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EXPLORATIONS IN AOTEAROA NEW ZEALAND

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## INTRODUCTION

In 2023, I left France to travel in Aotearoa New Zealand for my first international artist residency. My trip, on a working holiday visa, lasted nine months and was a once-in-a-lifetime opportunity, which I fully embraced. As a ceramist and artist from France, my goal was to research and work with clays from Aotearoa New Zealand as a means of exploring Aotearoa's unique diversity and geology, with respect to its land and people. Working with materials from the land is a unique way to experience the endemic geology from the perspective of the mind, heart and the sacredness of the whenua. From my encounters, I found a way of reciprocating and giving something back in return.

I was interested in seeing the last art school in Aotearoa with a full ceramics studio department, so I visited Ōtepoti Dunedin on one of the Dunedin School of Art's open days. There I met Rob Cloughley and introduced him to my art practice and collaborations with scientists, including those done in the Louvre Lab in Paris.

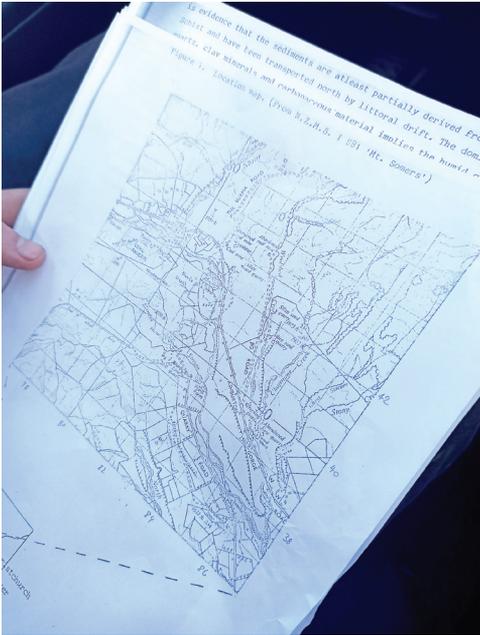
In France, I worked at the ceramic research lab in the Louvre known as the C2RMF (Centre de recherche et de restauration des musées de France/The National Centre for Research and Restoration in French Museums). My research involved a ceramist from the Renaissance period, Bernard Palissy (1510–90). My role was to prepare the clays, analysed and collected as Palissy would have done more than four hundred years ago, and try and discover how he created his fine marbled patterns.

Employed as a ceramist by Catherine de' Medici, Palissy was commissioned to create a grotto cave covered with ceramic shells, leaves and animals (including snakes) for the Tuileries Gardens of the Louvre. A writer and researcher as well as a ceramist, Palissy crushed any material he could to create his own distinctive white glazes; he was also a figure of legend as the man who burnt his own furniture to finish his wood firing. I found a parallel in Aotearoa with Len Castle (1924–2011), who started making marbled clays during World War II, often with explosive results.<sup>1</sup>

As a result of my interest in Castle, I wondered how different the clays and sands were in Aotearoa from those in France and how they would combine and marble together.



Figure 1. Recreation of marbled clays in C2RMF, Louvre Lab, Paris, 2017.



Figures 2. Mount Somers.

Clays are formed from decomposed rocks from mountains, as in the Southern Alps in Aotearoa, and are created by tectonic activity along faultlines. Thus, each clay deposit is unique in terms of its volcanic origin. I had never experienced such active geology before visiting Aotearoa. The clays (uku) one finds in the wild here include different sand types drawn from the variety of coloured sands found around the coasts. Drawing on this unique diversity, I experimented in order to discover how local clays and sands would react with heat and fire. I also wanted to find out how uku and the tiny sand grains I had collected look under a microscope before and after firing, and with glaze added.

With Rob Cloughley's assistance, I applied for a DSA residency and made valuable contacts that enabled me to learn about clays from Aotearoa, their origins, locations and uses. I contacted Paddy Ferris, a former DSA student who was creating clay recipes for the Temuka Pottery factory, making ceramic insulators for electric pylons with local clays, including Kakahu and Mt Somers Te Kiekie clay. When I visited the factory, I was amazed to observe the lightning tests used to prove the capacity of each ceramic insulator to be lightning proof. What an adrenaline shot that was!

I started to discover the rich story of clays in the Canterbury area, where I was staying. Clays have been dug from the Kakahu deposits near Geraldine since the 1860s and kilns have been firing the local clay into various products in Temuka since 1868, including tiles, bricks, tableware and porcelain electrical components. I learned that Temuka was the only large-scale producer of ceramic kitchenware remaining in New Zealand and now the sole producer of ceramic insulators.

Thanks to Paddy, who became a great friend, together we found and collected small amounts of Mt Somers Te Kiekie clay close to the historic potters' quarry: "Where you can see limestone and coal there is surely clay," he taught me. I was amazed to see how plastic this orange-brown clay was, straight from the ground. This plasticity comes from the area's unique geology. Volcanic activity 98 million years BP (before present) formed rhyolite, the most silica-rich of volcanic rocks, silica being an important component of clay. Through subtropical weathering, it formed as a primary clay around 90–40 million years BP. The sea formed a deposition of marginal sands, followed by the compression and uplift of the area during a period of glaciation that created lava patterns still visible from the valley.<sup>2</sup>

Acting on Rob's recommendation, I met Tatyanna Meharry in her studio in Ōtautahi Christchurch and viewed the hundreds of samples of clays and sands she had collected in Aotearoa, mostly around the South Island and especially in Canterbury.<sup>3</sup> Creating ceramics with local uku clay, she always asked permission from Maori representatives to collect these materials. Tatyanna kindly shared her knowledge and showed me four particular clays she had found herself: white Kakahu, Charleston, Bathurst and Glentui.

The latter, Glentui, I found myself at Greymouth Māwhera along the coast road during a two-week road trip around the South Island. I travelled from Ōtautahi Christchurch to Arthur's Pass, the West Coast to Tasman Bay, then the East Coast down south to Ōtepoti Dunedin. On this trip I collected 16 different samples of sands, small quantities dated and organised by chronological order of collecting using the same method. Collecting each sample, I bore in mind the sacredness of the land, making a small prayer with gratitude. I picked up any rubbish as I went along, to thank nature for these gifts. I also collected shells, kuku (mussels) and triangle clams as a memory of these encounters. Finding a connection between time and place was a joy; walking barefoot on the beach looking at shells reminded me powerfully of the beaches of my birthplace in Normandy, France.

## TE WAIPOUNAMU IN THREE PARTS

In what follows, I share my experience of Te Waipounamu in three parts.

First, I share photographs from my trips and the places where I collected the clays, sands and shells. Second, I discuss the shaping process for clays and sands, using 31 rulers as shrinking tests; measurements of their reaction to the drying process and firing effects on the clays on their own, then marbled together; making marbled shell shapes as a tribute to Palissy; and creating 73 shell forms as a support for sand glaze tests. The third part reports a collaboration with the Geology Department at Otago University; I worked with Marshall Palmer and Sophie White to create images of uku and sands from the microscope.



Figure 3. Map of Te Waipounamu and collected sands.



Figure 4. Sands (in chronological order of collecting): Hokitika, Franz Joseph, Greymouth, Westport, Tasman Bay, Motupipi, Havelock, Clifford Bay, Kekerengu, Kaikoura, Gore Bay, Ōtautahi Christchurch, Oamaru, Moeraki, Long Beach, Aramoana.

I. Photographs of trips



Figure 5. Kekerengu



Figure 6. Kakahu

## 2. Observing and creating with uku clays and sands

To experiment with the various uku and sands I needed to prepare them carefully and devise a method of identifying them during the collection process, taking note of their specific qualities. All my findings were kept in a notebook and shared in a second notebook as a gift for the students I worked with.

Arriving at the residency in Ōtepoti, I first allowed the sands to air-dry so that they would retain their mineral content. In the ceramic workshop I made the uku homogeneous using the same process. I put the same amount of clay and water, sifted with an 80 mesh sieve, into buckets. Using the sieve, I could put aside larger pieces that might explode with the heat from the firing; I decided to crush them with the grinding bowl and include them in the glaze tests.

Preparing clays required the utmost patience, especially marbling them together. For different clays to combine they need to be plastic, malleable and dry, and shrink together smoothly enough not to break apart with firing.

When preparing a clay mix, the longer you leave it the more plastic it will become. As I wanted to experience the clays with their own natural properties intact as much as possible, I left them in water for a few days – best practice is to immerse them for weeks. I used a plaster surface layer to absorb the excess water and form balls of clay, which were then kept in wet tissue or plastic in an airtight bucket. To quicken the process, one can include different materials like bentonite that make the clay more acidic, but I was mindful of my challenge to myself to use only found materials from Aotearoa as much as possible.

Each clay used was specific in composition and colour and reacts differently when manipulating it. Charleston clay was full of shiny crystals of mica (often used for makeup) and very brittle, so I added two scoops of bentonite, which was a helpful technique here, and also with the Greymouth Māwhera clay. Even though the Charleston clay was hard to use, I loved seeing the mica particles shining with the light; as I manipulated the clay it made my hands sparkle. The white Kakahu clay was plastic to start with, like the orange–caramel Glentui clay or the dark-grey Bathurst clay, but it was hard to sieve with its inclusions of coal fragments.

### The Shrinking Tests

With the clays ready, I wanted to see how the various uku reacted to the drying and firing process, first with the six clays themselves, then with combinations of these clays, creating 31 different rulers to use as shrinking tests. To shape my samples, I utilised the only tool I had brought from France, a small metal ruler that had belonged to my grandfather, a carpenter. I made a 10cm mark on two identical clay body rulers which were measured when dried, then fired in two different kilns: one electric (1215°C, cone 6) and one gas (1285°C, cone 10). The required temperature is higher in a gas firing and oxygen levels are reduced, sometimes resulting in the uku melting to some degree. The results were somewhat surprising, with some clays melting to such an extent that their inscribed numbers and names disappeared and it became a puzzle to recognise them.



Figure 7. Shrink tests.

## The Marbled Shells

As a tribute to Bernard Palissy, each marbled clay sample used for the rulers was sculpted into the shape of shells I had collected around the South Island. I used Palissy's method of making plaster moulds so as to make an imprint of the kuku and triangle clams I had found, preserving details of shell textures and pressing the uku into the moulds. Using plaster moulds helps the clays to meld together, suggesting a parallel with the geologic movements that formed them. Making the most of this repetitive process, I created unique marbling effects on each piece. To reveal the marbled patterns, I used a transparent glaze from the ceramic studio which was very effective in giving the shells a 'wet' look and thus a more realistic effect.



Figure 8. Marbled shells.

## Glaze Tests

As sand contains silica, which is a component of both clay and glaze, I tested the first 16 sand samples collected around the South Island with a transparent glaze. First testing each sample individually, then combinations of them, I created 73 shell forms as records of their reaction to the firings. I was surprised to see how the sands in the transparent glaze created a natural green or 'celadon' effect in the gas firing. The ability of these sands to create these metallic effects, thanks to the heavier material within them, inspired me to observe them under a microscope.

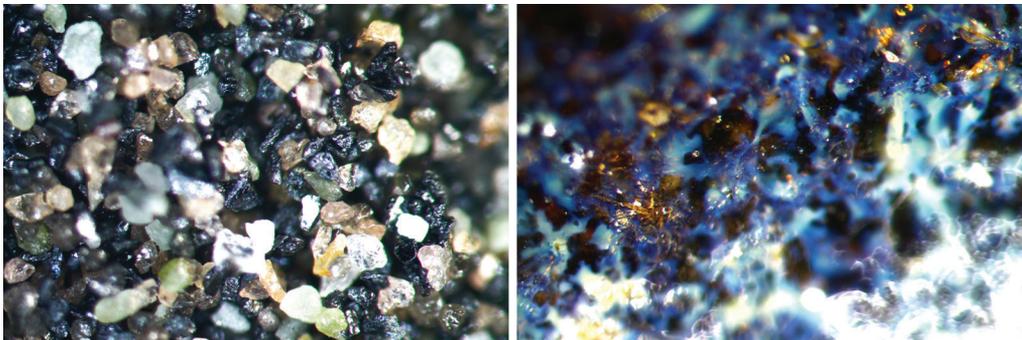


Figure 9. Westport sand, Westport sand glaze.

### 3. Images of inner worlds – a collaboration with the Otago University Geology Department

During my road trip along the beaches of Aotearoa I saw dark sands, or layers of coloured sands, for the first time. This variety derives from their composition, their geological formation. I am grateful to Marshall Palmer and Sophie White for their time and for welcoming me to the Geology Department and Geology Museum at Otago University, where I was able to create images of the uku and sands I had collected around the South Island using a stereomicroscope. Through these images I was able to enter a new world.

The microscope helped us perceive a variety of textures and colours in crystals invisible to the naked eye, including, sadly, a fibre of micro-plastic lodged in clay as a reminder of the omnipresence of plastic due to our 'consumption industry' and one sign of the fragility of our ecosystem. Flashes of what looked like gold recalled the Otago gold rushes, the cost in terms of lives and land in the search for precious materials in hopes for a better life.

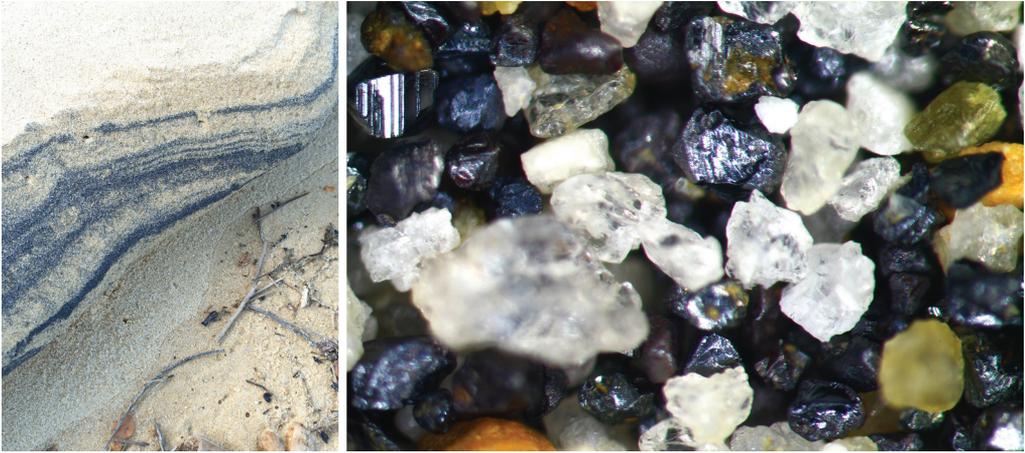


Figure 10. Tasman bay.

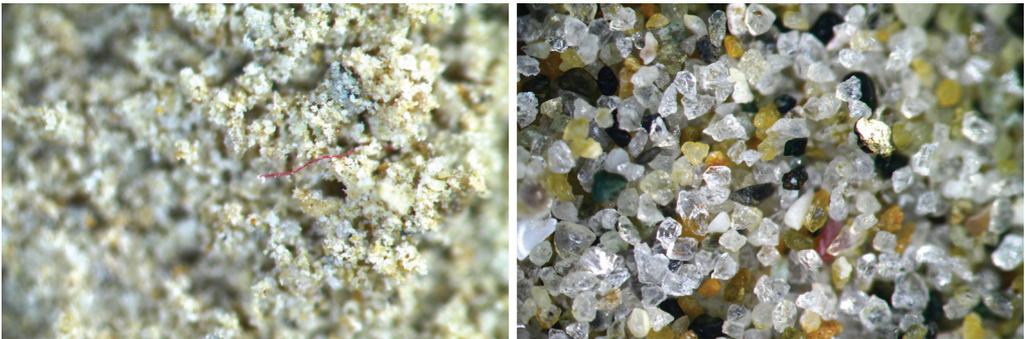


Figure 11. Glentui clay, Moeraki sand.

## AOTEAROA, LAND OF THE LONG WHITE CLOUD

I am very grateful for the time I spent in Aotearoa, for the astonishing landscapes and the connections I made with wonderful people, family who settled here 15 years ago and new precious friends, including those I met in Ōtepoti Dunedin during my first residency abroad. My most memorable experience was the hands-on research involved in sourcing my own clay bodies and preparing my own glazes, as Palissy had done before me.

While collecting and preparing uku and sands is a long process, one that requires patience, dedication and respect for the whenua, it is very rewarding insofar as it creates a sense of personal connection with and understanding of each unique characteristic of the land. With your hands in the soil and your feet on the ground, you build a sense of connection with nature and its inhabitants, the people and the 'nature' within, intertwined. I also valued the connections made across time and space – from a French ceramist of the Renaissance digging up his own materials to create ceramics and glazes, to the growing movement for collecting uku and earth materials in Aotearoa, always with an awareness of mana whenua.

I am grateful for the opportunity to connect with some amazing people. I was also lucky to meet Cora-Allan, at the Dunedin Public Art Gallery, for a whenua painting workshop where she shared her knowledge and whakapapa about how to respect and prepare whenua pigments as paints, using shells as natural palettes. I later had the chance to meet a tuatara for the first time at Orokonui Ecosanctuary and draw it with the kōkōwai paint kept in shells from Cora-Allan's workshop.



Figure 12. Using natural pigments workshop.

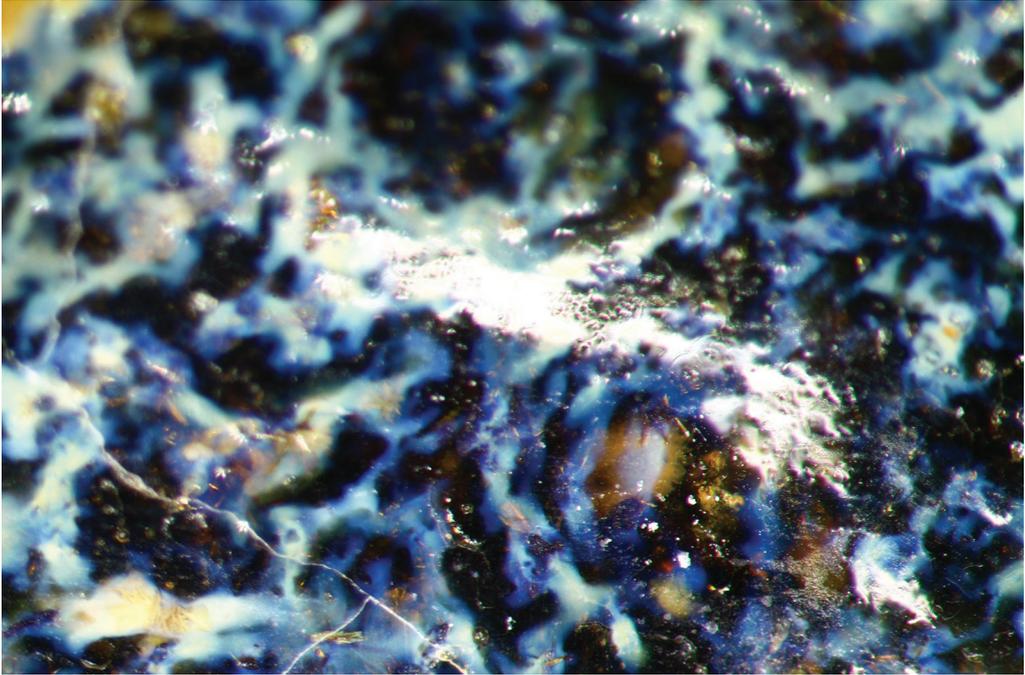


Figure 13. Aotearoa the long white cloud - glaze.

After my residency, I left my research, results and collections to the Ceramics Department of the Art School. In collaboration with student Jess Nicholson (Kāi Tahu, Ngāi Tūāhuriri, Kāti Mamoe) with materials sourced from Kauae Raro Research Collective, they will be used to educate students on how to gather and process local materials in a way that is respectful to mana whenua. Most of the marbled shells were distributed as koha and in memory of this residency.

Collecting shells in Aotearoa enabled me to connect to my birthplace, a beach in Normandy. Now when I see similar shells in France, I reconnect to this experience across the globe. It reminds me that we are all part of the same Earth and Mother Earth. During my journey, I mostly explored the South Island Te Waipounamu, but there is so much to see and experience in the North Island Te Ika-a-Māui as well. This will have to wait for another trip!

How rare and precious those encounters are in life for both mind and heart, which is what this residency was about for me.

## ACKNOWLEDGEMENTS

In addition to those named above, thanks also go to Ed Hanfling. With postgraduate students, we visited the Hocken Library Collections where I was lucky to see Bridget Reweti's work using natural pigments overlaid on a gelatin silver photograph taken by the Burton Brothers for her exhibition 'Pōkai Whenua, Pōkai Moana.'<sup>4</sup> I was grateful to also find Len Castle's book *Making The Molecules Dance: Ceramics, 1948-2008* in the Hocken Library. Seeing this book aided my understanding, seeking and explorations over time and distance.

Toward the end of the residency, I learnt more about protocols for collecting local materials with respect to local mana whenua. Mana whenua are the local Māori tribes or iwi who have guardianship over their ancestral lands. If I could start over, I would make sure to reach out to local hapū Kāti Huirapa Ki Puketeraki and Ōtakou Rūnaka before embarking on any research that required gathering materials from their whenua.

It is with great respect and gratitude that I thank all the people who have helped me during my time in Aotearoa. Ngā mihi nui!

**Jeanne Dubois** is a French artist who finds inspiration in mineralogy, geology and chemistry. She has collaborated with scientists from the Louvre Research Department and the National Museum of Natural History of Paris. Her thesis "Adventure in Art Chemistry" and her art practice relate to her own explorations of art and science, with a desire to revive wonder, playfulness and the insatiable curiosity of childhood.

- 1 Len Castle, *Making the Molecules Dance: A Retrospective Exhibition of Ceramics, 1947-1994* (Lower Hutt: Dowse Art Museum, 1994). See also <https://teara.govt.nz/mi/rock-limestone-and-clay/page-7>
- 2 Mount Somers geology, NZ Insulators Archives.
- 3 "Tatyanna Meharry: Materials: Samples," 2023, <https://necessarytraditions.co.nz/necessary-traditions-the-main-event/>.
- 4 Bridget Reweti, 'Pōkai Whenua, Pōkai Moana,' Hocken Library, Dunedin. Reweti was Otago University's Frances Hodgkins Fellow, 2020–21.