From things flow

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Previous: Kate van der Drift, *New Moon to New Moon, August 2020 37°17'41.6"S 175°31'35.7"E*, 2021
Fixed Lumen contact print on silver gelatine paper from BW 4x5" negative, exposed for 7 hours.

Contents

Charlotte Huddleston

All that you touch you change,
all that you change changes you
– Octavia E Butler

Dear You,

As I begin to write to you, I have on my mind that words are "charged particles,"[1] and that "writing congeals energy and perception into a form of material object."[2]

Sir Apirana Ngata called words charged particles.[3] When I think about those words I feel a bodily tingling. A feeling response comes easily. A different response is guided by what I know about charged particles from my basic understanding of cellular chemistry. I know they are atomic particles with a positive or negative charge. Charged particles are protons and electrons, which along with neutrons make atoms. Atoms are the chemical elements, like carbon, that are the matter from which the universe is formed. If words are charged particles, then the atoms might be phrases or sentences formed like ionic bonds through attraction and mixing to make matter or, to make things from words.

Considering writing as a process congealing energy and perception, 'congeals' feels visceral, like I'm caught up in the congealing too. While charged particles generate tingling excitement of potential, congeals has a different energetic pull. It expresses the effort required to apprehend the fluidity of thoughts and impressions to express things with words; to make things with words. Words are the material available to me to make a response to *From things flow*. To keep close to the intention of *From things flow* it makes sense to locate this writing as its own kind of material response made in relation to the practices of Kate, Shelley, Teresa, and Kathryn. Charged particles are everywhere, they aren't only electrons and protons. They are words too. They are any thing that is part of the matter of the universe—tangible and intangible, material and immaterial, human formed and otherwise, and even things which have not yet been conceived of by you and me. I've been reading *Thinking Through Things* which is about artifacts, materiality and social theory in the anthropological field. The editors write that to make things is to conceive of them, to think them into being as much as it is to physically materialise them; "thought…just *is* being."[4]

Thinking through things is a methodological project whose promise lies in its potential as a "method for generating a plurality of concepts and theories."[5] Crucially, it is not abstracted but "allows for concept production that makes worlds."[6] This expansiveness is kin to Karen Barad's 'ontological indeterminacy'—another generative position.[7] It welcomes being in a state where there is no decidable answer about the nature of being, leaving space open to possibilities of being that we may not yet have conceived of. Similarly, "'ontological breakthrough' is to realise that 'different worlds' are to be found in 'things'", and "to accept that seeing them requires acts of conceptual creation".[8] *From things flow* is an openly relational project that thinks through things. It is an intentionally haptic engagement of thinking via the process of making, and it is made of acts of conceptual and ontological curiosity. Physically and speculatively engaging with material is a way to experiment, explore, and express something. It is also a way to be in communication with lively non-human bodies. Via the artists' interest in materiality, processes, and temporality *From things flow* engages all of our senses: touch, taste, smell, hearing, vision. It also has space for what lies beyond our human senses; for sitting with the potential in ontological indeterminacy to make space for conceptual creation.

I am interested in aligning the methodological project of *Thinking through things* with *From things flow. Thinking through things* wants to unsettle the persistence of anthropology's original either-or distinctions of concrete/abstract, physical/mental, material/social. By turning attention to concepts and things as tightly connected we can consider that "meanings are not 'carried' by things but just *are identical* to them."[9] If I take that in as I think and write about *From things flow*, how can I approach my role as writer-respondent through allowing "the things encountered to dictate the terms of their own analysis" while at the same time, collapsing the confining "experience/analysis divide"?[10] In aligning with the methodology of *Thinking through things* I consider myself as undertaking a sort of fieldwork as an insider to the culture I am writing about. As a project *From things flow* has an intention of openness and flow of material forms and shared activities which resonates with a "thing-as-heuristic" approach where the things "that present themselves" can be aids to discovery through speculative methods.[11] I am curious to hold a space of indeterminacy as part of an attempt to think through things using all I have available at this time to make queries of lively materials with whom I am not so close.

Kate and Shelley facilitated a workshop where participants learnt about electroplating organic objects including Ginkgo leaves with copper and creating lumen photographic prints in the sunlight.
Photos: Teresa Peters

"...the first answer to the incredulous question of *where* 'different worlds' might be, is *here*, in front of us, in the things themselves..."[12]

I first encountered Ngata's words as 'charged particles' in ecologist Geoff Park's writing about the European imaginary of Aotearoa, where for the colonial horizon "language lies at the centre of...influence on us and our landscape."[13] In 1769 Cook named the Waihou River 'Thames.' This act by Cook "not only transformed it into an object for European understanding; he made it a symbol, invested with intent."[14] That intent was a powerful force driven by conceptions of adventure, discovery, possession and wealth. With it came the desire to recreate the familiar landscapes of 'home' represented by the name Thames.

Words bring things into being. Making the Waihou area into the "ideal nation" required the draining of the floodplains and coastal swamps of the Hauraki plains —which were unlike anywhere else on earth.[15] This happened very quickly. The ecosystem of the landmass called Aotearoa developed over 70 million years of isolation from other landmasses. One hundred years after the Waihou was aspirationally dubbed the Thames, Aotearoa was a "decrepit house."[16]

"Time is...the form of matter without being material. We can only approach it through its effects on objects, subjects, and matter which tend to obscure or absorb its characteristic and its force as their own"[17]

The Piako River mouth is roughly three kilometres to the west of the Waihou River mouth. These two rivers flow from the Hauraki plains into Tikapa Moana-o-Hauraki, The Firth of Thames. The Piako is

The plaque reads, "Near this spot Capt Cook landed on the banks of the river he named the Thames. 20th Nov 1769" Waihou river. Photo: Kate van der Drift

Kate van der Drift, *Waning Cresent to Waning Cresent June 2021, 37°25'47.4"S 175°30'39.2"E, 2021.* Exposing lumen contact print. Colour 4x5" negative, silver gelatine paper, glass. Photo: Kate van der Drift

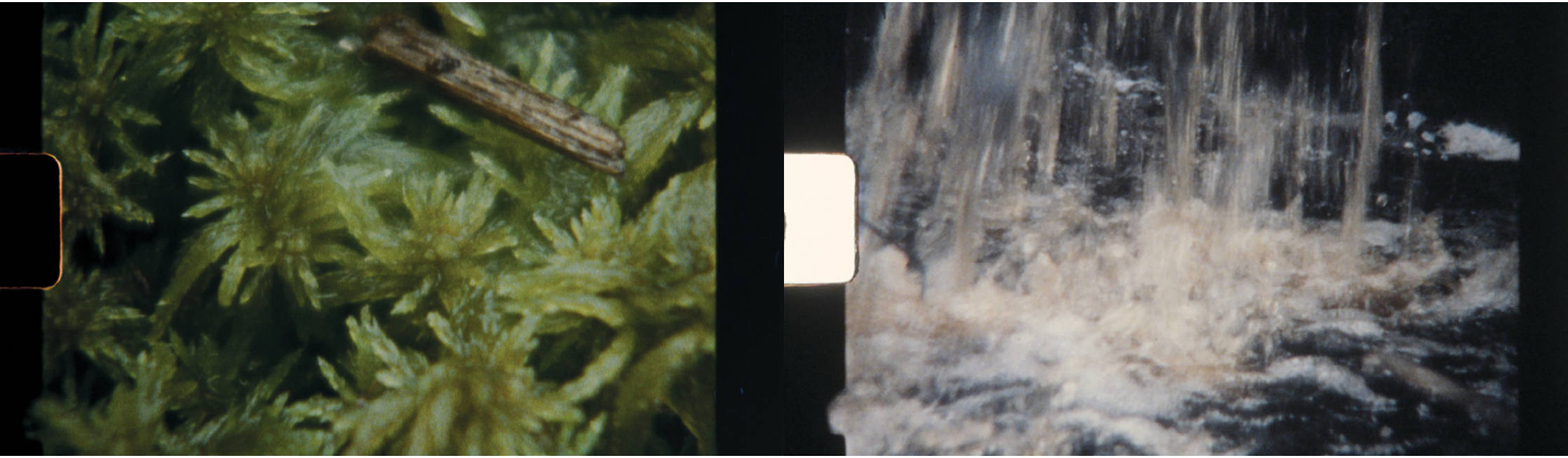
where Kate submerges film into the sediment-filled water. The film is left there for a few weeks. I imagine the solitary quietness of the film in its lightproof container as the water of the Piako washes over it. The chemical charges of the light-sensitive film and the water reacting and forming an image. The process continues until Kate comes to retrieve the film.

The Piako river runs through the Kopuatai Bog. Kopuatai covers 10,000 hectares and is "New Zealand's largest unaltered restiad bog... formed some 11,000 years ago."[18] Kopuatai and other remaining peat bogs around the country are huge carbon reservoirs. As long as they remain undrained, they play an important role in the carbon cycle; "Kopuatai draws down about 200 grams of carbon per square metre each year" amounting to "18,000 tonnes across the whole bog."[19] Much of this bog has been drained for agriculture. Once drained the stored carbon atoms are released as gas bonding with oxygen atoms making carbon dioxide.

The 100 years that elapsed between 1769 and 1869, and the following hundred-year mark when Geoff Park was a young ecologist observing the ecologically 'decrepit house' of Aotearoa are insignificant in geologic time. The impact humans have had on planet Earth in that time is not at all insignificant. The period humans have shaped, most commonly referred to as the Anthropocene, is widely recognised in relation to climate change as one that "designates humans as beings capable of geomorphic force, shaping Earth systems on a par with inhuman forces."[20] On this change propelled by fossil fuels from the Carboniferous, geographer Kathryn Yusoff presents:

> *"the human as a collective being* and *a subject capable of geomorphic acts; a being that not just affects geology, but is an intemperate force within it. This immersion of humanity into geologic time suggests...a shift in the human timescale from biological life course to that of epoch and species-life."*[21]

Thinking of humanity on a species-life timescale is to understand our existence as part of collective subjectivities. It is to recognise our relative smallness as well as our collective impact. As we arrive here in this writing it is vital to acknowledge Indigenous ontologies never not recognised collective subjectivities of human and non-human.



Kate van der Drift,
Directional Listening, 2021.
Super 8 transferred to video, 5min, silent

There are ontologies that have never separated nature and culture, but know, as human geographer Juanita Sundberg writes, that "As we humans move, work, play, and narrate with a multiplicity of beings in place, we enact historically contingent and radically distinct worlds/ontologies."[22] It is not simply a romantic notion to say there are many worlds, in spite of ongoing dispossession there actually are. To see humans as separate from nature is not a universal phenomenon, it is in fact "a reality localised to specific knowledge traditions" and conceptions, such as the dominant Euro-Western one.[23] Also problematic is the human-centric and Eurocentric terminology and conception of 'Anthropocene.' Métis anthropologist Zoe Todd rejects Anthropocene as a harmful universalising paradigm because it implicates "all humans as equally culpable for the current socio-economic, ecological, and political state of the world."[24] As you and I have talked about, in reality, the distribution of wealth and power is uneven and corporations with economic and cultural power exploit people and the environment for profit. Many alternatives to the Anthropocene have been coined. Capitalocene is perhaps the most accurate. Environmental historian Jason W. Moore argues for the term as "situating the rise of capitalism, historically and geographically, within the web of life. This is capitalism not as economic system but as a situated and multispecies world-ecology of capital, power and re/production."[25]

When I spoke with Kate about her film work, she talked about the importance of the experience of making it. This includes the relationships she has with mana whenua Ngāti Hako and local farmers. It includes the time spent with the land, as well as being the cameraless work's "direct river to [film] substrate touch" which Kate describes as the "river speaking for itself."[26] Kate also spoke about making the work as a "very muddy, very visceral experience," producing in her a change of state in parallel with the intra-action of the film and water. The closeness of this process and experience is a response to the distancing or mediating effect of the camera.

After our conversation, I watch Kate's film *Directional Listening*. It is made up of filmed images of the area around the Piako river and cameraless footage from film submerged in the river. The camera shows a grey misty day and green vegetation. Everything is saturated with water. There is water dripping off the vegetation and water and mud in the river and drainage ditches. In contrast, the river's footage is a bright blue, occasionally pink, and more rarely a pitted and textured black. This is what the river says when the chemistry of its body responds to the chemical body of the film. It is all very beautiful. I don't know what the chemical reactions tell us. The process is not designed to record scientific information; it's a directly relational response.

In *Thinking through things* the editors pose the question of how to become free from the handicap of the "dualist ontology" that fragments the cohesiveness of the matter of the world.[27] A response is that "material might act as a bridge…between people and non-human agents"[28] making it possible at least to conceive of self and world as co-constituted.[29] For those of us, like me, whose cultural inheritance includes the separation of humans from everything else, it requires epistemological and ontological unravelling to be able to reconceive ourselves as part of the matter of a larger communal body.

When I spoke with Kathryn, she mentioned her inquiry into what presence and materiality might offer. We talked about the work *Food Stack*. It was at its most lively at the opening of *From things flow* as it took the part of the food that is typically served. *Food Stack* was constructed in layers of warm, cooked and baked food such as kumara and mushrooms; fermented foods including sauerkraut; sprouted and dried seeds; dehydrated kale; fresh sliced apple, celery, and fennel; topped with fresh leafy greens; and interspersed between some layers were tasty sauces and dressings. We ate it off paper bowls that Kathryn made from used single-use compostable packaging that she collected, washed, boiled, put in a food processor with water to make a slurry, and then sieved and shaped into bowls.

Kathryn's practice is driven by her interest in "movement, presence and thought within living systems."[30] It is informed by her visual arts study, and previous cooking experimentation and work which in turn extends to her involvement with initiatives such as For the Love of Bees and Regenesis. Both are organisations supporting whole systems and regeneration of ecosystems. Philosophically and in practice they actively work to build communities of practice that as Regenesis

Kathryn Tulloch, Digging into *Food Stack*, at the *From things flow* opening night, RM Gallery and Project Space, 2021. Photo: Kate van der Drift.

Overleaf: Kathryn Tulloch, *Food Stack*, at the *From things flow* opening night, RM Gallery and Project Space, 2021. Photo: Kate van der Drift.

expresses "seek to enable human communities to come back into life-giving alignment with the natural living systems that support them... [through] a process of inquiring into and deeply honouring the unique socio-ecological identities of our places."[31] It is kin to Papaschase Cree scholar and educator Dwayne Donald's 'ethical relationality' which he defines as "an enactment of ecological imagination" that humanly, "is an ethical imperative to see that despite our varied place-based cultures and knowledge systems, we live in the world together and must constantly think and act with reference to those relationships."[32] As for our planetary relationships Donald says the way he has been taught to think about ecology is by "paying attention to the webs of relationships that you are enmeshed in, depending on where you live. So, those are all the things that give us life, all the things that we depend on, as well as all the other entities that we relate to, including human beings."[33]

Food is arguably the most common instance of how we are affected and sustained by non-human material. It is certainly very present; materially, at the most basic level, what we eat sustains and becomes part of us through digestion. With plant material specifically, a quality important to Kathryn is its "quick transformation and temporary nature."[34] Reusing compostable packaging to make the plates Kathryn deliberately paused the blending process part way through to make a "rough regurgitated look, a digesting quality" emphasising the flexibility and materiality of plant matter.[35] And you know too, plant matter is an irreplaceable part of the carbon cycle because it converts carbon dioxide into oxygen through photosynthesis. On an infinitely slower timescale plant matter's decomposition through geologic processes of heat and pressure eventually produces fossil fuels. Incidentally, peat is an early state of that multi-million-year process of decay.

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I wonder what is revealed if we consider "waste sites, mining shafts and extraction zones...as the new museums of humanity, alongside the more affectual and accumulative material registers of pollution, toxicity and climate shifts."[36]

Above: Kathryn Tulloch, Eating *Food Stack*, at the *From things flow* opening night, RM Gallery and Project Space, 2021. Photo: Florian Habicht.

Opposite: Shelley Simpson, Scanning Electron Microscope (SEM) image of electroformed iron, 2021 Photo: Kate van der Drift

Shelley Simpson, Cross section of electroformed copper, 2021. Photo: Shelley Simpson

Below left: Shelley Simpson, Electroformed iron, 2021. Photo: Shelley Simpson
Overleaf: Shelley Simpson, Scanning Electron Microscope (SEM) image of electroformed iron, 2021

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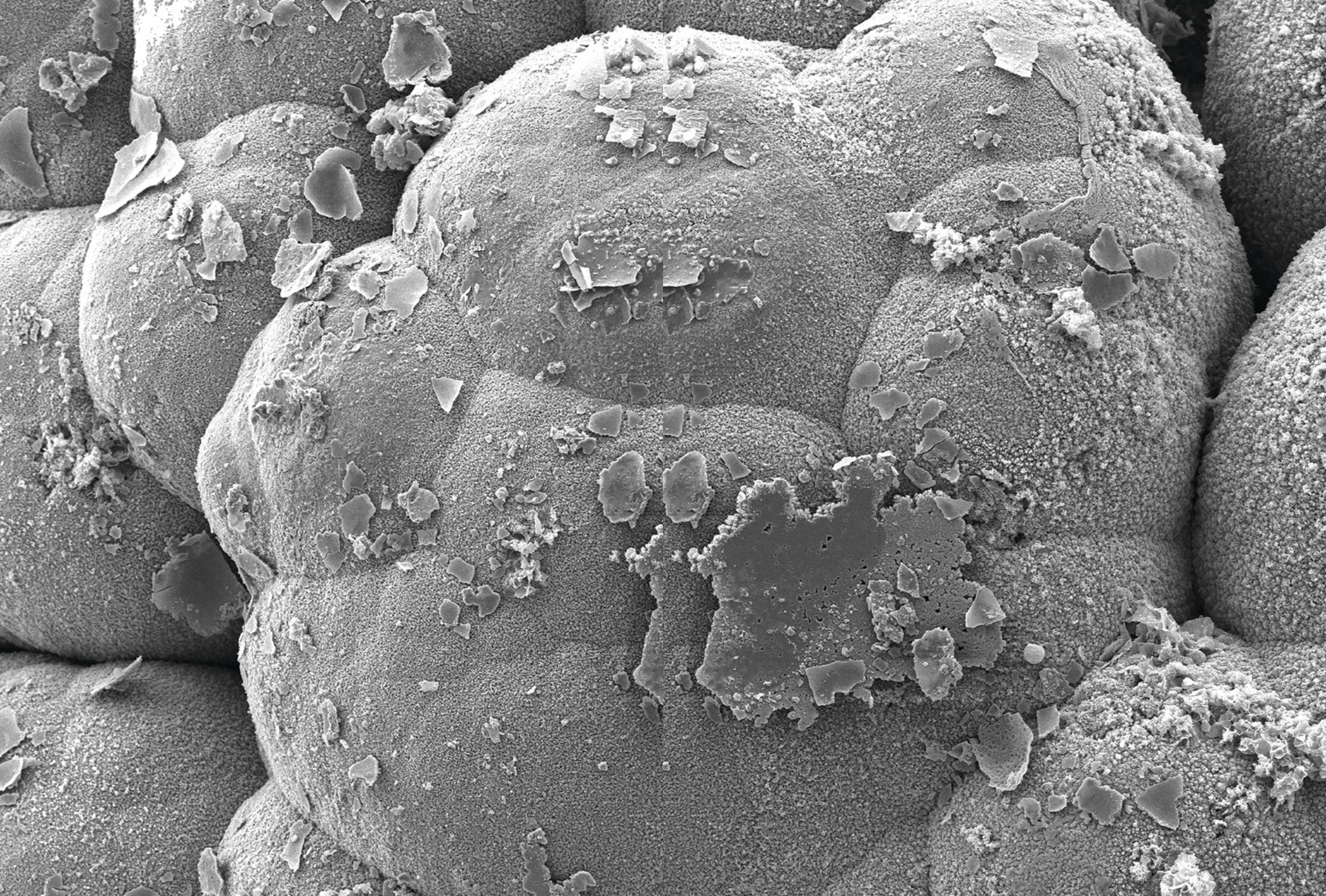
As part of her inquiry into how "stories of earthly matter emerge" Shelley works with copper and iron.[37] The metals copper and iron are present in the cells of plants and animals. In humans, there are tiny amounts of copper in every cell, and concentrated in our organs such as liver, kidneys, heart and brain. In humans and most other animals iron is essential for the transport and storage of oxygen in our blood and muscles respectively. It is also part of cellular respiration and oxidation in plants. Both copper and iron were also important to the development of human culture and technology, and remain so. Copper has high thermal and electrical conductivity, it is malleable and is one of the few metals that is present in a directly usable form. The earliest known human use of copper dates back to 9000 BCE.[38] Encyclopedia Britannica online tells me that iron makes up about five percent of the Earth's crust, is an essential part of Earth's core, and at about 35 percent is the most abundant element in Earth as a whole. Shelley tells me that most iron came to Earth as the planet formed from the stuff of exploding stars. In its metallic state it is rarely found in the Earth's crust but iron ores are abundant. Extracting usable metal from the ore requires a temperature of at least 1500°C which humans managed to achieve in the second millennium BCE marking the transition from the Bronze Age to the Iron Age.[39]

In her work with metal, Shelley "attempt[s] a process of reparative metamorphosis, through which the material is released from its manufactured form."[40] This release is done through the process of electroforming—a process that involves passing direct current through an electrolyte solution containing salts of the metal being electroformed such as copper sulphate for copper or iron sulphate for iron. The 'reparative metamorphosis' occurs when the metal is released from the shape it has been given through manufacture for human use and left to re-form according to its own tendencies. When we spoke about electroforming I had many questions about how it works and while Shelley is able to explain it, we reached a limit of our technical understanding and language to express it. Neither of us are experts, and as Shelley called it she is not fully in control of the process, nor does she need to be, for her it is a tool to think with. This calls to mind Māori scholar Carl Te Hira Mika's (Tuhourangi,



Ngati Whanaunga) mismatch between some 'thing' and our "inability to articulate the concept of it to its fullest extent" which "constitutes a method of speculation."[41] In turn, this relates to Shelley's thinking around storied matter as being more than culturally constructed narratives of meaning "intending to grant material agencies a meaningful existence."[42] Rather than speak *for* we must as Mika urges, strive to find "an ethical way to comport oneself towards things so they are discussed in a way that does not constrain them."[43]

Shelley also spoke about her interest in the industrial sites of mineral extraction and manufacture and her intention to extend the reparative gesture by 'returning' material to extraction sites. As part of this, she plans to connect with the Whakatū/Nelson mineral belt, an area from which copper and chromite (composed of chromium, iron and oxygen) has been extracted, and the Mohua/ Golden Bay iron mine in Onekaka. Did you know that long before colonisation Māori quarried the Whakatū mineral belt for pakohe (argillite) to make tools? Shelley has chosen these locations as a way to be in relation with her colonial-settler ancestors who arrived in Nelson in 1843, to engage reparatively with the human cultural history and the storied matter.

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Can you "imagine humanity as a future fossil in the geologic strata in the Anthropocene"? To do so is to "become attentive to our minerality in its less vital and more enduring form."[44]

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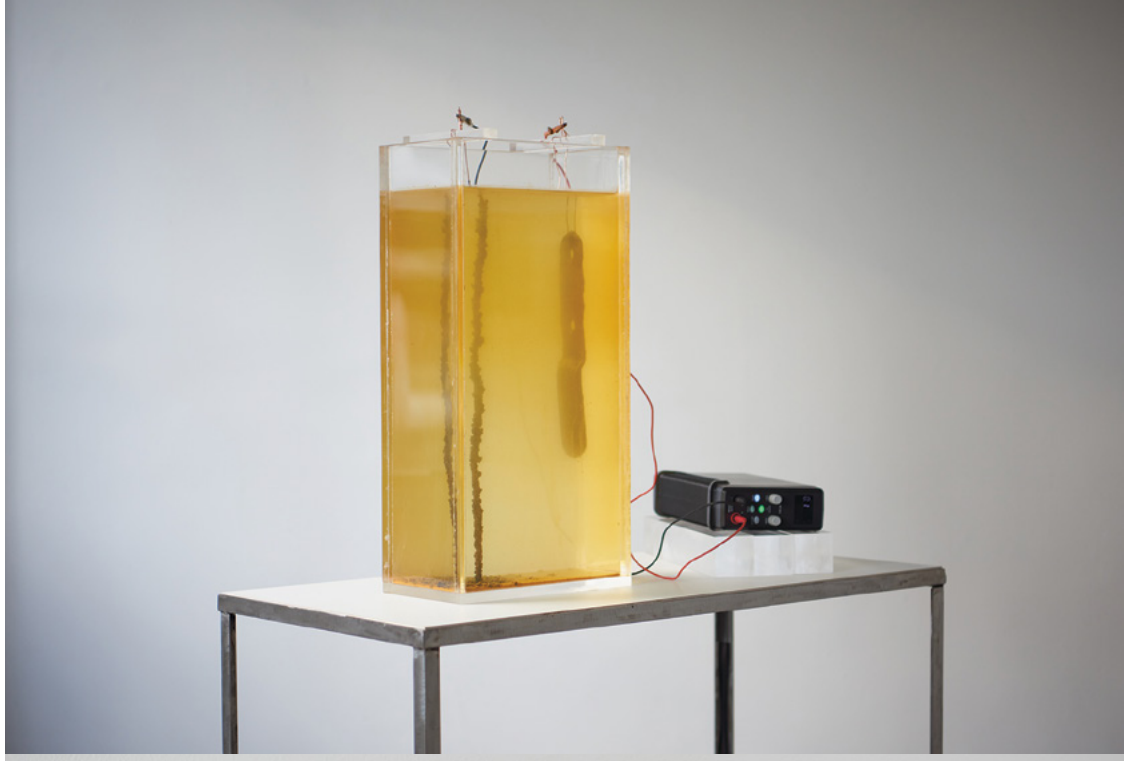
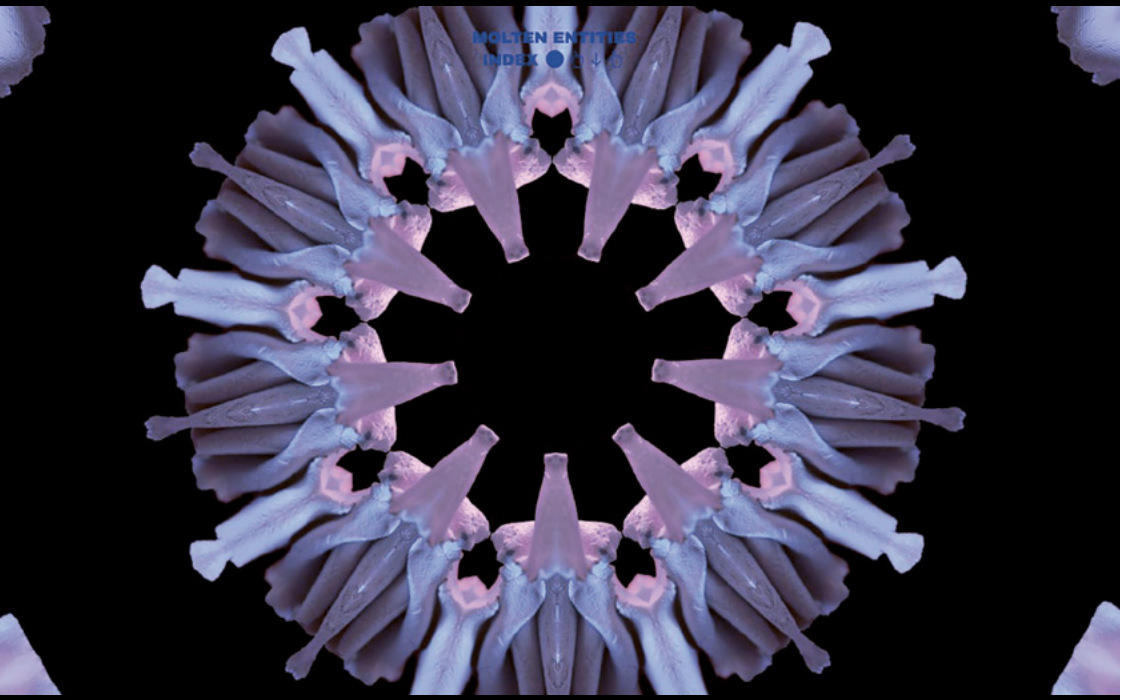
When Teresa and I spoke about *From things flow*, she mentioned her interest in the archival aspect of processual works, through which she is "exploring the culture of preservation in times of ecological turmoil."[45] The *Molten Entities.com: Notes on moving mountains* project for *From things flow* extends Teresa's *Disastrous Forms.com 2020* launched in early 2021 in curatorial conversation with Dina Jezdic, as an online archive, a communal audio-visual event on the Auckland Live Digital Stage and archived at Auckland Museum Collections Online as a Topic.[46] In sync with the 'new museums



Shelley Simpson, *Iron electroforming tank*, 2021
Photo credit: Kate van der Drift

Shelley Simpson, *Underworld*, digital video, 2021
Photo credit: Kate van der Drift



Teresa Peters, *MOLTENENTITIESCOM — Notes on moving mountains*, 2021, archives clay and ceramic forms as they evolve and are fired during From things flow. View with playlist MOLTEN ENTITIES on Spotify.

of humanity'. *Disastrous Forms* worked with clay to examine how museums preserve, tell, and monumentalise stories in relation to disasters, speculating on what "ever-lasting monuments—statues, landfills of idle possessions or future fossils..." will endure the slow ecological disaster of the Capitalocene.[47]

Teresa works with raw and fired clay, which as an earth body that goes through transformations explores connection, touch, and change. *From things flow* included *POKE PIECE*, where raw clay slabs were activated by the viewer at the opening event and reinstalled in the gallery after firing. Humans began using clay around 26,000 years ago in the Upper Paleolithic period (broadly 50,000 to 12,000 years ago).[48] In archaeology, ceramics are commonly found at sites of past habitation—the material durability outlasting wood, hide and textiles—and are important objects for understanding prehistoric cultures and human technologies. Of course, we also know that archaeological finds and study of human histories through artifacts is a fraught entanglement with museums and ongoing histories of colonial plunder.

In *Molten Entities* Teresa continues working with clay, extending the focus to the materials and processes that make up clay and ceramics to "reflect on humans as activators in the processes of geomorphic evolution."[49] Where *Disastrous Forms* makes connections between quartz (silica) as a key activator at 1200°C in ceramic glazing and in volcanic eruptions, *Molten Entities* reaches out to haptics—in particular haptic technologies such as touch screens where quartz is the active element in touch response. In notes Teresa shared with me, she writes about "touch as the immediate and primary communication sense to haptic based systems that eclipse the globe in a second."[50] Recognizing the instant connectivity across space and time, we can't forget the resources, infrastructure, and human labour that make this material and immaterial Capitalocene technology possible. This amounts to an experience of digital vitality through the heavy industry extraction of materials to manufacture the enduring forms of future museums.

Teresa's *Quartz Sound Journey* in *From things flow* brought quartz into another conceptual, material and relational connection. The "crystalline sound journey...with the vibrations of quartz

and alchemic ceramic bowls" was designed to be a "collective transformative experience."[51] We lay, rugged up on the floor of the darkened gallery for around 45 minutes receiving the different frequencies from the bowls and bells activated by Cheryl Farthing. The kaleidoscopic moving image work of *Molten Entities* was projected on the wall behind Cheryl.

If you're seeking more connection to non-human materiality, there are other connectivities bridged by quartz. I'll try to express it succinctly, but it's a complex field of entanglement, and again wording it is to grapple as Mika writes with the discrepancy between some 'thing' and my "inability to articulate the concept of it to its fullest extent."[52] Quartz, silica, or silicon dioxide is also a mineral in our bodies. Some of it is ingested, some is naturally occurring. It is in our cartilage and bone cells, connective tissue, and skin. When we touch a touch screen it is piezoelectricity—electricity made from pressure and latent heat—that activates the response. Piezoelectricity is found in solid materials such as crystals, ceramics, and biological matter like bone, DNA, and some proteins.[53] Quartz is a piezoelectric transformer that is present in our touchscreens and cells. Sound is a mechanical pressure wave causing vibration which when received by our bodies causes a piezoelectric response. This might be basic knowledge for you, but it's all new to me and I'm just making this connection now as I write. The enjoyment I get from learning of these connections tingles like charged particles.

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"our entire future may depend on learning to listen, listen without assumptions or defenses"[54]

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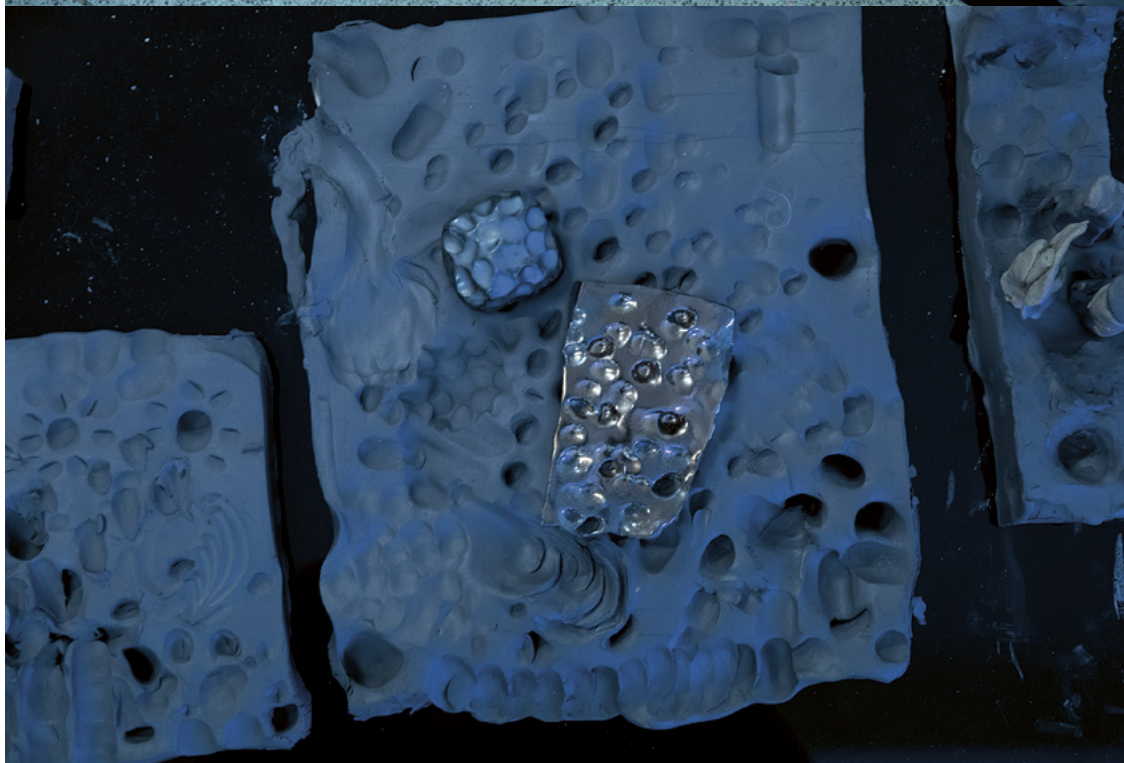
When we spoke, Teresa also talked about the curiosity that is involved with the type of research she, Kathryn, Kate and Shelley are doing. I venture that this curiosity is speculation provoked by what material "calls forth through its own expression".[55] The relation between material expression and our curiosity is very generative. How we engage with "the world's mystery" is both a response to the enlivened

Opposite and overleaf: Teresa Peters, *POKE PIECE*—opening night viewers explore touch as a geomorphic force (Poked clay pieces dry, are fired, returned to the gallery and archived online). Photo: Florian Habicht



spirit of things and a human conception of the relationship.[56] If we approach these interactions as relational rather than transactional what becomes possible?

It's difficult to know where to end this writing because all my training says I must come to a conclusion, but my experience is continuously unfolding. Perhaps once you have read this, we can have a conversation about our thoughts. For now though, thanks to Carl Mika, I am sitting with the thought that the self and the world are co-constituted. Mika uses a lake as an example to explain how, for Māori, people and things are worlded. He writes, the lake "arises in its totality with the world. It is constituted by the world, including the person who sees it...Not only does the lake constitute me in an abstract sense; it also constitutes my act of 'seeing'. In other words, I only see because I am constituted by it and all other things. Our language for the lake, and the act of seeing/perceiving, reflect this fact of constitution. Therefore, will the lake simply be the lake (fragmented), or will it be the full convergence of the world (holistic)?"

Finally, I will sign off by acknowledging Octavia E Butler whose words about change begin this writing. I put it at the top there as the address to my location. I feel a connection between Butler's expression of change and what I perceive as the ongoing holistic co-constitution of us and the world.

Let's talk soon!
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Teresa Peters, *QUARTZ SOUND JOURNEY*, 2021, audio-visual collective crystalline experience, collab with sound healer Cheryl Farthing playing the quartz bowls. Photo: Florian Habicht

Teresa Peters, *MOLTENENTITIES.COM*, 2021 (Interactive iPad archive). Photo: Florian Habicht.

Teresa Peters, *QUARTZ SOUND JOURNEY*, 2021, audio-visual collective crystalline experience, collab with sound healer Cheryl Farthing playing the quartz bowls. Photo: Florian Habicht

1 Sir Apirana Ngata quoted by John Bevan Ford, 'E koe ano!' *Now See Hear!: Art, Language and Translation* eds. Gregory Burke and Ian Wedde, Victoria University Press for City Gallery Wellington, 1990, 117.

2 Abby Cunnane, *These Things are Agents of the world and they announce themselves: the sculptural object in Artworks by Maddie Leach and Bianca Hester*, MPhil thesis, 2018, 23. Thank you to Abby Cunnane for her incisive and inspiring writing on new materialism in art from her subject position as a Pākehā. Many of my references for this writing come from here, others are just one or two stepping stones away. My gratitude towards Abby's work that I am leaning on is far more indebted than this simple citation. As colleagues and as friends, we have had untold conversations to apprehend, conceive and reconceive our subjectivity in relation to our context, and how to be in right relation with the world we inhabit.

3 I came to this through Geoff Park who credits John Bevan Ford as his source. Ford says Ngata is well known for saying this, but I have been unable to find a primary source to directly reference Ngata. See: Geoff Park, *Ngā Uruora The Groves of Life Ecology and History in a New Zealand Landscape*, Victoria University Press 1995, 25.

4 Amiria Henare, Martin Holbraad and Sari Wastell eds. *Thinking Through Things: Theorising Artefacts Ethnographically*, Routledge London and New York, 2007, 15.

5 Ibid., 23.

6 Ibid., 16.

7 Karen Barad, *On Touching: The Alterity Within* talk at Studium Generale Rietveld Academie, 2018. Accessed November 23, 2021. https://www.youtube.com/watch?v=u7LvXswjEBY

8 Henare et al, 15.

9 Ibid., 3-4.

10 Ibid., 4.

11 Ibid., 5.

12 Ibid., 13.

13 Geoff Park, *Ngā Uruora The Groves of Life Ecology and History in a New Zealand Landscape*, Victoria University Press, 1995, 25.

14 Ibid., 25.

15 Ibid., 13.

16 Ibid., 14.

17 Elizabeth Grosz, *Time Travels: Feminism, Nature, Power*. Crows Nest, New South Wales: Allen and Unwin, 2005, 3.

18 Restiad comes from the Restionaceae plant family which includes 'peat-building' rushes. Veronica Meduna, "How to Fix the Waikato Peatlands" *New Zealand Geographic*, Issue 169 May–June 2021. Accessed November 23, 2021. https://www.nzgeo.com/stories/the-waikato-peatlands/

19 Ibid.

20 Kathryn Yusoff, 'Geologic life: prehistory, climate, futures in the anthropocene' *Environment and Planning D: Society and Space*, 2013, Volume 31, 779. DOI:10.1068/d11512

21 Ibid., 779.

22 Juanita Sundberg, 'Decolonizing Posthumanist Geographies' *Cultural Geographies* 21(1): 39, 3 December 2013. Full text available here: https://www.researchgate.net/publication/273591009_Decolonizing_Posthumanist_Geographies
I am grateful to Zoe Todd's for sharing the work of many Indigenous and non-European thinkers including Juanita Sundberg in her text *Indigenising the Anthropocene*.

23 Zoe Todd, 'An Indigenous Feminist's Take On The Ontological Turn: 'Ontology' Is Just Another Word For Colonialism' *Journal of Historical Sociology* Vol. 29 No. 1 March 2016. 9. DOI: 10.1111/johs.12124

24 Zoe Todd, *Indigenising the Anthropocene*, 252. https://law.unimelb.edu.au/__data/assets/pdf_file/0005/3118244/7-Todd,-Zoe,-Indigenizing-the-Anthropocene.pdf Retrieved 25 July 2021.
25 Jason W. Moore, 'The Capitalocene, Part I: on the nature and origins of our ecological crisis' *The Journal of Peasant Studies*. http://dx.doi.org/10.1080/03066150.2016.1235036 15-16.
26 Kate van der Drift in conversation with the author 18 November 2021.
27 Henare et al, 16.
28 Todd, 248.
29 See Carl Mika, 'Western Fragility: A Maori philosophical diagnosis', *Social Alternatives* Vol. 38 No 4, 2019.
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45 Teresa Peters artist's notes.
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47 Teresa Peters, "Disastrous Forms—|Fragments, Quartz and Collected Thoughts" disastrousforms.com. Accessed 13 December 2021. https://disastrousforms.com/DISASTROUS-FORMS-QUARTZ.
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50 Teresa Peters artist's notes.
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Kate van der Drift

How will we, as nature, water and climate contracted, continue to inscribe attunement, listening, partial dissolution, collectivity, care, curiosity, wonder, grace, gratitude or other modes of becoming-with, instead of writing against them, dazzled (numbed?) by a myth of separateness?

– Astrida Neimanis[1]

I would like to acknowledge and extend gratitude toward the tāngata whenua of the Hauraki Plains, Ngāti Hako, the land and waters where this research is situated and that I have visited as manuhiri while making work. I thank those who have facilitated my time spent in the wetland, Kopuatai, as well as along the Piako and Waihou awa. I feel incredibly privileged and fortunate for the connections made and warmth encountered from people that live and spend time in this area.

I identify as Pākehā, the grandchild of immigrants to the Waikato. My grandmother lives at the southern boundary of the plains and my mother grew up there. Some of my childhood years were spent on drained lands used for dairy farming in the Waikato. I acknowledge my Pākehā settler colonial status and privilege and recognise that colonised New Zealand was created through an extractionist ethos of capitalist governance which exploits nature for individual gain and has caused catastrophic environmental degradation and biodiversity loss. With a deep respect for Te Ao Māori and its inherent interconnected understanding of the more-than-human world, my work seeks to understand some of Hauraki's social and ecological system stories, their connections and interdependencies. I hope to be a responsible Pākehā artist and tangata tiriti and I take my cues from tāngata whenua, with the understanding that colonisation continues to leave deep wounds.[2]

The Hauraki Plains were once New Zealand's largest repo (wetland complex) and have been almost entirely transformed since colonisation by land drainage and Kahikatea logging. The floodwaters of the present-day landscape are tightly controlled by stopbanks, drains, canals, floodgates, culverts and pump-houses. Every effort has been made to turn land that was once covered with water into solid and dry ground. Kahikatea forest fragments became island

Puhunga Island Road. Photo: Kate van der Drift

ruins, stepping-stones for birds seeking larger areas of bush. In fact, the Hauraki Plains are one of the places that defined New Zealand's colonial destiny.[3] After visiting in 1835 Joseph Banks asserted, "The River Thames is indeed in every respect the properest place we have yet seen for establishing a Colony."[4] It was a utopian moment for these British colonists who identified the potential of draining such a floodplain and of the fertility of the soil lying beneath the water.

While spending time in the plains I've been making field notes: sound and written recordings, moving image and 'river exposures'. I've termed these river exposures because they are made in the absence of light by submerging film in lightproof holders in the water of the Piako awa's tributaries, in the liminal and marginal areas between the flow of water and the riverbank, or between the low and high tide lines. Farm run-off and saltwater combine with sediment and bacteria. Algae have grown. Bacteria have eaten away at the negative's emulsion. A durational accretion is created by the water's action and reaction with its chemical compounds. The films are placed in the river for 2–4 weeks depending on the season and moon phase, then developed by hand in a darkroom.

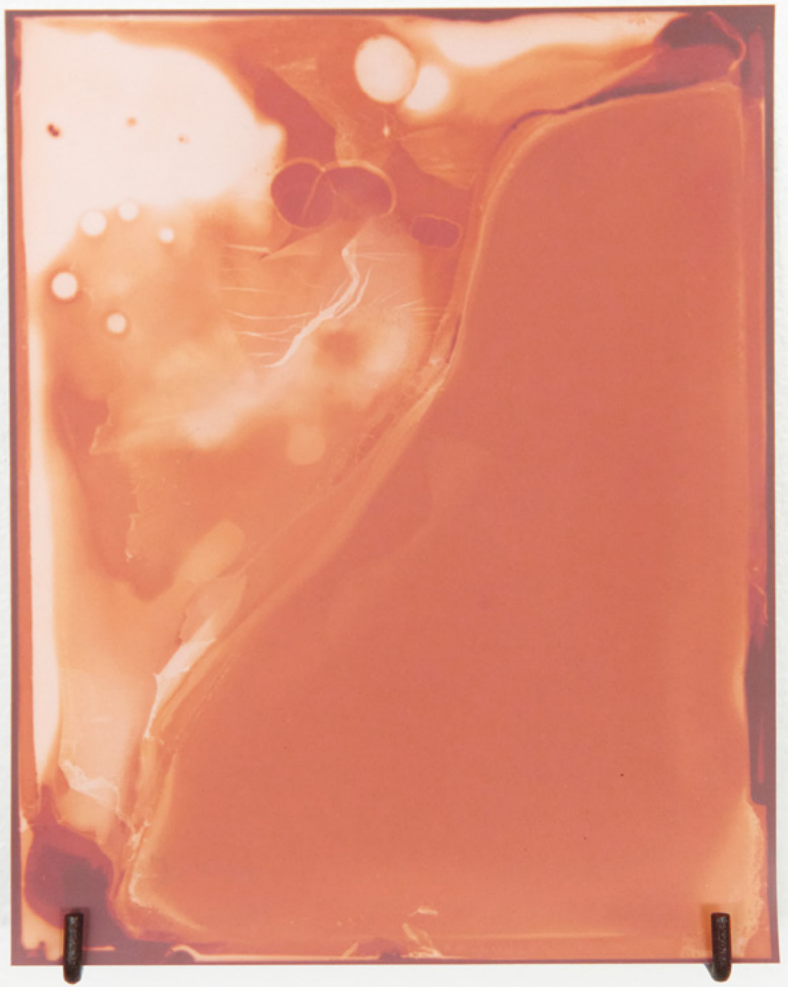
In his essay "Broad Scale Contaminants on Agricultural Land" environmental chemist Nick D Kim describes the way synthetic fertilisers accumulate in soil and sediments and become toxic to soil organisms (microbes and invertebrates) while causing eutrophication and delivering 'elevated levels of the heavy metal cadmium, the reactive element fluorine, and a low-level radioactive load associated with the elements uranium, thorium radium and some potassium-40.'[5] This trace level of radiation and unseen accumulation in the sediment could be exposing these light sensitive negatives. My research began by asking; is it possible to make visible the chemical make-up of these waterways and their ecological processes? Could the river write its own image and transfer some of their vital (yet degraded) essence or presence into a visual form?[6]

Within indigenous philosophical thought, the material world is sentient and self-sovereign. Te Ao Māori considers all things, living and non-living, to be connected, interdependent and interrelated. New Materialists such as Astrida Neimanis and Vicki Kirby follow this thinking by collapsing separations between nature and culture.

Neimanis asks, 'What if nature writes, thinks, is literate and numerate, produces patterns and meanings, expresses sociality, intelligence, changeability, invention?'[7] This way of thinking remembers that nature is already always representing itself with an active voice, speaking in all sorts of ways.[8] What becomes important are the 'effects of specific writings/representations ....what bodies and knowledges come to matter'[9]. It is through the generous propositions of Neimanis and Kirby that the river exposures might offer another lens: not a representation of the river made by me or even an act of self-portraiture, but rather, a conversation and mutual collaboration between us, as entities of both nature and culture.

The river exposures deviate from the etymological origins of the word 'photography'. The Greek words phōs (genitive: phōtós) means 'light', and graphê means 'instrument for recording; that which writes, marks, or describes; something written.'[10] The departure between the river exposures and other cameraless photographs lies in the fact that the negatives were never exposed to daylight.[11] There is a literal contact with the agency of the more-than-human with minimal intervention by me. There is instead a recording, drawing or *writing* by the river on the receptive negative. The chemistry of the water interacts with the chemistry of the emulsion. Once it is developed and fixed the next part of the process is a translation, an immediate contact between a photo sensitive surface such as paper inverting the negative. It becomes a physical object recording marks and traces made by the negative. The works in *From things flow* develop durationally, changing over the time they are hung. Some of the works are unfixed lumen contact prints that develop with the available UV light in the gallery space. The photosensitivity of the gelatine silver paper gradually darkens, from pale mauves and magentas to deep browns and purples, depending on the chemistry of the paper. Other works have the photographs forming, becoming visible, throughout the course of the show: sensitive paper is sandwiched between a negative and glass plate. The colour and image of these works — an inverse and representational likeness of the negative — form over time with the light of the gallery space, while the unfixed prints slowly unform, fade and eventually disappear. Some of these images developed more quickly than anticipated, saturating to dark purple with no visually recognisable definition of the referent remaining: an image of the repo, or a kahikatea stand. In addition to the river exposures and unfixed

Kate van der Drift, *Waning Gibbous to Waxing Gibbous, September 2020 I, 37°17'41.6"S 175°31'35.7"E*, 2021. Fixed Lumen contact print on silver gelatine paper from BW 4x5" negative, exposed for 9 hours. Photo: Kate van der Drift



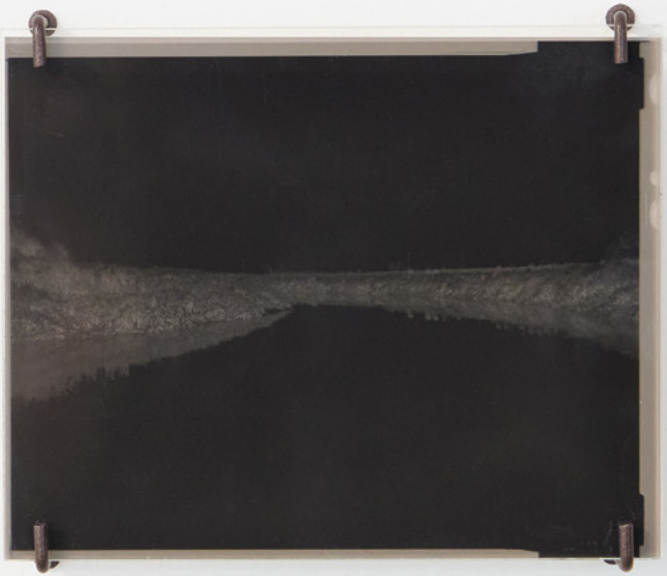
Kate van der Drift, *Kahikatea near Mangawhero road*, 2021. Unfixed lumen contact print on silver gelatine paper from BW 4x5" negative. Photo: Kate van der Drift

prints, I have included lens-based images in the exhibition which observe tributaries of the river and the margin between Kopuatai Peat Dome and intensive agriculture.

The work has been made over time with a braided social element: spending time in the whenua, looking for markers of this continual transformation, asking for memories of how the ecology functioned and imagining what it could become in the future. The moon phases act as markers of time. Noting them in the titles of the river exposures remind me of when they were buried or retrieved. Time has been spent walking and talking to people met on the way, or waiting for birds or the light to change. My own subjectivity has changed in the duration of this project: a process of becoming. The image object feels as though it has become a remnant of those relational experiences.

This work holds together stories of loss, of damage incurred and a hope for the potential of repair. A shift to valuing the agency of the more-than-human can be taken up through empowering nature with rights in our beliefs and constitution. This work aims to transcend oppositions and begin to understand culture within nature, and nature within culture. Humans might restore our relationship to the more-than-human world through this paradigm shift: valuing soil and waterways by caring for their microbial activity rather than degrading them.

To return to the quote by Neimanis with which I began this essay, I believe through *writing-with* I am also *becoming-with*. An ethics of care and collaboration with 'attunement, listening, partial dissolution, collectivity, care, curiosity, wonder, grace' and gratitude are underpinning this *writing-with* matter. There is a translation that appears within this collaborative process. There is unseen work, the subjective experience changes me, and I learn to live differently in entangled relation. Where does one part of the process end and the next begin in this tangle of 'research'? The physical photographic images are remnants. They exist in a layered relationship with the agency of the awa and repo at their centre. The work, the becoming-with, continues.



Kate van der Drift, *Piako river near Maukoro landing road II*, 2021. Exposing lumen contact print. BW 4x5" negative, unfixed silver gelatine paper, glass. Photo: Kate van der Drift

Kate van der Drift, *Waning Gibbous to Waxing Gibbous, September 2020 II, 37°17'41.6"S 175°31'35.7"E* . Exposing lumen contact print. Colour 4x5" negative, unfixed silver gelatine paper, glass. Photo: Kate van der Drift

1 Astrida Neimanis, “Nature Represents Itself: Bibliophilia in a Changing Climate.” *What If Culture Was Nature All Along?* edited by Kirby Vicki, Edinburgh University Press, 2017. Accessed August 26, 2021. http://www.jstor.org/stable/10.3366/j.ctt1g050d1

2 Rebecca Kiddle, “Colonisation Sucks for Everyone” *Imagining Decolonisation* Wellington, New Zealand: Bridget Williams Books, 2020.

3 Geoff Park, *Ngā Uruora: The Groves of Life*. Victoria University Press, 1995, 25.

4 Paul Monin, *Hauraki Contested, 1769–1875*. New Zealand: Bridget Williams, 2016. Accessed November 15, 2021. http://treatyofwaitangicollection.bwb.co.nz.ezproxy.auckland.ac.nz/9781927131039.html

5 Nick D Kim, “Broad Scale Contaminants on Agricultural Land.” *Mountains to Sea: Solving New Zealand’s Freshwater Crisis* edited by Mike Joy, Wellington, New Zealand: Bridget Williams Books, 2018, 35.

6 I’ve used a gender-free pronoun of ‘their’ for the river rather than ‘its’ as it more accurately represents the river’s personhood.

7 Astrida Neimanis, “No Representation without Colonisation? (Or, Nature Represents Itself)” Accessed 28th August 2021. Authors Preprint https://www.researchgate.net/publication/282965610_No_Representation_without_Colonisation_Or_Nature_Represents_Itself 6.

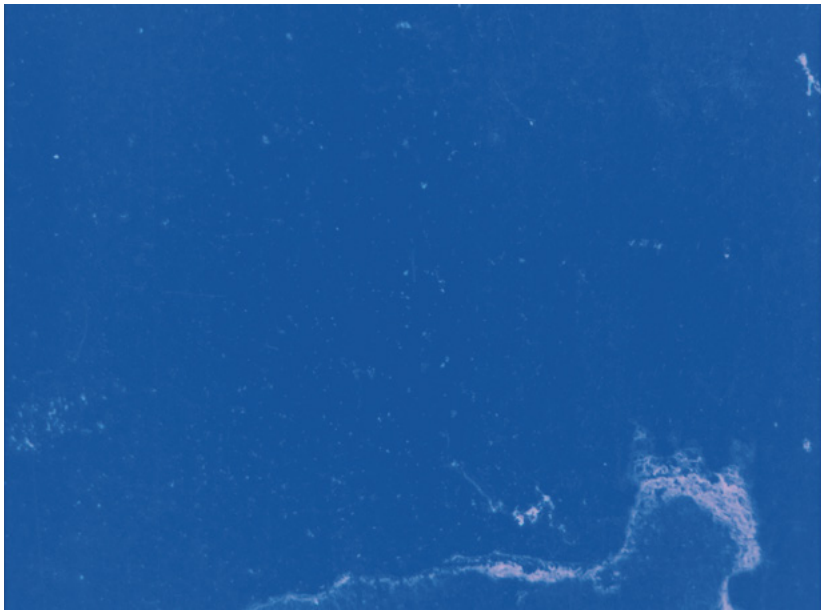
8 Neimanis is referring to Val Plumwood’s description of “nature in the active voice” in “No Representation without Colonisation? (Or, Nature Represents Itself)” 8.

9 Astrida Neimanis, “Nature Represents Itself: Bibliophilia in a Changing Climate.” 185–186.

10 “Photograph” Online Etymology Dictionary. Accessed January 31, 2022. https://www.etymonline.com/word/photograph

11 The second part of the silent film *Directional Listening* has been made by extending the material gestures of the ‘river exposures’ into moving image by submerging Super 8 film in the awa in the same way as the sheet negatives.

Kate van der Drift, *Directional Listening*, 2021. Super 8 transferred to video, 5min, silent



Shelley Simpson

In the 1950s, a Norwegian railway company began to make a special kind of steel pin to hold railway tracks onto their sleepers. These pins were very good at their job, providing just enough 'give' up and down and side to side to make the seemingly solid and unmoving tracks flexible enough to cope with the weight and motion of the trains as they sped along them. The pins were used worldwide, making their way down to Aotearoa, to Parnell, where one finally landed in the Waipapa Stream next to the railway track, where my friend found it during a stream clean up last year.

The pin is a beautiful shape, almost an infinity sign. When my friend gave it to me, I knew what it was because I had seen a video of a mudlarker in England who found one underneath a railway bridge. Otherwise, the object would have been difficult to place—its shape doesn't read as useful in any particular way.

The iron that makes the steel of the pin is the fourth most commonly found substance in the universe. It is the stuff of stars, created in the core of red giants, who at their explosive end, burst forth their contents including vast amounts of iron. Our Earth has an iron core, formed as the heavier substances (mostly iron and nickel) were pulled by gravity into the centre of the swirling ball, while the lighter substances like silica and hydrogen flowed around the outside. Most of the iron on and in the Earth is original star burst iron. Later, more iron arrived as meteorites.

Meteorites also brought all of the water that formed the oceans, slamming into the surface of the newly formed Earth planet, in the days where the moon was 10 times closer than it is now. Then, the moon was as smooth as a billiard ball and pure white, and caused tidal shifts in the rocky shell of the planet, the earth stretching and compressing each day like a soft rubber ball.[1]

Mostly, iron moves at timescales difficult for humans to observe, but if we can slow our timeframe right down, we can see that iron is not an inert, dead material, but lively, transformative and in motion. Rusting hints at this activity, beginning as soon as iron comes in to contact with oxygen.

It is possible through the process of electroforming to get a sense of the process of iron transforming from one state to another. With heat,

iron can change from solid to liquid, but electroforming allows the very ions of the metal to shift in space, to dissolve in one position and reform in another. I imagine the Earth at its very beginning, with great clouds of matter swirling and arcing as electricity causes dynamic, ionic movement. The various metals coalesce, joining together to become solid matter. In this speculative scenario, molecules of the same stuff attract each other, a quantum recognition, a fitting together.

Metals and stone are deeply entwined. The iron used to create the railway pin was mined somewhere on the Earth, extracted from the rock that held it. In Aotearoa, there was only one mine that produced iron in this way, at Onekaka in Mohua Golden Bay during the early 20th century. Like many mining stories in Aotearoa, initial enthusiasm and hope quickly dissolved into disappointment and the loss of huge amounts of money and effort.

In contemporary Aotearoa, iron is extracted not from rock, but from the black iron-laden sand of the beaches of the West Coast of the North Island. This sand contains the mineral titanomagnetite, rich in titanium and iron. This iron rich mineral has been expelled from the depths of the Earth through the volcanoes of the Taupo and Taranaki regions, and has slowly become sand through the undersea grinding of volcanic rock. NZ Steel mine the iron sand at North Head near Waiuku and process it into iron and steel at Glenbrook. It is the only mill in the world that extracts iron from sand. The process is very complex and took many years to perfect.

I visit Glenbrook mill on a grey day. It is an official tour. I have been trying to organise the tour since the beginning of 2020, but COVID intervened. Finally, the trip is confirmed and a small group of us drive down.

Initially, what strikes me most is the dust. As we drive towards the mill, the landscape outside the car seems to dull down, colours become slightly notched back—sepia tone at 10%. Later I read that when the mill was first built local people complained of black washing on the line and of sheep that turned from white to black in the paddock.[2]

Afterwards, once we have completed the tour and seen the huge barrel furnaces, the trucks transporting 10 tonne slabs of hot steel, the river of slag poured down the bank outside to cool and harden and the

Shelley Simpson, Railway pin, 2021, in *From things flow*, RM Gallery and Project Space. Photo: Kate van der Drift.

Above: Prospectors search for iron ore in the hills above Onekaka, Mohua Golden Bay. Date unknown. *Parapara Iron & Mud Flat*. Nelson Provincial Museum, Tyree Studio Collection: 178535

Opposite: Writing on the colonnade reads '...casting from Onekaka iron' with the date 1922. *Onekaka display*. Nelson Provincial Museum, F N Jones Collection: 312264

Mill building, NZ Steel, Glenbrook, May 2021. Photo: Shelley Simpson

Overleaf: *Kapuka*, Grisienia littoris with smoke stacks, NZ Steel, Glenbrook mill, May 2021. Photo: Shelley Simpson

yellow hot slabs rolling through the mills…once we have seen the iron oxide plant that looks like some one's hobby, with sacks of iron oxide powder stored in a shipping container…once we have heard the facts and figures, watched the induction video, run our hands through soft silky filtered magnetic sand and seen the ambulance, the lunch room, the gardens…once we have seen all these things, I try and figure out what it is that I find so compelling, so intriguing about this place and the processes that occur there. The mill is a portal, a liminal industrial space where multiple, storied layers converge. The roll of steel that emerges out of the end of the mill is an object, but it is not alone. It is not individual. It exists in a world of relations. A world of stories.

Stories collide here, human stories of industrial innovation, of hope, of employment, of bicycles, of tangata whenua, of community. Earth stories, of deep time reaching through vast spaces. Creaturely stories of plants and animals. Mineral stories. Everything speaks in this place.

The plants at the mill hold my attention. These living creatures behave as plants behave, maximising themselves in their environment, accepting the brown grey dust that coats them, reaching down into the earth, reaching out into the space around them, alive, aware and gesturing. Glenbrook employs two gardeners, who maintain two rose gardens among other plantings. Outside the lunch room there is a ginkgo tree. Ginkgo is an ancient plant—one of the first conifers, appearing in its modern form 160 million years ago during the Jurassic Period. It seems apt here. It is apt that this tree, considered a living fossil, its yellow berries once food for dinosaurs, should be here in this place, where the mill modifies star burst iron, using fossil filled coal and limestone made up of the calcite shells of ancient animals.

Glenbrook reaches back to the shifting land masses, to 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 sideways, affecting much in this time and place in complex relations. The iron depleted sand is returned to the mining site and now grows a monoculture of pine trees. I wonder what creatures once enjoyed the iron rich sands before the centrifugal and magnetic separation? The mill sustains a community of workers and families. Edible oysters grow near the place where the water that cools the great machines of the mill is discharged back into the sea.

The railway pin my friend found in the Waipapa Stream, cool and heavy in the hand, is alive with stories. The pin and the iron it is made from opens multiple layers of converging pasts, presents and futures. The metal is lively, active in the electroforming tank. Deep time and future potentials make themselves visible. And in the now, for me, the pin calls for attention to earthly matter, for consideration, and for care.

1 Justin Rowlatt, host, "A Geochemical History of Life on Earth– Part 1, In the beginning", BBC The Documentary (podcast), 2 October, 2021, accessed December 18, 2021, https://www.bbc.co.uk/programmes/w3ct2kyl

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

Previous page: Ginkgo tree outside the lunchroom, NZ Steel, Glenbrook mill, May 2021. Photo: Shelley Simpson

Shelley Simpson, *Electroforming tank*, 2021, in *From things flow*, RM Gallery and Project Space. Photo: Kate van der Drift

Teresa Peters

If fossilised nonhuman lives appear as stone, Foucault's infamous human lives appear as ashes or dried plants and flowers organised in a herbarium as an "anthology of existences."... Fossils emerge as if from the ocean floor in the shape of "ear, or skull, or sexual parts, like so many plaster statues, fashioned one day and dropped the next," as the cast-off parts of a human; the logic of resemblance peculiar to the fossil recasts those human parts as sea shell, bird, or worm... Foucault's historically contingent, emergent conception of life forces us to engage with the materiality of the traces of the past through which we construct our present un-derstanding of ourselves, not only as individual disciplinary subjects but, more urgently, in our massification as population and even as a geomorphic force.[1]

MOLTENENTITIES.COM: Notes on moving mountains archives evolving forms and continues investigations into interconnectivity, from collections (natural history) to collective consciousness and disaster or rupture as the mother of revolution.[2] With quartz as its crystalline touchstone, ceramic alchemy becomes a catalyst to explore geological regeneration and cosmic connection. Haptics, surfaces and their rupture navigate physical and metaphoric transitions into boundless territories—the 'violet-black', 'space–time–matterings', 'spazio' (Fontana) or the cosmos.[3]

Earth bodies, forming and transforming—Earth, water, air... fire. Molten entities in intimate combustion. Ceramics is a crystalline matrix. Quartz makes up over 50 per cent of the earth's surface and is the main ingredient in ceramic glazing. Known by the chemical name silicon dioxide, quartz is a crystalline solid. It is then mixed with flux like calcium carbonate and a feldspar refractory. Calcium carbonate is bones, rocks, corals, fossils—our fragmented successors and divine monuments. Coral reef polyps form a living mat over a calcium carbonate skeleton. Where the oceanic crust is subducted under a continental plate, sediments will be carried down to warmer zones in the asthenosphere and lithosphere. Under these conditions calcium carbonate decomposes to produce carbon dioxide, which over millennia, along with other gases, give rise to explosive volcanic eruptions. The echoing ooze of Ammonites to Ammolite—breaking new ground.

MOLTENENTITIES.COM

SEAWEEDS WITH LIMY SKELETONS. SUBMARINE TROUGHS DEEPEN. STONE-LILIES. BRIGHT COLORED POLYPS SPREAD. NEW MOUNTAIN RANGES APPEAR, THEIR NAMES ARE IMMATERIAL -- DULL DESCRIPTIONS IN A BOOK. THESE SILURIAN TERRAINS EXIST BY CONCEALMENT. NOTHING BUT BLAND REFERENCES TO A VAGUE SET OF GEOLOGIC FORMATIONS.[4]

Basaltic lava usually erupts at 1100–1200 °C on the surface of the Earth but by the time it is at the surface there are usually a few crystals starting to form. Quartz activates in the kiln after bisque firing clay at around 950 °C, the bisqueware is then fired at a heat that vitrifies the glaze binding it to the clay body around 1200 °C. Thermal electromagnetic radiation is generated by the thermal motion of particles in matter.

Piezoelectric pressure on rocks such as quartz can also trigger earthquakes and volcanic eruptions. Quartz is a piezoelectric transformer. Its crystals vibrate at precise frequencies—transmitting radio and television signals. The word piezoelectricity means electricity resulting from pressure and latent heat. Beach sand is now the material of the world's most advanced electronic devices. Touch and heat activate quartz in piezoelectricity via communication devices like touch screens in mobile phones.

THE EARTH DIPS OUT OF SIGHT, ALL THE ACTIVITY IS LOST UNDER THE LIMPID OCEANS. ALL IS SEDIMENTATION AND AIMLESS EFFORT. THE SILURIAN NIGHT CASTS THE NINE FOOT SEA SCORPIONS INTO TOTAL DARKNESS, WHERE THEY LIVED MAINLY IN ESTUARIES AND COASTAL LAGOONS. SILENCE, DARKNESS AND DISMAL PERFECTION. I CANNOT DISCOVER THIS OCEANIC FEELING IN MYSELF (FREUD).[5]

Every cell in the human body has a geometric crystalline structure. Your body resonates with the frequencies of quartz crystals. In crystalogy clear quartz crystals are known as the "master healer" and will amplify energy and thought, as well as the effect of other crystals. They absorb, store, release and regulate energy. Clear quartz harmonises all the chakras and aligns the subtle bodies. The third eye—100 to 300 microcrystals per cubic millimetre were found in each of 20 different human pineal glands. These crystals have been

found to have piezoelectric properties, meaning they expand and contract in the presence of electromagnetic fields. The brain is known to produce an electromagnetic field and radio stations can be picked up by piezoelectric crystals without the use of electricity. The notion that the pineal gland could play a role in the nonlocal reception of information is not so incredible.

The Crystal land.[6] Auckland's hot spot, ninety kilometres down... corresponds in size to the city itself, huge, unknowable, utterly dark... from time to time it lets go a molten droplet, primed with sufficient volatiles to rise upwards at motorway speeds and severely shock the surface.[7] *POKE PIECE*—explores touch as a geomorphic force. On opening night viewers haptically form minimal slabs of black volcanic clay into "rocks" or "crystals." Navigating the prehistoric futuristic *MOLTENENTITIES.COM* is presented via interactive iPad, archiving clay and ceramic forms that evolve within the gallery on a makeshift lab cum porous "tectonic" perspex plates. Transforming shades of blue grey to silver, the show duration is mapped with a kiln cycle. *QUARTZ SOUND JOURNEY*, collab with sound healer Cheryl Farthing playing the quartz and alchemy bowls, creates an intimate collective audio-visual experience, as participants are encompassed by kaleidoscopic video projections and transformative crystalline vibrations.

MASSIVE HEAPS OF SKELETONS CAPABLE OF WITHSTANDING BUFFETING IN ROUGH WATER. CORAL BREAKDOWN. FLOATING GRAPTOLITES. MANY SANK TO THE BOTTOM. SHALE. 400 MILLION YEARS AGO. PERIODIC ALTERNATION OF THE LEVEL OF LAND AND SEA. LESS VOLCANIC ACTIVITY THAN IN ORDOVICIAN TIMES. UNDERSEA MOUNTAINS, RAVINES AND VALLEYS. CRUSTAL MOVEMENT. TRAVERTINE. SWAMP TREASURE. DRAWINGS OF SINKHOLES AND CRATERS.[8]

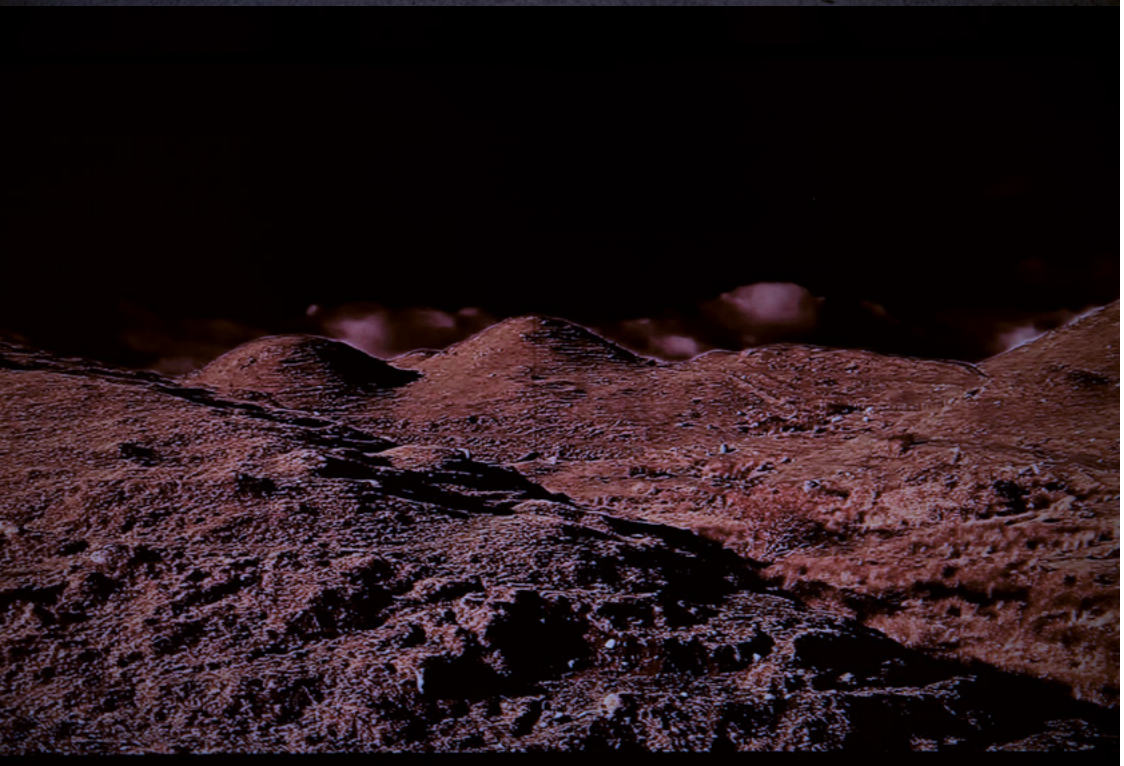
Teresa Peters, *MOLTENENTITIES.COM: Notes on moving mountains*, 2021 (Artefact)

Teresa Peters, *MOLTENENTITIES.COM*, 2021 (Artefacts)

Overleaf: Teresa Peters, *MOLTEN ENTITIES*, 2021, *Quartz Sound Journey*, projection detail (ceramics evolve in the gallery). Photo: Teresa Peters

1 Lynne Huffer, 'Foucault's Fossils: Life Itself and the Return to Nature in Feminist Philosophy' *Foucault Studies*, No. 20, December 2015, 139.
2 Teresa Peters, *DISASTROUSFORMS.COM*, 2020 (launched on the Auckland Live Digital Stage in 2021, inspired by and archived at Auckland Museum Collections Online as a Topic) https://disastrousforms.com/.
3 Stacy Alaimo, 'Violet-Black', "Prismatic Ecologies: Eco Theories beyond the Green", Minnesota UP, 2013. *More than Human*, Editors Andres Jaque, Marina Otero Verzier, Lucia Pietroiusti (Het Nieuwe Instituut, Serpentine Galleries, Office for Political Innovation, Manifesta Foundation); Karan Barad—*Meeting the Universe Halfway—Quantum Physics and the Entanglement of Matter and Meaning*, Duke UP, 2007: Lucio Fontana—*Ceramica Spaziale*, *Concetto Spaziale* or *Spazio* ; Jole de Sanna, " Renovating the New: The Art of Lucio Fontana", Artforum, November 1987. https://www.artforum.com/print/198709/cuts-holes-spaces-ultraviolet-oils-concepts-metals-a-universe-open-to-the-universe-34807; Teresa Peters, "GROUND ZERO" disastrousforms.com. https://disastrousforms.com/ZERO.
4 Robert Smithson, 'STRATA A GEOPHOTOGRAPHIC FICTION', Aspen, no. 8, Fall-Winter 1970–71, Issue edited by Dan Graham, *Robert Smithson: The Collected Writings*, Editor, Jack Flam, University of California Press, 1996, 76.
5 Ibid., 76.
6 Robert Smithson, 'The Crystal Land' 1966 *Robert Smithson: The Collected Writings*, 1996.
7 Geoff Chapple, *The Roughness of its Touch: A psychology of Auckland Volcanics, Warwirk Freeman* 2017, Objectspace Journal; Note: Geoff Chapple was a main participant in *Mt Eden Crater Performance*, 1973.
8 Robert Smithson, *STRATA A GEOPHOTOGRAPHIC FICTION*, 76.

Teresa Peters, *MOLTEN ENTITIES*, 2021, *Quartz Sound Journey*, projection detail. Photo: Teresa Peters



Teresa Peters, *MOLLUSK REFERENCE*, 2021 video collab with Maree Horner

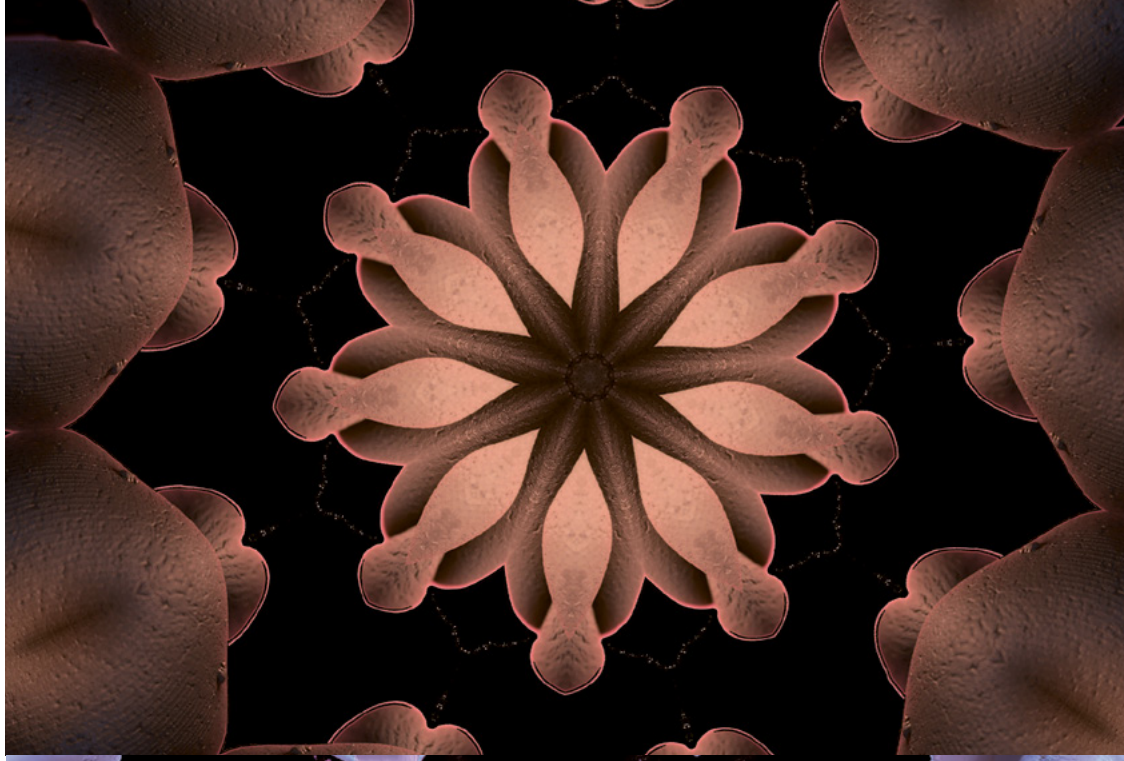
MOLLUSK REFERENCE… spacetime turns from a grid-like box into what Einstein fantastically calls a 'reference–mollusk'. Einstein turns to the most squishy thing he can imagine… to this extent H.P Lovecraft's monstrous god Cthulhu is a hyperobject a giant squid-like being floating asleep in a non-Euclidean realm out there in the universe.[1]

Prehistoric mollusk fossils called Ammonites are sometimes discovered along Taranaki's rugged black sand coastline to this day. They map 201 million years since the Jurassic and then Cretaceous period. Transforming over millennia into the fossil fuels that are abundant in the volcanic region. The last eruption of the stratovolcano occurred around 1854, it has erupted 160 times in the last 36,000 years. *Given Time—Being in a Space—Common ground*—we are in the mountain province documenting *Songs of the Earth*, Roger Peters' retrospective spans 50 years since his original show at Auckland Art Gallery in 1975.[2] The works engage all the senses, monosyllabic titles like *Salt—Trees*—the canister reads 'rock gas' as Dad crouches to light the three flames flickering over—*Rocks*. My parents are both 1970s forerunners in Post-object; conceptual, experimental and land art in New Zealand. *Groundswell*, a rapid seismic or escalating political wave captures the energy of the movement and entitles the 2018 retrospective at Auckland Art Gallery.[3] I navigate this personal art history as I conceive *MOLTENENTITIES.COM: Notes on moving mountains*, 2021.

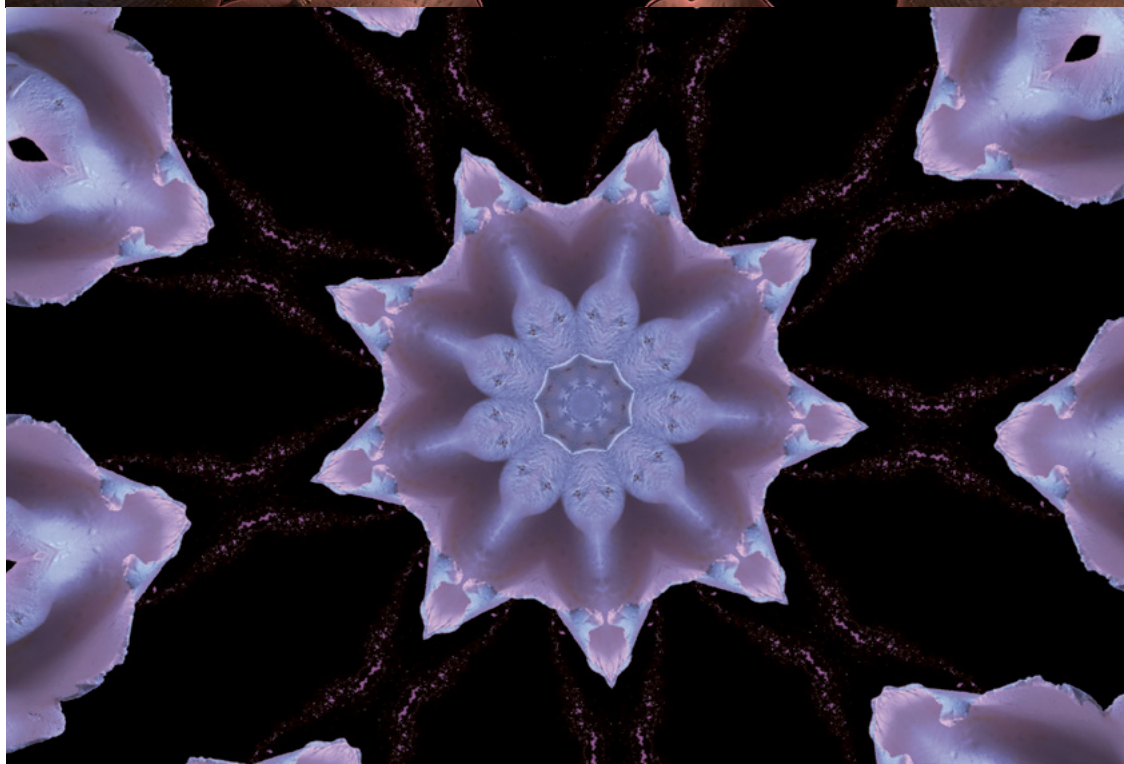
The mid winter day is serene and crystal clear, but the mountain weather rapidly cycles and with a storm on the horizon, Maree Horner and I set off to the north west flanks chasing lahars.[4] As we are travelling I glance at my phone and flick through my Instagram loop. I see Tina Barton is screening *Swamp*, 1971[5] this weekend in conjunction with Kate Newby's show *Yes tomorrow* at the Adam Art Gallery.[6] "Here!… no… drive on… should we stop?… no… keep moving on." I think of Smithson guiding Holt, swaying through their wetland environment via a Bolex viewfinder, as we navigate the windy coastal road. The anthropomorphic mounds encompass us as we pull up into the driveway of a quarry. Filming the dusky transition into night over the undulating forms is like an old science fiction. On the surface we stand in the moment—lava and liquid earth flow through our minds—space becomes timeless out there on the ruptured mountain edge, somewhere between the mollusks—the mountain—the cosmos… *I'm happy to swap a world of wholes and parts and distances for intimacy… I'm happy for a time of zero landscape.*[7]

1 Timothy Morton, *Zero Landscape in the Time of Hyperobjects*, Graz Architectural Magazine 7, 2011, 84.
2 Roger Peters, *Songs of the Earth*, Auckland Art Gallery, 1975; *Songs of the Earth* 1975–2021, Pihama Lavender, Taranaki, 2021.
3 *Groundswell: Avant Garde Auckland 1971–1979*, Auckland Art Gallery 2018/19; *Action Replay: Post-Object Art*, Artspace, Auckland, 1998; *New Art: Some Recent New Zealand Sculpture and Post-object Art*, Editors Jim Allen and Wystan Curnow, Auckland, Heinemann, 1976.
4 Teresa Peters video collab with Maree Horner, *MOLLUSK REFERENCE* is a note in *MOLTENENTITIES.COM: Notes on moving mountains*, 2021 (view via website).
5 Nancy Holt, *Swamp* 1971 holtsmithsonfoundation.org. Accessed January 21, 2021. https:// holtsmithsonfoundation.org/swamp..
6 Kate Newby, *Yes Tomorrow*, Adam Art Gallery, 2020.
7 Timothy Morton, *Zero Landscape*, 82.

Teresa Peters, *MOLTENENTITIES.COM*, 2021



Teresa Peters, *MOLTENENTITIES.COM*, 2021



Kathryn Tulloch

A recipe guide to *Food Stack*

I enjoy making food as much as eating food; they build on each other. Through folds of family cooking, gardening, friendships, health crisis, environmental crisis, work and play, connecting to the materiality and vibrancy of healthy edible plants in all their forms has been grounding and deeply nourishing. Edible plant parts and their transformations through the elements of fire, water, air and earth in cooking processes are wholesome and life-affirming. Plants offer connection to primary production, green life on earth, earth presence, Papatūānuku. From mineral, to vegetal, to animal and human, plants are ancient, foundational, co-evolving and a key participant in our planet's living systems.

Food Stack was a participatory piece, a communal serving and eating experience on From things flow's opening night. The stack had 14 layers and was made to be dug into with a salad fork and eaten in purpose-made bowls. The forming and production of its recipe, presentation and serving shifted the common consumption of a meal towards a kind of chthonic enacting and meal-as-art moment, making present earth materiality, beings and processes.

The invitational act of digging through layers of organic matter—merging flavours, mixing, melding, eating and unmaking the stack—held in mind Donna Haraway's description of and attention to chthonic processes. 'Chthonic' (khthon) is one half of her timeplace term Chthulucene, which uses two Greek root words to form a dynamic alternative to the human-focused Anthropocene. "Chthonic ones," she writes, "are beings of the earth, both ancient and up-to-the-minute...they demonstrate and perform the material meaningfulness of earth processes...they make and unmake; they are made and unmade".[1] In serving ourselves and eating from *Food Stack*, we perhaps momentary became closer to these nutrient recyclers. Sensing ourselves as them, closer to them, was an intentional hopeful gesture towards a renewed value and care for them and their mostly unseen, disregarded or problematic lives in Western industrial food production and consumption.

Kainos (-cene) is the other half of the compound Chthulucene. For Haraway it means "now, a time of beginnings", a "sense of thick, ongoing presence".[2] On the opening night I was asked multiple times for the recipe of *Food Stack*. Recipes can be used as instructions or

frameworks, guidelines for coming into relation with various materials and methods. Below I have offered two recipes. The first one is a kind of coming into relationship with the ingredients through a meditation framework from musician and mystic philosopher Hazrat Inayat Khan.[3] It is a shortened applied version which moves gently through the mind—from our senses, memory, imagination, will and identity and back again—and is used as a way to gather a thick presence in how we relate, take on experience, form and unform habits and meanings and attune to our environments. The second recipe is descriptive and instructional, drawing on handed-down cultural knowledge and parts of recipes from two well-known chefs working with plants.
The final form of *Food Stack* emerged in mind while I held a taste sense of its whole and imagined into the structuring practicalities of its horizons, place-sourced ingredients, orientations of plant parts, transformational processes and the flavour essence of each layer. It was made on top of a watercolour-infused tablecloth, where its presence and remains informed the tablecloth painting that was shown the following day and for the remainder of the exhibition.

Kathryn Tulloch, *Food Stack*, at the *From things flow* opening night, RM Gallery and Project Space, 2021. Photo: Kate van der Drift.

Kathryn Tulloch, Digging into *Food Stack*, at the *From things flow* opening night, RM Gallery and Project Space, 2021. Photo: Florian Habicht.

Recipe one

1. Various green leaves garnish on top—culinary herbs and cress, soft leaves and fronds divided into the smaller parts of their particular growth pattern, repeating for some across different scales. Fresh fragrant flavours mix: earthy, sweet, clean, peppery, citrus-like, grassy, savoury, mild, bitter aniseed, and more.

2. Small deep green crispy wakame fronds dancing in dried wave forms from the ocean.

3. Underneath, finely sliced, juicy, crisp, tart green apples, temporarily preserved in lemon juice.

4. Water-and-nutrient-carrying long ribbed green stems mixed with mildly juicy bulbous white stems. Crunchy-subtle salty-sweet and bitter flavours mix with delicate aniseed.

5. Part of a dressing, previously made over and over, its basic proportions and flavour qualities embedded in memory. The honey and olive oil mix was poured over the layers to combine with the lemon juice and to coat and mingle with ingredients at some other stage of the stack I have now forgotten.

6. A rocky dust made of nuts and seeds, sun-ripened past their fruits and flowers. A store of energy for a new cycle of life to appear. Coriander in my garden flowering, going to seed. Eating the seeds and noticing the subtle variety of flavours through their colour changes, from green towards light brown.

7. Dinosaur kale, palm tree kale, cavolo nero's long, deep-green leaves—they stay green and crispy-fresh when dehydrated and can be packed away into airtight bags and eaten at some other time.

8. Cashew sauce, made while imagining its local and imported ingredients were grown where land rights, worker rights, ecosystem wellbeing are valued. Imagining our food system radically changing, where the body of the land is farmed in ways that listen to, take in and follow its particular presence and essence, allowing its dynamic, dense, complex and diverse life-supporting living systems to thrive.
A flowing, improvising and adapting with, rather than against. A noticing of the web of life. Its tenders, producers and processors experiencing fair trade and sustainable livelihoods as its consumer bodies benefit from the nourishment of healthy, nutrient-dense food.

9. Seeds sprouting, with just the right amount of water and warmth they need to hydrate and activate.

10. Fermented foods, doing their thing in dark pots and barrels, like seeds underground taking time to transform in the right conditions. Pausing here for a moment within, our attention can go in many different directions—towards how we relate to food, attitudes, memories, land, habitats, daily habits, expectations, needs. Ourselves as producers, consumers, decomposers connected to dynamic living systems. Considering how we might partake in daily acts of growing, preparing, trading, regulating, sharing, eating, digesting, storing, disposing, composting our meals to nourish, to be well, to sustain and regenerate ourselves and our near and far communities.

11. Our global food system is full of vast unseen networks. Most of us see the fruits of it when we pop into the shops or markets. How similar is it to fungal networks, known for being decomposers and nutrient sharers, their fruits popping up as mushrooms.

12. Leeks relaxing, slowly poached and infused with herbs, spices and citrus. Bathed in gentle simmering water until silky, soft, expansive and melted. The leek and its infusion bath becoming one. Quinoa, so nourishing, simmered and steamed and mixed with leek.

Kathryn Tulloch, *Food Stack*, at the *From things flow* opening night, RM Gallery and Project Space, 2021. Photo: Kate van der Drift.

Kathryn Tulloch, Remains of *Food Stack*, at the *From things flow* opening night, RM Gallery and Project Space, 2021. Photo: Florian Habicht.

13. Tipu of kūmara carefully tucked into the ground. Unseen tuberous roots forming below for many months. Baked in the oven whole until as soft as the soil they come from.

14. Aliveness underground. Bulbs of medium and small-sized onions and garlic share space with more microorganisms than estimated stars in the universe. Black garlic aged precisely so that it is soft and sweet, decomposing in a way we like to eat. Chillies and dates in trees, ripening, on their way towards falling to the ground. Transformation through fermentation, heat, blending. The bottom layer of the food stack.

    A thin layer of unbleached baking paper and then the painted tablecloth, soaked in watercolour, colour tuned to sunlight baked into land and body, circulation, evaporated heat meeting and dissolving into the depth and enormousness of the night sky.

    The bowls we eat from—speckled, galaxy-like patterns, the spinning and churning of matter forming and unforming, in a state of change, not quite finished, made to be unmade. Washed, boiled, blended, remoulded and reused, already-used-once single-use compostable bowls. Lives, worlds, earth co-evolving. Residues of flavours, memories of meals, atmospheres of moments in our collective memories. Made over and over and passed along.

Recipe two

1. Picked herb salad: One bunch each of watercress, parsley and dill; some sprigs of thyme. Fronds of one small fennel.

2. Seaweed: A light sprinkle of Pacific Harvest Wakame Fronds.

3 Apple: Granny Smith, sliced and mixed with juice of fresh lemon.

4. Fennel and celery: Shaved on mandolin or finely sliced, mixed with juice of fresh lemon.

5. Dressing: Olive oil and honey mix and poured over the layers to mix with the layers above in your bowl.

6. Dukkah: 1 cup hazelnuts, ½ cup sesame seeds, ½ cup coriander seeds, ¼ cup cumin seeds, 1 tsp fennel seeds, pinches of salt and thyme, sprinkle of cinnamon, dried lemon peel to taste. Toast hazelnuts, then seeds in a pan in the oven until fragrant and lightly coloured. Cool, transfer to mortar and pestle or food processor, blend with salt and thyme and stir through cinnamon and lemon.[4]

7. Cavolo nero: Hold base of stem between finger and thumb, pinch and run down stem to separate leaf from stem. Massage leaves in olive oil. Sprinkle with salt. Place on tray and dehydrate in dehydrator, or in oven on low, 50 degrees Celsius, until crispy.

8. Lime Leaf Cashew Cream: Soak 1 cup of cashews in water for 2 hours or overnight. Put 40ml olive oil into a saucepan/cast-iron pan. Add 5 fresh makrut lime leaves (roughly chopped), 10g fresh ginger (peeled and finely chopped), 1 garlic clove (crushed) and cook gently on a medium-high heat, for five minutes. Remove from heat and set aside to infuse for at least 40 minutes. Strain and discard the aromatics, stir in 1 tbsp of lime juice and 1 tsp salt. Rinse soaked cashews and put in blender with the strained oil infusion, 1 tsp lime juice (or more to taste), 1 tsp apple cider and salt. Blend until smooth, adding 1–2 tbsp of water if needed. Refrigerate overnight for the flavour to come out more strongly.[5]

9. Sprouted peas: Soak dried blue peas in water overnight and strain. Leave in glass jar on bench to sprout—takes a day or two depending on the weather. Rinse and strain daily.

10. Sauerkraut: I used store-bought Living Goodness Sassy Sauerkraut, with cabbage, juniper, caraway, dill.

11. Mushrooms: Wood ear mushrooms foraged from Tarata trees in July, thinly sliced and sautéed in olive oil and garlic.

12. Braised Leeks with Lovage and Lemon: 6 leeks, few springs of lovage (I used parsley instead), 1 thyme sprig, ½ tsp sea salt, peel of one lemon, 8 whole peppercorns. Chop off green tops roughly from where the leaves start to separate from the leek. Slice leek in half lengthwise and place in a cast-iron pan with water to cover, along with the ingredients above. Bring to a gentle boil, cover and cook until the leeks are tender when pierced with a knife. Lift them out of the pan and set them aside to drain. Then slice.[6]

    Quinoa: Soak Kiwi Quinoa for 2 hours before cooking. Rinse and cover with water 1cm above and gently boil away the water, then cover with a lid, remove from heat and sit for 10–20 minutes until soft and fluffy. Mix with the sliced leek.

13. Baked kūmara: Ōwairaka Red kūmara washed, pricked and baked at 200 degrees Celsius until soft, about an hour.

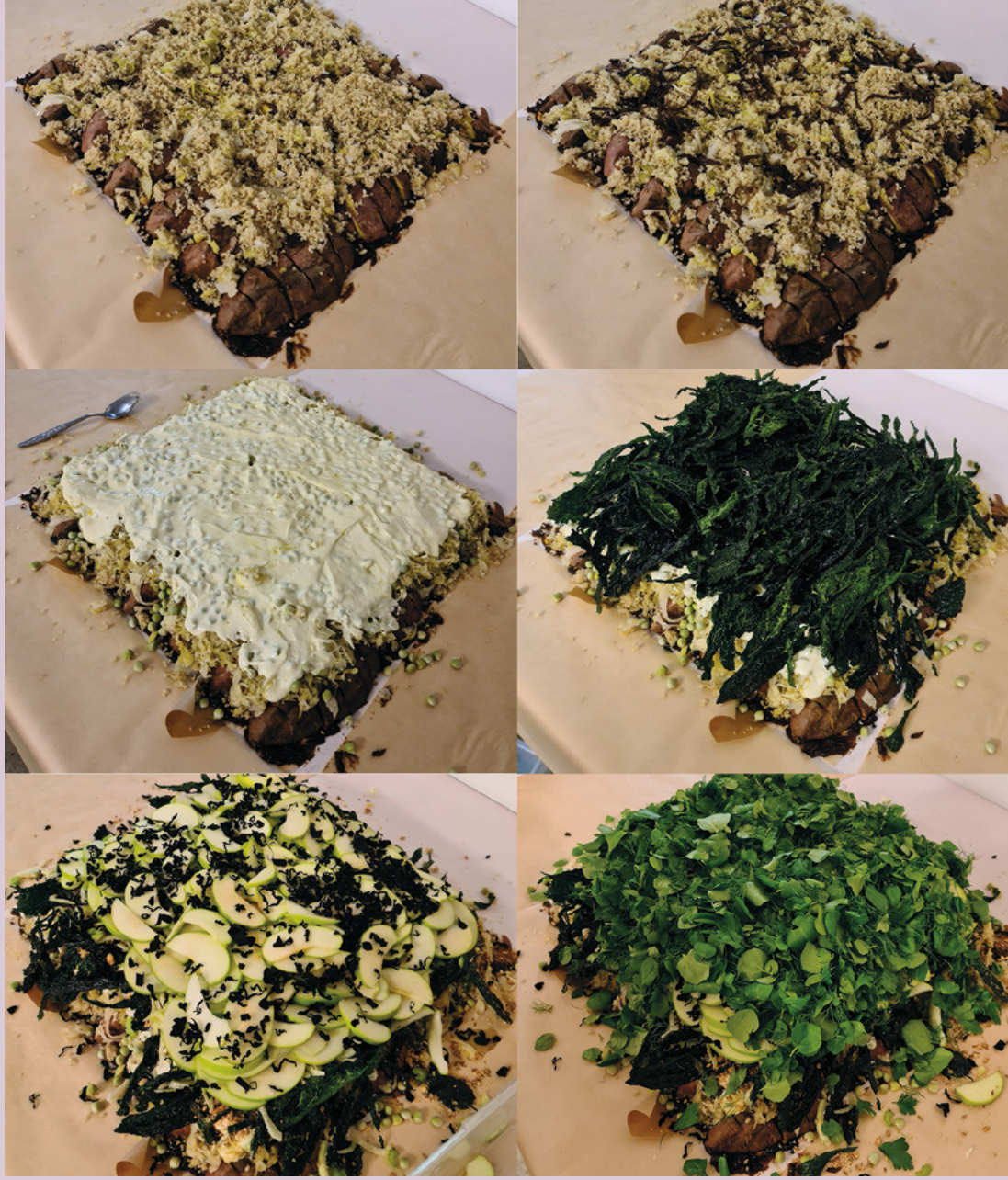
14. Date Barbecue Sauce: 90ml olive oil, 1 small red onion (finely chopped), 2 garlic cloves (crushed), ¼ tsp finely chopped manuka smoked red chilli from Kaitaia Fire, or chilli flakes, 60ml balsamic vinegar, ¼ tsp smoked paprika, ½ tsp ground cumin, 100g pitted dates (roughly chopped), 20g black garlic (about 10 cloves). Put 2 tbsp

Kathryn Tulloch, Next day tablecloth painting, *From things flow*, RM Gallery and Project Space, 2021. Photo: Kate van der Drift.

Kathryn Tulloch, Next day tablecloth painting (detail), *From things flow*, RM Gallery and Project Space, 2021. Photo: Florian Habicht.

of oil, the red onion and garlic into a small saucepan on a medium heat. Fry for about 6 minutes, stirring often, until the red onion is soft and golden. Add all the rest of the sauce ingredients except the remaining oil, along with 130ml of water and ½ tsp of salt. Bring to a gentle simmer, then turn the heat to medium-low and cook for 8 minutes or until the dates have softened completely. Leave to cool for 10 minutes, then transfer to a Nutribullet or the small bowl of a food processor with the remaining 60ml of oil and blitz to a smooth sauce.[7]

1 Donna Haraway *Staying with the Trouble: Making Kin in the Chthulucene*, Duke University Press 2016, 2.
2 Ibid.
3 Pir Zia *Inayat Khan Na-koja-abad: Meditation II Day Five* talk at Suluk Academy Global Online Programme 2020–22.
4 Variation of recipe in Deborah Madison *Vegetable Literacy*, Ten Speed Press 2013, 42.
5 Variation of Lime Leaf Butter in Yotam Ottolenghi and Ixta Belfrage *Flavour*, Ebury Press 2020, 50.
6 Variation of recipe in Madison *Vegetable Literacy*, 260.
7 Variation of recipe in Ottolenghi and Belfrage *Flavour*, 59.



Layers of *Food Stack*, *From things flow*, RM Gallery and Project Space, 2021. Photos: Shelley Simpson.

Kathryn Tulloch, Next day tablecloth painting (detail), *From things flow*, RM Gallery and Project Space, 2021. Photo: Kate van der Drift.

Overleaf: Shelley Simpson, Interior of iron electroforming tank, 2021, in *From things flow*, RM Gallery and Project Space. Photo: the artist

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From things flow

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