

---

ART+SCIENCE  
EARTH: CAUGHT IN STONE

---



14 Manu Berry, *Penguins Diving in Deep Time*.

## Art+Science Project Report: Part I

### OVERVIEW: “EARTH: CAUGHT IN STONE” ART+SCIENCE EXHIBITION, 15-22 MAY 2021, DUNEDIN COMMUNITY GALLERY

Curator: Pam McKinlay

This exhibition brought to a conclusion the eighth Art+Science project. After a false start (the exhibition was cancelled during the 2020 Covid-19 lockdown), the Art+Science team reconvened to bring the project to a successful conclusion in 2021. As in past years, artists joined with scientists, individually or in small groups, to develop artworks responding to the project theme, which in 2020 was “earth.” We were fortunate to work with some outstanding researchers from GNS Science, the University of Otago (from the Geology, Geography, Zoology and Marine Science departments) and the Otago Regional Council.

Earth sciences, as defined in *The Oxford Companion to the Earth*, encompass fields of enquiry ranging from “volcanoes to flood plains, diamonds to meteors, deserts to deep seas.”<sup>1</sup> The relevant disciplines include geology, climatology, mineralogy and oceanography, and extend from mapping the features of the third rock from the sun to journeys to the centre of the earth. Earth sciences explore the formation of rocks, as they are layered across geologic time, restless under pressures, ruptures and constant change. They engage with the macro and the micro, with chaos and order, and with the evolution of complex life forms to the extinction of species throughout deep time.

Then there is the situation of us humans and how our planet has made us. The interconnectedness of earth systems and our use of natural resources has changed the course of our histories and cultures. And what will earth horizons would look like from the next geological era, since people have become an earth-shaping force in the Anthropocene?<sup>2</sup>

The “Earth: Caught in Stone” exhibition was loosely curated into three groupings of work which explored ideas at the ‘macro’ and ‘micro’ scale and ‘evolution’ across time and place. Narrative themes explored in the ‘macro’ grouping included: Zealandia, the eighth continent of the world (GNS); geospatial data and bathymetry of Antarctica and Zealandia (GNS); coastal and river erosion (Geography); ecosystems soil bioengineering (Zoology and ecosystems consultants); iceberg debris in Antarctica (Geology); sedimentology and current ripples, modern and ancient (Geology); volcanology (Geology); “What lies beneath Dunedin?” – a shallow groundwater data-collection and core-sampling project (ORC); and geological mapping (GNS).

In the ‘micro’ grouping topics included: skeletal geochemistry and biomineralisation (Oceanography); diatom formations (Geology); rock fundamentals – zircons (GNS and Geology); and Earth’s ever-changing magnetic field (Otago Paleomagnetic Research Facility). The ‘evolution’ projects included Zealandia’s past biodiversity (paleobotany to paleoecology), and speciation and the phylogeny of Zealandia dolphins (palaeontology); petrified wood from Gondwana to Zealandia (Geology); and the non-linear evolution of *Kumimanu*, a genus of giant penguins (palaeontology).

“Earth: Caught in Stone” included a formal exhibition as well as a family-focussed public programme including “meet the scientist” talks, free art-making, games and other activities. The programme included “What’s that Rock?” with “Dr Rock”, who identified rocky treasures and found curiosities of a geological kind. A community artwork, facilitated by artist Debbie Fleming, was made from rocks decorated with words and pictures which were added to a 6-metre installation depicting a ‘river of thoughts’ running through the gallery. The Otago Rock and Mineral Club was on hand with a pop-up display of things to discover in your back yard or local swamps, including a table where children young and old could find a polished ‘pocket rock.’ Other activities included giant jigsaws (with guest artist Manu Berry) and tabletop games that could be played with pebbles – such as *mancala* (a table board made by Down the Rabbit Hole Art Collective).

Last but not least, the exhibition concluded with the “Great rock cake” bake-off. Taking the lead from the Geological Society of London’s Great Geobake-off Challenge,<sup>3</sup> categories included Sedimentary layer cakes, Unconformity and Subduction decorated cakes, Sinkhole or Geode cupcakes, Pancake Rock-cakes, Earth Globe Mantle cake, and favourite geological-era fossil cakes. Entries were judged by a panel of revered geology cake connoisseurs and “Dr Rock,” from a competition table and photographs of entries posted online. This last activity took our premise that art is an ideal way to communicate science in “digestible chunks” to a literal conclusion.

Artists and scientists alike use drawing and model-making as tools to understand how earth processes work. Discovery through observing and recording, in the lab or in the field, leads to visualisations of what goes on beneath our feet, above us and around us. In the eighth Art+Science project, “earth” was broadly interpreted as a project theme. The project was co-ordinated by the Art+Science Project 2020-2021 team led by Pam McKinlay from the Dunedin School of Art, Dr Bryce Peebles and Dr Jenny Rock. The exhibition was curated by Pam McKinlay.

The following pages capture conversations, research and encounters from several of the partnerships within the project.

With acknowledgements to Dr Jenny Rock and Dr Bryce Peebles, co-coordinators in 2019-2020.

**Pam McKinlay** (ORCID ID: <https://orcid.org/0000-0002-1731-6437>) is a writer and artist with a background in applied science and the history of art. She has been the convenor of the last three Art+Science project series at Dunedin School of Art. As an artist, she works in collaboration with other artists and scientists locally and nationally in community outreach and education projects on the themes of climate change, energy, the cryosphere and ocean acidification.

1 Paul L Hancock and Brian J Skinner, *The Oxford Companion to the Earth* (Oxford, UK: Oxford University Press, 2000 and online 2003), <https://www.oxfordreference.com/view/10.1093/acref/9780198540397.001.0001/acref-9780198540397> (accessed 25 April 2021).

2 J Zalasiewicz, C Waters and M Head, “Anthropocene: Its Stratigraphic Basis,” *Nature*, 541 (2017), 289, <https://doi.org/10.1038/541289b>. In this article, the proposition that the Anthropocene be considered a formal unit in the geological timescale is assessed with respect to the requirements of the International Commission on Stratigraphy (ICS).

3 Rose Want, “The Great Geobakeoff 2020 – The Results!,” *Geological Society of London blog*, blog post, 13 October 2020, <https://blog.geolsoc.org.uk/2020/10/13/the-great-geobakeoff-2020-the-results/> (accessed 22 March 2021).

## ARTISTS AND SCIENTISTS – EXHIBITION CAPTIONS

- 1 Belinda Smith Lyttle and Jenny Black (artists) with Nick Mortimer (scientist), *Te Riu-a-Māui / Zealandia*, triptych, printed fabric panels, 680 × 820 cm. Three panels showing different map depictions of the same area of the Te Riu-a-Māui / Zealandia continent. Left: land and ocean only; centre: seafloor plateaus, basins, ridges and trenches; right: detail of geology.
- 2 Down the Rabbit Hole Art Collective 2021 (Pam McKinlay, Henry Greenslade, Leonora DaVinci), with Belinda Smith-Lyttle (scientist), *Emergen(t) Seas – The Bedrock of Antarctica*, triptych, light boxes, 680 × 1016 mm. Two of the light boxes were woven interpretations of the Antarctic Plateau and an escarpment in the Transantarctic Mountains. The centre box contains an LED light-work with an overlay of a map of Antarctica, with sea-floor bathymetry showing the relationships of the three southern hemisphere continents.
- 3 Sarah Shackleton (artist) with Simon Cox (scientist), multi-media installation, *Tūrangawaewae* 118 × 168 cm, based on five large acrylic-on-canvas works (each 130 × 195 cm, currently on exhibition in Spain). An exploration of our connection to the land and empowerment by it, enhanced by an understanding of earth science. Five large paintings were created in response to a scientist's stream-of-consciousness and geological thoughts while 'reading' landscapes lying to the north, east, south and west of Warrington, Otago, during coastal walks. The dynamic process of painting, while online geology lectures were projected onto the canvas, was compiled into video recordings which were projected back onto the canvas.
- 4 Geoff Wyvill (artist) with Jasmine Mawson (scientist), *About Time*, wooden clockwork installation, 400 × 300 × 150 mm. Two images of a rock formation in its context now and 260 million years ago are engraved on opposite sides of a Jacob's Ladder. The images are displayed alternately, changing every five minutes or so.
- 5 (5A) Vivien Dwyer (artist) with Faye Nelson (scientist), *Seafloor Spread*, needlework tapestry, 830 × 590 mm. Stripes of normal polarity and reversed polarity alternate across the ocean bottom. These magnetic patterns in sea-floor spreading remain some of the strongest evidence for the theory of plate tectonics.  
(5B) Also: Faye Nelson (artist and scientist), *Paleomagnetist's Field Book*, machine stitching and appliqué on fabric; wool, cotton and acrylic paint, 240 × 190 mm (open). Portrays the nature and timing of Earth and ocean processes through magnetic minerals.
- 6 Jessica Ritchie and Craig Cook (artists) with Michael Palin (scientist), *Standing Still at Boatman's Harbour*, wall rubbing, cyanotype and painting on paper; 1520 × 1040 mm. Drawing and video created at Boatmans Harbour in Oamaru.
- 7 Christine Keller (artist) with Adam Martin (scientist), *Otago Schist*, two hand-dyed, hand-woven textile panels, 780 × 1950 mm and 740 × 2100 mm, using merino from Armidale in Central Otago and elsewhere, and linens and cottons as well as found yarns. The dyed warp is inspired by a microscope image of Otago schist rock from the Maniototo area under polarised light. The pink and purple stripes, which represent mica, are made from merino wool sourced from the Maniototo.



8 Katharine Allard (artist) with Sophie Briggs (scientist), *MacFarlane Ridge*, 2021, zircon ground with silverpoint drawing on paper and piqué, 420 x 594 mm (framed). Display of made and collected objects (rocks, paper, glass, clay), dimensions variable.

9 Vivien Dwyer (artist) with Daphne Lee (scientist), *Cosy Dell*, woven tapestry, embellished with small fossils from site dig, 600 x 970 mm. Cosy Dell Farm is situated at Waimumu in southern New Zealand. It was once a rocky shore ecosystem, but is now well inland. The excavation site is a rarely preserved fossil record of intertidal and shallow subtidal biota, which reveals the existence and extent of the maximum marine transgression during the Oligocene.

10 Katherine Steeds (artist) with Abby Smith (scientist), *Small Dreams of Grandeur*, slip-case book hand-made from cotton rag paper, accordion structure, printed then hand-worked using collage, watercolour, inks and graphite, 31 x 15 x 3 cm (closed in box), 31 cm x variable width (open). An exploration of bryozoan fossils.

11 Kate Elder (artist) with Bryce Peebles (scientist), *Biominaliser of the Year*, mixed media low relief sculpture, 800 x 300 x 70 mm. Giant cross-section of a shell, showing its make-up in many layers. The construction materials were taken from the artist's immediate environment, mimicking the way in which shells build themselves with minerals from the water around them.

12 Pam McKinlay (artist) with Mathew Vanner (scientist), *Petrified Sampler*, woven panel, single ply wool and rayon, silk, 500 x 2500 mm. Based on transparencies of microscope slides of fossil wood samples from the Araucariaceae, Casuarinaceae and Myrtaceae families. The artist's woven and tapestry sampler panels were inspired by fine slivers of fossilised wood prepared for microscopic examination.

13 Stella Lange (designer) with Grace Duke (scientist), *Shadows Unfocussed*, design for a handknitted hat available free at Raverly.com. Finished hat on display, 290 cm diameter; posters of diatoms. Design based on the experience of viewing diatoms under magnification through a microscope.

14 Manu Berry (artist) with Marcus Richards (scientist), *Penguins Diving in Deep Time*, three black-and-white woodcuts, 1010 x 1400 mm; three jigsaws, 1110 x 1500 mm. The woodcuts focus on the skeletal form of penguins from three different eras, with backgrounds consisting of other creatures from each era to suggest the link between evolution and environmental pressures. The blocks from these woodcuts have been cut into large jigsaw pieces to represent Marcus's process of reconstruction.



18



21

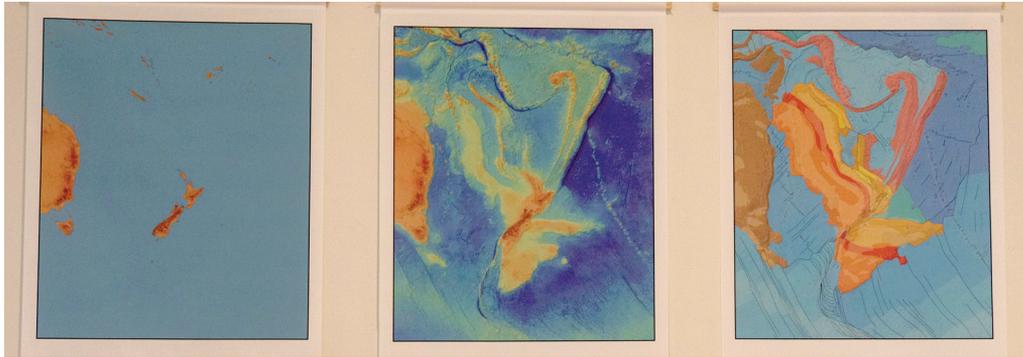


13

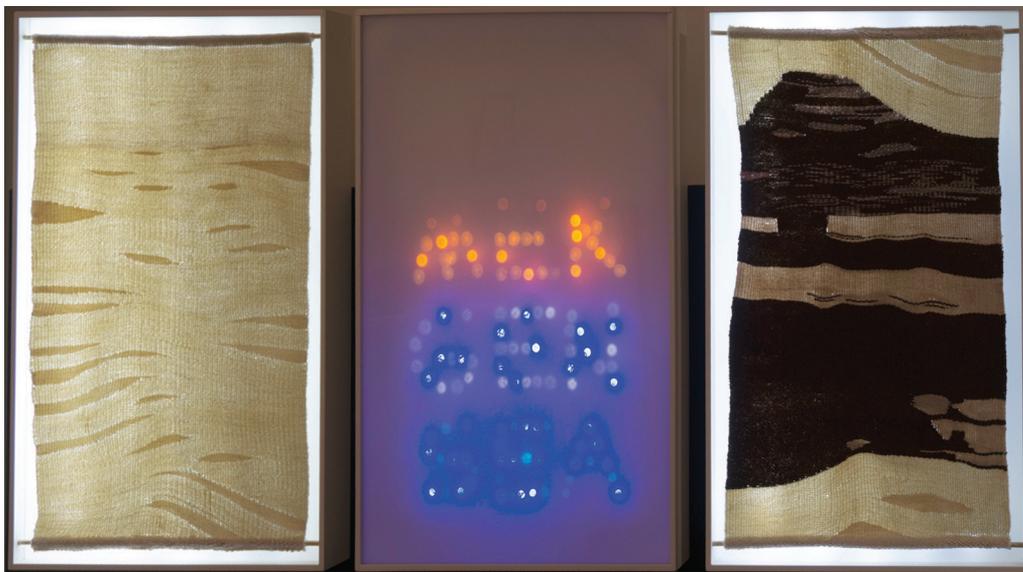
- 15 Desi Liversage (artist) with Katie Matts (scientist), *Unearthing*, embroidery, 800 x 500 mm. *Platydyptes* is an extinct genus of giant penguin, known chiefly from the Hakataramea Valley, North Otago.
- 16 Meg Brassel-Jones (artist) with Emma Curtin and Henrik Moller (scientists), *Connectivity/Reciprocity*, acrylic on ply, 700 x 700 mm. Dung beetles connect history, myth, science and economy. They symbolise regeneration and the restoration of life. They keep vital ecological cycles churning, build soil, disperse nutrients and play a role in protecting our streams. They improve soils to help feed people.
- 17 Heramaahina Eketone (artist) with Jon Linqvist (scientist), *Ripo effect*, ink on 300gsm paper and fired and glazed uku, A3 plus variable dimensions. Ancient ripples are a form of sedimentary structure in which gentle waves have left ripples across the sand and have later turned to rock, preserving the patterns of the gentle eddies made millennia ago.
- 18 Eden Smith (artist) with Sophie Horton (scientist), *Kaikoura Peninsula, sound work*. This piece is a response to charts showing the tidal cycles and wave intensity of an area in the Kaikoura Peninsula affected by the recent earthquakes.
- 19 Becky Cameron (artist) with Sharon Hornblow (scientist), *core values*, detail, monoprint and drawing on paper; 800 x 3000 mm.  
This work suggests that the future of South Dunedin lies in the intersection of its environmental and human histories. The column of prints echoes the core samples that Sharon Hornblow has been using to study the massive transitions between wooded river valleys, flax swamps and ocean that the area has undergone. This is overlapped by a representation of South Dunedin, with its history of community action and its vibrant and diverse communities – strengths that can be drawn on to move forward into a new relationship with the environment.
- 20 Fiona Clements | Senorita AweSUMO (artist) with Christian Ohneiser (scientist), *Antarctic Terror: A Screaming Symphony of Icebergs*, performance and installation, upcycled banner; thread, wheels, cover board, wood, human potential. Lower Octagon, Dunedin.  
An iceberg upcycled from local Dunedin waste materials forms the centrepiece of a chaotic performance, with audience participation. Performers and the public will come together to communicate their anxiety through vocalisation and movement, working together to acknowledge their fears and process the trauma of climate anxiety.
- 21 Debbie Fleming (artist) and Sophie Horton (scientist), *Travelling Stones Talk*, 'river' installation and interactive art piece, stones, paint, crayons, 1000 x 600 mm. Participants contribute to the artwork while building knowledge and ownership of their environment. Geomorphologist Sophie Horton and artist Debbie Fleming collaborate to provide a fun, interactive experience involving adults and children within a relaxed, creative learning environment.
- 22 Gallery activities.



22



1



2



14



16

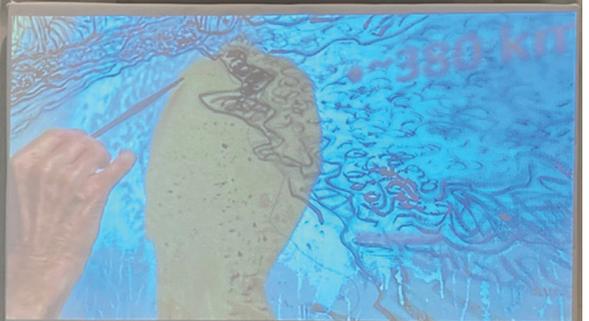
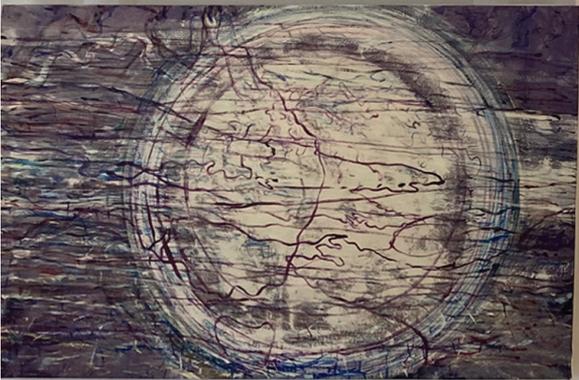


15



12





Tūranga waewae

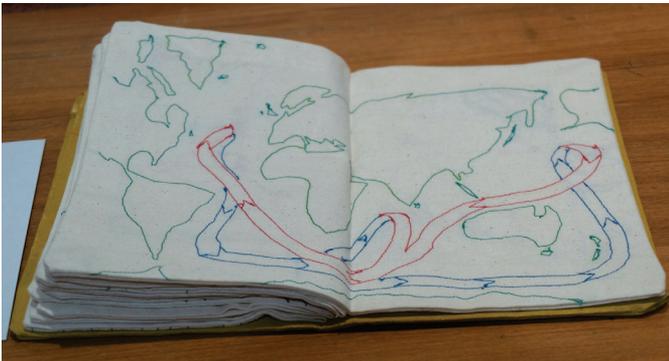




4



5A



5B



9



11



6



8



22



22



10



7



19



17



20



14 Manu Berry, *Penguins Diving in Deep Time*.