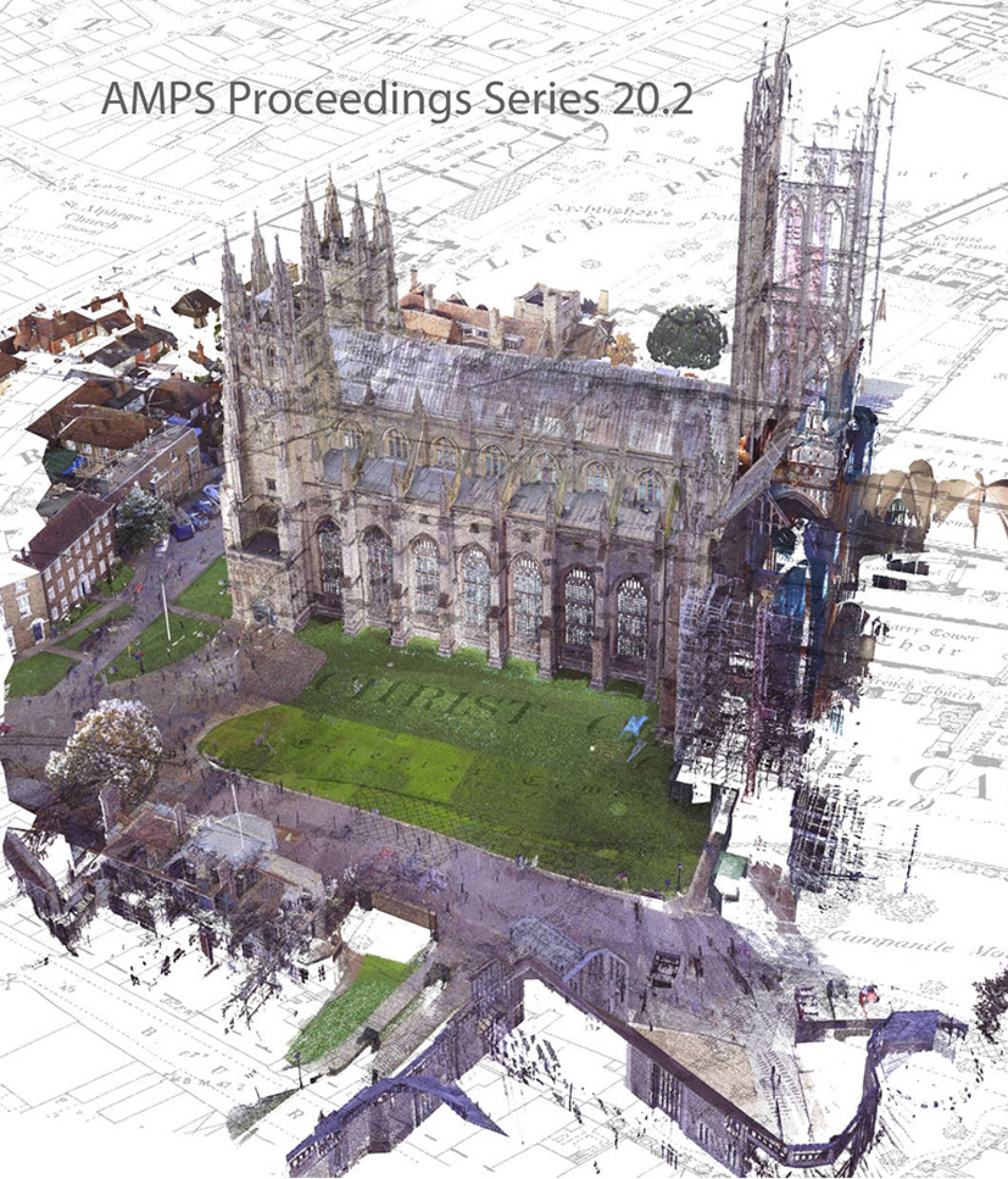


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REEF: DRAWING IN THE EXPANDED FIELD

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Figure 1. Reef installation, Tin Sheds Gallery, Sydney, 2020. [Photo: Maja Baska]

INTRODUCTION

In this article we introduce a body of research on drawing in the extended field and discuss a recent outcome – *Reef*, an installation at the Tin Shed gallery, Sydney. The research agenda has evolved from architectural sketch drawing. The research extends the open, evocative capacity of drawing through experimental installation art works, deploying sculptural sketch objects, VR, AR and soundscapes. *Reef* is the second in a series exploring the landscape phenomena of seismic shock. It is a sketch of a section of seabed in Kaikōura, Aotearoa New Zealand.

KAIKŌURA REEF

The landscape at the sea edge of Kaikōura, Aotearoa New Zealand, has an eerie, abstract quality. Alien platforms of twisted rock extend far out to sea, just above the water line, before plunging to the abyssal depths of the Kaikōura submarine canyon. Both canyon and reef jolted upwards in the 2016 Kaikōura earthquake, causing massive ruptures, undersea landslides and moving the South Island of Aotearoa five metres closer to the North¹. Walking on the reef gives the sense of traversing an alien,

unfamiliar landscape, figured by seismic presences. The *Reef* project attempts to draw these elusive conditions through a spatio-temporal installation composed of cast concrete sketches, soundscapes and sketches in VR and AR.

Reef is part of ongoing research into experimental architectural drawing exploring abstract possibilities in the open sketch. The work is an interdisciplinary collaboration between Simon Twose, Anastasia Globa, Jules Moloney, and Lawrence Harvey. *Reef* follows an installation at the Venice Biennale in 2018, *Canyon*² which distilled presences for the submarine landscape. *Reef* extends the work in *Canyon* by sketching the landscape of the canyon as it emerges from the water; it sketches its intangible presence through attention to the reef's materiality, textures, forms and sounds. This paper reports on the resultant *Reef* installation exhibited at the Tin Sheds Gallery, Sydney³. We introduce the thinking and creative practice process behind the project and connect it to research within an expanded field of drawing.



Figure 2. *Reef* at South Bay, Kaikōura, 2019. [Photo: Simon Twose]

REEF INSTALLATION

Visitors to the gallery are immersed in a single spatial sketch of the Kaikōura reef. The sketch is dispersed throughout the dark gallery space as a cloud of four hundred and fifty smaller sketch elements, morphing from castings of rock surfaces to hand formed, gestural concrete sketches to 3-D printed digital interpretations. These are hung from the ceiling on filaments and flow through the space at approximately waist height to create a pixelated 'reef' sketch. Viewers are prompted to move through this array, carefully picking their way through narrow channels or being captured in bays where the objects become too dense to allow movement through. In doing so viewers re-trace the iterative process of sketching the reef, moving along sequences of castings that gradually shift in form, material and surface detail, or they become contained within denser clusters of investigations. The sequences threading through the gallery are like pixelated lines and the clustered bays are similar to smudges, where the sketching process has become blurred through repeated tests, creating ideational eddies.



Figure 3. Reef cast concrete sketch objects, 2020. Concrete, graphite, wax. [Photo: Maja Baska]

The reading of these sketches is framed through the body as much as vision, and is augmented by overlapping, three-dimensional soundscapes. These shift in scale and degree of abstraction as the viewer moves through the space. Delicate sounds generated from field recordings of the reef, such as the popping of dry seaweed, morph to abstract sonic interpretations of the reef landscape. This auditory field overlays the cloud of objects in the installation, subtly shifting their reading.

At the end of the gallery, visitors pass into a digital section of the reef sketch. In this zone, an array of translucent reef objects, 3-D printed in ABS, explore abstractions of the reef through generative algorithms. Behind this array, a set of four videos is projected on the end wall of the gallery, showing excerpts from the VR sketches of the abstracted submarine space of the canyon. The digital investigations in *Reef* are augmented by AR portals, which allow viewers to experience digitally created reefs in virtual space, using tablets or cell phones.

Navigating the reef sketch, which is carefully lit so the gallery around it disappears, a viewer is immersed in a sculptural analogue of dynamics of the reef at the same time as being within the dynamics of a sketch.

THE OPEN SKETCH: ART + ARCHITECTURE RESEARCH AGENDA

The research agenda has evolved from architectural sketch drawing, where rapidly drawn marks capture evocative presences yet are also coded, analytical, and need to be read. The research extends the open, evocative capacity of the architectural sketch to installation art works, engaging a mix of architecture and art research.

Architectural drawings are corporeal and abstract portals to space beyond them. As Robin Evans famously argued, architectural drawing involves ‘on the one hand, the ‘involvement, substantiality, tangibility, presence, immediacy’ and direct action of the thing made; on the other, ‘disengagement, obliqueness, abstraction, mediation’ and ‘action at a distance.’⁴. Even in a crude architectural sketch, lines refer to scale, form and materials in space beyond them, at the same time as recording the authors’ imaginative projection into those worlds. As such, each mark is a record of thinking involving an architectural spatial acuity; a sketched line imagining the sectional contour of a landscape might be repeated many times in the same place, and in doing so become smudged, dense and invested with movement. Marks like this approximate the form of space beyond them but also

afford impressions about that space: the smudged indeterminate marks begin to speak of vast scale, great mass and, perhaps in the case of a landscape sketch, an ominous latency for seismic movement. This capacity of the architectural sketch to evoke openness and presence is close to that acknowledged in art practice. Jean Luc Nancy discusses drawing's inherent capacity for open possibility through gesture, 'in the sense of a beginning, departure, origin, despatch, impetus, or sketching out' and through 'an essential incompleteness, a non-closure or non-totalizing of form.'⁵ This power of drawing to explore the incomplete, non-representational, and intangible is widely understood in art-research, such as in the work of artists Nikolaus Gansterer, Emma Cocker, and Mariella Greil who use drawing as a research device that involves an ever-emergent process of discovery. They describe the process as *figuring*, involving:

*... small yet transformative energies, emergences, and experiential shifts which operate before, between and beneath the more readable gestures of artistic practice, that are often hard to discern but which ultimately shape or steer the evolving action ...*⁶

Thinking through drawing like this involves complex performative and material acts, engaging art's capacities in 'enabling matter to become expressive...to intensify-to resonate and become more than itself'⁷. It is this mix of gestural and material performance that supports artistic sense-making of aspects at the periphery of research's vision, such as presences. It accentuates the power of drawing as art research to pursue and yet maintain uncertainty; to follow the indeterminate flux of 'no-how' rather than 'the methodological steel tracks of know-how'⁸. It involves what Alex Arteaga describes as 'barely perceptible micro-movements at the cusp of awareness ...' where the figure "always remains at the edge of its own explicitness"⁹.

We engage this established research capacity of art practice, to expand understanding through the materiality and performance of the sketch, and merge it with architectural drawing's projective capacity. In this merged mode, the sketch becomes radicalised as an open tool, able to research presences through an open method engaging gestural acts in concert with affordances of materiality and space. We do this through multi-modal sketch installations that intensify the sketch's fundamental modes. The installations are thought of as 'habitable drawings'¹⁰ that immerse the participants, encouraging readings of the drawings that are more than coded and instrumental. They cross real space and material with virtual space and sensory feedback.

This research attempts to radicalise the open architectural sketch and discover how it can be a method to research characteristics that escape instrumental description, such as unseen, intangible, non-discursive and non-representational presences.

Sculptural-gestural Sketching



Figure 4. Reef sketch casting (2019). Latex, rock, graphite. [Photo: Simon Twose]

The observations of intangible facets of the reef were conducted through gestural sculpting in cast concrete. These are akin to observational architectural sketches, where the act of making a mark is a sculptural act, merging agencies of material, such as graphite and paper, and the subject matter, in this case the reef. A sketch in this sense records visual evidence, the shapes, textures, colours and forms that meet the eye, but is also a way of thinking about less tangible characteristics, such as flows, pressures and spatial and scalar ambiguity. They are three-dimensional thinking devices, engaging ‘thinking in action’ or thinking-feeling-knowing’ operative within artistic practice¹¹.

The sculptural components of the reef installation began with literal observations, through castings of flexible latex moulds taken from various rock surfaces. These were re-formed by hand, laid over rock forms, stretched, joined, overlapped, combined, cast as whole forms, cast as zoomed in details - of miniature forms and textures - cast in gradations of darkness, cast through applying wax to the latex and distressing the mould, cast in combinations of concrete, ice and seaweed. This series of sketches experimented with capturing a scalar ambiguity and involved feedback from the reef material, as a dynamic set of forms and textures, and feedback from concrete, which in its liquid state is an analogue flow and in its hardened state resembles rock.

This literal observational sketching of, and in a sense with, rock moved to more abstracted modes. Sculptural tests were conducted using various casting media; plastic and paper of varying thicknesses, interacting with rock surfaces and the terrains of earlier castings laid in piles, culminating in a series of hand-drawings imprinted onto the distorted surface of the concrete, which was then sketched over by hand, creating sketches that were at once drawn in graphite, rock-like in material and creased with mountainous valleys, ridges, and liquid flows.



Figure 5. Reef sketch casts using hand manipulated plastic moulds, detail, 2019. Plastic, concrete, black oxide, wax. [Photo: Simon Twose]

The sketch objects began to hover between their presence as analogous rocky material and representations of landscape at vast scale beyond them. In this sense they acted as architectural drawings where the materiality and actions in the sketch are inseparable with space projected at huge scale beyond it, transitioning from accurate representations of the rock to allusions of larger landscapes. In this way the sculptural sketch objects were devices that afforded thinking, on intangible characteristics of the reef. They allowed presences to emerge through a co-authorship between drawer and subject matter.

Digital-VR-AR sketches

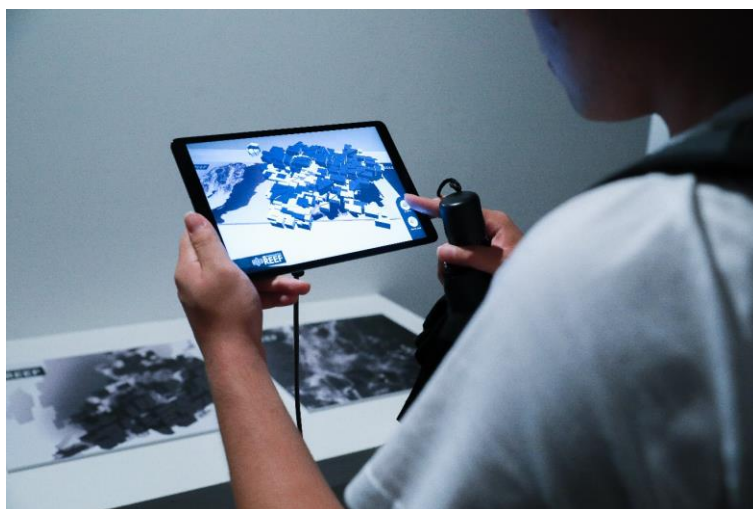


Figure 6. Engagement with AR Reef sketch environment, 2020. [Photo: Anastasia Globa]

The Virtual Reality (VR) sketch environment was developed as an immersive, highly abstract three-dimensional space, crafted to be fluid and mesmerising. Viewers freely move through the space in any direction, including up and down, without using any hand-held controls. There is no real-world gravity or physics enabled, instead the VR camera moves in the direction of the user's gaze. A system of hidden 'currents' and pull-push 'forces' is embedded within the scene and these unseen currents affect a virtual avatar, pulling it into various pathways, adding extra levels of complexity and

unpredictability to the VR navigation. Viewers inhabit deep black space animated with hundreds of three-dimensional drawings that constantly move and change scale.

The VR installation was built for Oculus Rift - VR headset and one hand-held controller¹². Both VR and AR applications were developed using Unity3D gaming engine¹³.

The Augmented Reality (AR) application was built for an Android touch screen tablet. Three small image markers were used as targets to project a range of interactive augmented reality artefacts. Each AR artefact was animated and allowed different interactions, enabled by the on-screen UI (User Interface) buttons, such as 'shift', 'explode', 'animate'. The first AR target artefact explored the forms of sculptural 'rock' castings in the installation. 3D scans of the objects were subjected to a number of generative mesh distortions to create a gradual blend from 'natural' to 'abstract/digital' forms.

The second AR artefact explored algorithmic rock generation. It was created using parametric rules with a voxel (three-dimensional pixel) typology. 3D prints of the forms were arrayed in the physical space of the installation.

The resulting augmented reality environment engaged with pivotal nodes of extended reality in the installation, through referencing: the physical real-world, physically constructed/re-interpreted digital world and the virtual reality world. An immersive video projection, in the darkest part of the space, displayed dynamic imagery from the virtual and augmented environments, thus binding all extended realities into one interconnected hybrid experience.

REEF – SPATIALISED SOUNDSCAPES

On entering a multi-format exhibition such as *Reef*, the gallery visitor is both viewer and listener. In the installation, sound combines with physical material to provide spatial and imaginative cues, transporting the visitor to the reef landscape. Three sound zones in the gallery overlap, sharing a single foundation sound – long recordings of gentle wave movement. At the entrance, site recordings of the reef are un-transformed, and as the participant moves through the space, the recordings become progressively more abstract and sketch-like.

Swirling water and seaweed popping's are digitally manipulated through a combination of GRM Tools Resonance and Evolution processing. By way of the authors' imaginative projections into those worlds¹⁴, the seaweed pops hover close to musical-like moments – becoming choral or chorus-like presences, or sometimes an environmental percussion ensemble of small pitched instruments. These come about by short popping sequences running through the space, by adding metallic resonances to individual or groups of pops, call-response type moments and cloud bursts of sound. These suggest a strange vocalising of the landscape.

The sound design works to destabilise the sense of place (a gallery) helping to tip the visitor into another way of sensing landscape. While the foundation sound provides sonic continuity, the swirling water and popping helps direct the gaze and reinforce intensities in the suspended reef array, augmenting the need to carefully choose a path through the narrow channels or providing sonic correlation to being captured in a dense bay where movement is difficult.

The three drawing modes: sculptural sketching, VR/AR and soundscapes, focussed on presences rather than re-presentation. They intensified embodied, material and spatial characteristics of the sketch, expanding its capacity to afford the imagining of presences.

SHIFTS IN NOTIONS OF DRAWING

Reef short circuits the projective distance between sketching and the space being sketched; the Reef landscape projects back into the sketch as much as the sketch projects towards the landscape. The intention of this conflation of sketching and subject matter is to experiment with how inherent indeterminacies can emerge in both; how the actions, space and materiality of sketching can coincide with imagined dynamics in the thing sketched, and in doing so, distil characteristics at the periphery of understanding. The *Reef* installation pursued a radicalised version of the sketch, attempting to create a research tool that expands the limits of drawing and its capacity to capture intangible and evasive spatial presences.

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