feminist Thought and Practice*, edited by Henriette Gunkel, Chrysanthi Nigianni, and Fanny Söderbäck. New York: Palgrave Macmillan, 2012.

———. “No Representation without Colonisation? (Or, Nature Represents Itself).” *Somatechnics* 5, no. 2 (2015): 135–53.

Neimanis, Astrida, Cecelia Åsberg, and Johan Hedrén. “Four Problems, Four Directions for Environmental Humanities: Toward Critical Posthumanities for the Anthropocene.” *Ethics and the Environment* 20, no. 1 (2015): 67. https://doi.org/10.2979/ethicsenviro.20.1.67.

Ngata, Tina. “What’s Required from Tangata Tiriti.” *Tina Ngata* (blog), December 20, 2020.

https://tinangata.com/2020/12/20/whats-required-from-tangata-tiriti/.

Ngati Te Ata Waiohua, *Cultural Assessment Report: Prepared for PW, SM & GM Askew Partnership; Proposed Plan Change from Rural Zoned Land to Residential Land.* Auckland: Ngati Te Ata Waiohua, 2019. https://www.aucklandcouncil.govt.nz/UnitaryPlanDocuments/pc-55-appendix-1a-cia-ngati-te-atata.pdf.

NobelPrize.org. "The Nobel Prize in Chemistry 1908." Accessed May 16, 2024. https://www.nobelprize.org/prizes/chemistry/1908/rutherford/biographical/.

Opperman, Serpil. "Feminist Ecocriticism: The New Ecofeminist Settlement." *Feminismo/s* 22 (2013). https://doi.org/10.14198/fem.2013.22.06.

———. "From Posthumanism to Posthuman Ecocriticism." *Relations* 4, no. 1 (June 2016): 23–37. https://doi.org/10.7358/rela-2016-001-oppe.

———. "Storied Matter." In *Posthuman Glossary*, edited by Rosi Braidotti and Maria Hlavajova, 411–14. London: Bloomsbury Academic, 2018.

———. "Storied Seas and Living Metaphors in the Blue Humanities." *Configurations* 27, no. 4 (2019): 443–61. https://doi.org/10.1353/con.2019.0030.

———. "Theorizing Ecocriticism: Toward a Postmodern Ecocritical Practice." *Interdisciplinary Studies in Literature and Environment* 13, no. 2 (2006): 103–28. https://doi.org/10.1093/isle/13.2.103.

Parikka, Jussi. *The Anthrobscene.* Minneapolis: University of Minnesota Press, 2014.

———. "Cartographies of Environmental Arts." In *Posthuman Ecologies: Complexity and Process After Deleuze*, edited by Rosi Braidotti and Simone Bignall. Washington, DC: Rowman and Littlefield, 2019.

Phillips, Perdita. *Tectonics: Bringing Together Artistic Practices United by Lithic Thinking beyond Human Scales.* Fremantle: Lethologica Press, 2021.

Plumwood, Val. "Shadow Places and the Politics of Dwelling." *Australian Humanities Review* no. 44 (March 2008). https://australianhumanitiesreview.org/2008/03/01/shadow-places-and-the-politics-of-dwelling/.

Ponge, Francis. "La Plante." In *Le Parti Pris des Choses*, 17-18. Paris: Gallimard, [1942].

Povinelli, Elizabeth A. *Geontologies: A Requiem to Late Liberalism.* Durham: Duke University Press, 2016.

Rahm, Phillipe. "The End of the Anthropocene." *E-Flux Architecture,* February 2021. https://www.e-flux.com/architecture/confinement/376993/the-end-of-the-anthropocene/.

Randerson, Janine. *Weather as Medium.* Cambridge, MA: MIT Press, 2018.

Randerson, Janine, and Rachel Shearer. "Dark Sun: Solar Frequencies, Solar Affects." In *Animism in Art and Performance*, edited by Christopher Braddock, 67–88. Cham:

Palgrave Macmillan, 2017.

Rasmi, Adam. “Scientists Put an iPhone in a Blender to Find Out What Mobile Phones Are Really Made of.” *Quartz*, March 21, 2019. https://qz.com/1576186/scientists-shredded-an-iphone-to-find-out-what-its-really-made-of/.

Reinert, Hugo. “About a Stone: Some Notes on Geologic Conviviality.” *Environmental Humanities* 8, no. 1 (2016): 95–117. https://doi.org/10.1215/22011919-3527740.

Rimola, Albert, Mariona Sodupe, and Piero Ugliengo. “Role of Mineral Surfaces in Prebiotic Chemical Evolution: In Silico Quantum Mechanical Studies.” *Life* 9, no. 1 (March 2019): 10, https://doi.org/10.3390/life9010010.

Roberts, Mere. “Revisiting ‘The Natural World of the Māori.’” In *Huia Histories of the Māori: Ngā Tāhuhu Kōrero*, edited by Danny Keenan. Wellington: Huia, 2012.

Rowlatt, Justin, host. “In the Beginning.” A Geochemical History of Life on Earth (podcast). October 2, 2021. Accessed December 18, 2021. https://www.bbc.co.uk/sounds/play/w3ct2kyl.

Sands, Danielle. *Animal Writing: Storytelling, Selfhood and the Limits of Empathy*. Edinburgh: Edinburgh University Press, 2019.

Shearer, Rachel. “Te Oro o Te Ao: The Resounding of the World.” PhD thesis, Auckland University of Technology, 2018. https://hdl.handle.net/10292/11712.

Sneed, Annie. “Ancient, Pancake-Shaped Marine Animals Were on the Move.” *Scientific American*, September 1, 2019. https://doi.org/10.1038/scientificamerican0919-12.

Stipanovich, Alexandre. “Mental Escape: Episode 2, Anicka Yi.” *Flash Art*, September 3, 2020. https://flash---art.com/2020/09/2-anicka-yi/.

Te Tuhi. “Haupapa: The Chilled Breath of Rakamaomao.” Accessed February 9, 2024. https://tetuhi.art/world-weather-network/haupapa-project/.

Theile, Kathrin. “Ethos of Diffraction: New Paradigms for a (Post)human Ethics.” *Parallax* 20, no. 3 (2014): 202–216. https://doi.org/10.1080/13524645.2014.927627.

Thornton, Geoffrey G. *New Zealand’s Industrial Heritage.* Wellington: A. H & A. W. Reed, 1982.

Todd, Zoe. “An Indigenous Feminist’s Take on the Ontological Turn: ‘Ontology’ Is Just Another Word for Colonialism.” *Journal of Historical Sociology* 29, no. 1 (2016): 4–22. https://doi.org/10.1111/johs.12124.

Tsing, Anna. *The Mushroom at the End of the World.* New Jersey: Princeton University Press, 2015.

Tsing, Anna, Nils Bubandt, Elaine Gan, and Heather Anne Swanson, eds. *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene.* Minneapolis: University of Minnesota Press, 2017.

Turei, Raukura. “Texture of Practice: Raukura Turei.” *Vessel Magazine,* accessed December 18, 2023. https://vessel-magazine.no/issues/3/embodiedknowledge/texture-of-practice-raukura-turei.

van der Drift, Kate, Kathryn Tulloch, Teresa Peters, and Shelley Simpson, *From things flow*, New Zealand: From things flow, 2022

van der Tuin, Iris. “On Research ‘Worthy of the Present’.” *Simon Fraser University Educational Review* 12, no. 1 (Spring 2019): 8–20. https://doi.org/10.21810/sfuer.v12i1.860.

Verlie, Blanche, and Astrida Neimanis. “Breathing Climate Crisis.” *Angelaki* 28, no. 4 (2023): 117–31.

Vulcan, Julie. “Beyond The Spectacle: Everyday Witnessing For We That Are Here.” *Continuum*, November 2023. https://doi.org/10.1080/10304312.2023.2286197.

Wei-Haas, Maya. “Life and Rocks May Have Co-Evolved on Earth.” *Smithsonian Magazine,* accessed August 22, 2023. https://www.smithsonianmag.com/science-nature/life-and-rocks-may-have-co-evolved-on-earth-180957807/.

Wells, Megan. “Dunite, The Adventures of a Rock in Colonial New Zealand.” In *The Lives of Colonial Objects.* Dunedin: Otago University Press, 2015.

Wilson, Catherine. *The Invisible World,* New Jersey: Princeton University Press, 1997.

Wilson, Elizabeth A. *Neural Geographies: Feminism and the Microstructure of Cognition.* Abingdon: Taylor & Francis, 2016.

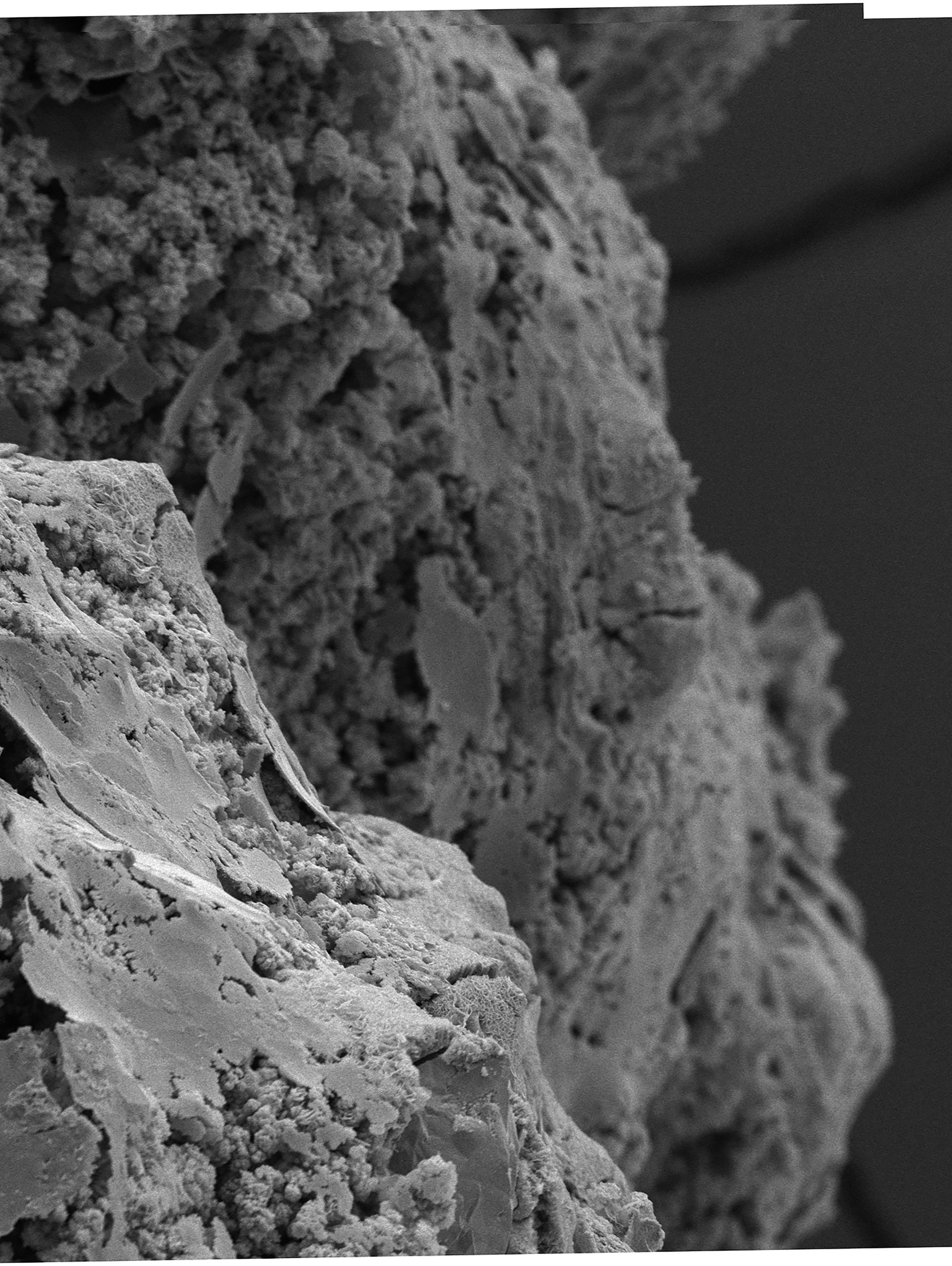
Wolverton, BS. Anne Johnson, Keith Bounds. “Interior Landscape Plants for Indoor Air Pollution Abatement.” North American Space Agency, 1989. https://ntrs.nasa.gov/citations/19930073077.

Yusoff, Kathryn. “Geologic Life: Prehistory, Climate, Futures in the Anthropocene.” *Environment and Planning D: Society and Space* 31, no. 5 (2013): 779–795. https://doi.org/10.1068/d11512.

———. “Geosocial Strata.” *Theory, Culture & Society* 34, no. 2–3 (May 2017): 105–27. https://doi.org/10.1177/0263276416688543.

Yusoff, Kathryn, and Mat Coleman. “On Biopolitics and the Anthropocene: Elizabeth Povinelli, Interviewed by Kathryn Yusoff and Mat Coleman.” *Science and Space*, 2014. https://www.societyandspace.org/articles/on-biopolitics-and-the-anthropocene.

Yusoff, Kathryn, Elizabeth Grosz, Nigel Clark, Arun Saldanha, and Catherine Nash. “Geo Power: A Panel on Elizabeth Grosz’s Chaos, Territory, Art: Deleuze and the Framing of the Earth.” *Environment and Planning D: Society and Space* 30, no. 6 (2012): 971–88. https://doi.org/10.1068/d3006pan.



Stonesense: Toward lithic thinking

Shelley Simpson

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Auckland University of Technology School of Art and Design

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