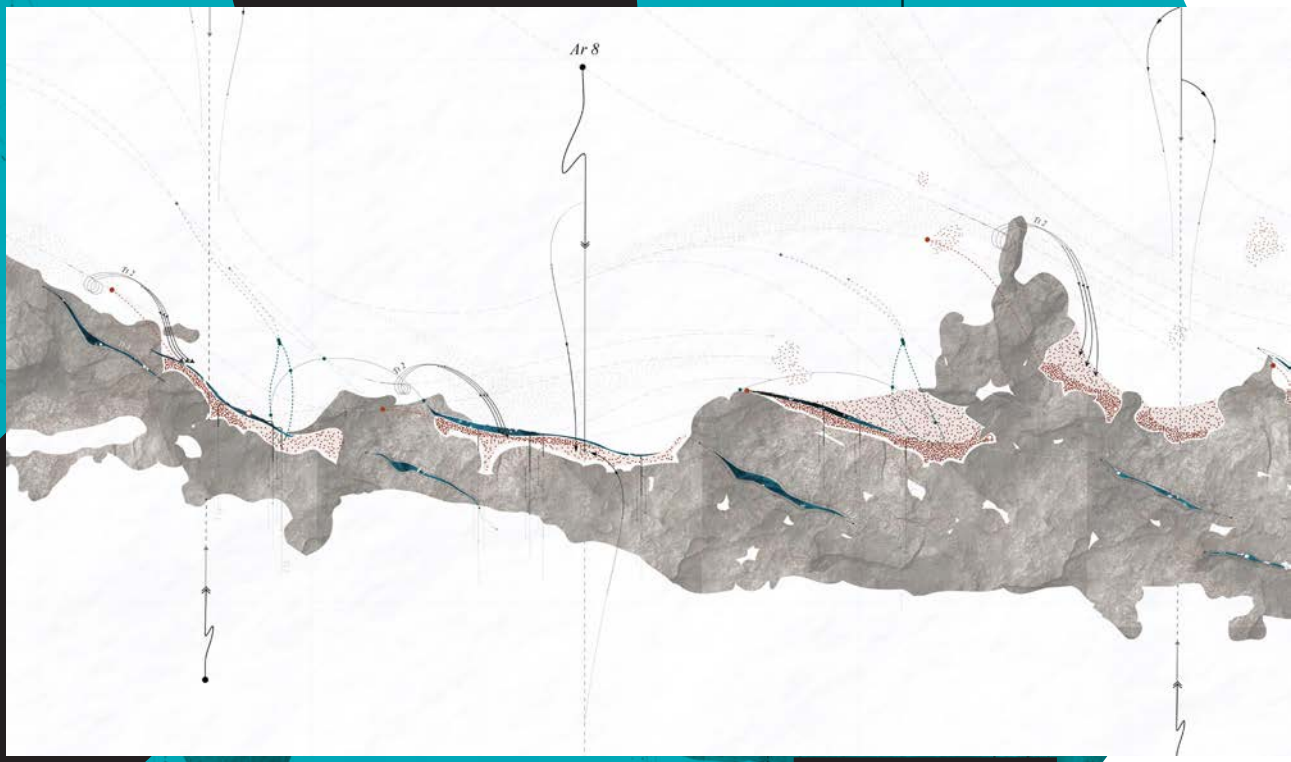
INTERSTICES 21

Journal of architecture and related arts



FIXING

Alexandra Duff & Olivia Monteleone, (2020). Care By Moss: Threads of Receptivity (detail) [cartography, UTS]

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JEANETTE BUDGETT, CARL DOUGLAS, AND SIMON TWOSE

Almost-always-falling-apart

Introduction

This issue of *Interstices* coincides with a period of crisis: a global pandemic set against a backdrop of climate change and ecological disaster. Crises, times of intense difficulty or danger, signal turning or tipping points. They are unstable moments depending on emergent conditions, at which small changes might have big effects. Crises frequently demand urgent action, but also destabilise conventional patterns of thought, generating complexity and making simple solutions improbable. Previously successful strategies seem suddenly inadequate, and sometimes a surfeit of purported solutions does not change anything at all. Crises spill over economic, national, ecological, and biological bounds to form an overwhelming milieu or predicament, rather than a collection of discrete, well-bounded problems. Even where solutions are clear (stop burning fossil fuel, vaccinate), the path to those solutions can be unexpectedly complex. On edge, people rush to find certainty in ever-hardening positions; but fixed frameworks seem to generate antagonistic camps more likely to exacerbate crises than defuse them.

These crises are bedded in the narratives of the modern capitalist project: stories of progress, human exceptionalism, individualism, and timely technical solutions. The figure of the individual innovator able to identify and overcome problems is a frequent protagonist in these stories, and architects and designers have frequently been seen (and seen themselves) in this light. Media ethnographer Stephen Jackson points to the way stories of innovation obscure the work it takes to keep the world going, and to adapt what already exists for new purposes. Redirecting attention to the work of *fixing* he writes,

> The question is this: can repair sites and repair actors claim special insight of knowledge, by virtue of their positioning vis-à-vis the worlds of technology they engage? Can breakdown, maintenance, and repair confer special epistemic advantage in our thinking about technology? Can the fixer know and see different things—indeed, different worlds—than the better-known figures of 'designer' or 'user'? (2014: 229)

Fixers, Jackson argues, engage in the "subtle arts of repair by which rich and robust lives are sustained against the weight of centrifugal odds", occupying the fulcrum between an "always-almost-falling-apart world" and a world that is in

a "constant process of fixing and creative invention, reconfiguring and reassembling" (222).

Arguably, architects and designers have tended to understand their primary work as *poiēsis*, "the activity in which a person brings something into being that did not exist before" (Polkinghorn, 2004: 115). But what might emerge from considering spatial and allied practices more akin to fixing, or as *sympoiēsis,* "making-with… worlding-with, in company" (Haraway, 2016: 115). As Donna Haraway defines it, the term indicates more than merely cooperation or collaborative strategies. It points to an underlying reality in which humans, organisms, and all manner of non-human entities "compose and decompose each other, in every scale and register of time and stuff" (97). Haraway imagines *sympoiēsis* as akin to making string figures:

> Playing games of string figures is about giving and receiving patterns, dropping threads and failing but sometimes finding something that works, something consequential and maybe even beautiful, that wasn't there before, of relaying connections that matter, of telling stories in hand upon hand, digit upon digit, attachment site upon attachment site, to craft conditions for finite flourishing on terra, on earth. String figures require holding still in order to receive and pass on (2016: 10).

In this issue of *Interstices,* we envision architecture and its related arts as the woven work of the fixer or sympoet. Facing our critical moment and drawing on the ambiguities of the verb 'to fix', we attend to works, spaces, and practices of composition and decomposition, reconfiguring and reassembling, improvising and empathising.

Architectural fixations and relations

Fixing, in the sense of maintenance and care, shades into unfixing: times and places of ongoing relationship and *sympoiēsis*. Design often aims to fix, to produce something that corresponds to a predetermined outcome, to give matter to drawn lines. It also involves close collusion between human actors and non-human subject matter and design media, that inevitably throws spanners into the works, inflecting creative practices through an irrepressible, recalcitrant unfixing. What happens if architectural practice is refracted through the lens of fixing, unfixing, maintenance, and care? What new forms might architecture and its related arts take on? To what extent have these forms already existed, perhaps in minor or unrecognised ways?

Messy tangles and a world that is falling apart may seem inhospitable territory for architects, for whom fixing things in their proper place is a disciplinary priority. The question of how to fix things together into a greater whole is a fundamental architectural metaphor as well as a matter of practical concern. But this does not mean fixing is inflexible. On the contrary, through the concept of tectonics, fixing has also been advanced as a primary site of architectural meaning and play. In Marco Frascari's terms, the joint, "the fertile detail, is the place where both the construction and construing of architecture take place" (1984: 34). For Gottfried Semper, a critical figure in the European tradition of tectonics, architectural form derived not so much from the essential nature of materials, but from culturally freighted processes. He saw walls, for example, as fundamentally conditioned by

the knotting and weaving of wickerwork and textiles, even long after new materials had been adopted. Joints, fixings, and surface details responded not only to the need for secure and reliable structures, but were woven into a network of meaning and construal.

The idea that architects might be concerned with configuring polysemic and multi-performative webs rather than locking things into inflexible frames also resonates with contemporary practices that see architecture not as discrete and autonomous, but continuously woven with social, ecological, cultural, and technical contexts. Such practices often look to other domains for methods, concepts, and tools, and the roles they take on can begin to look very different from that of the traditional architect. Lacaton and Vassal, winners of the 2021 Pritzker Prize, for example, in their famous response to a 1996 "embellishment plan" from the Bordeaux City Council, proposed "doing nothing" apart from replacing some gravel, introducing some traffic-calming measures, and instigating a more regular maintenance plan (Lacaton and Vassal, 1996). In a Semperian sense, this response could be seen as atectonic. By querying productivist assumptions, it also counters long-held architectural habit. Perhaps less might be enough, as Pier Vittorio Aureli has proposed (Aureli, 2013). As Robin Wilson puts it, "Their solution is to disperse investment rather than concentrate it into the manufacturing of a new object" (Wilson, 2013: 47). They do not propose an insertion into the context (as if the context were a socket shaped to receive the new), but a re-weaving of the existing threads of place.

While this approach may seem novel in the context of modern architectural practice, it has long been intrinsic in indigenous understandings of place. Māori architect Amanda Yates, for example, describes Māori spatial practice as working in "an ontological framework that attests to a multi-species lineage where earth, skies, rivers, and mountains, for example, have agency and importance as ancestral entities" (2019). Western theory, we might say, is only beginning to discover and take account of the holism of indigenous world-views in which the rich interconnectedness of all things, human and more-than-human, frames new forms of inquiry and creative work. Care and ethical responsibilities are not simply between individual human figures. When María Puig de la Bellacasa writes that "Care is a human trouble, but this does not make of care a human-only matter" (2017: 2), we might remind ourselves that webs of emplaced care have a long history in the Pacific:

> The Samoan motto for ethical behaviour, "Teu le vā" (to tend and care for the relationships), dictates the terms in this system of belonging, and thereby the construction of the individual. To participate in the system one has to engage and attend to relationships and connections" (Refiti, 2014: 111).

Speculative (un)fixing

Creative practice is thought through making, and means becoming entangled with things to hand, be they exotic or mundane: pencil and paper, card, concrete, software, drone, or living matter. Creative acts are a complex interplay between the deliberate intentions of human authors (observing or determining form for instance), and the affordance and resistance offered by non-human agents. Engaging such things in *sympoiēsis* is necessarily an open-ended negotiation with results that are unpredictable, irresolute, and unfixed. In other words, it is

speculative, oriented towards "the making of a difference, for diffraction rather than reflection of the same, for alternative investments in thinking the possible or the virtual" (Puig de la Bellacasa, 2017: 111).

Speculative practices may require us to perceive in new ways, and become sensitive to new registers of affect, perhaps "'barely perceptible micro-movements at the cusp of awareness ..." in which the subject matter being drawn or designed "always remains at the edge of its own explicitness" (Artega, 2017: 259). Ross Jenner describes the way that, "In any form of making, the world is caught in the act of making itself, where the maker is an amazed observer/participant" (Jenner, 2013: 210). Makers are poised between melancholy and wonder, unfixed and decentred, surrounded by dynamic agencies that speak back to us in languages we can't pin down. This sense of being suspended or unmoored recalls art historian Susan Ballard's "space of appearances where it is possible to both grieve and look to the future" (2021: 63). Speculative architecture, ecological art, critical cartography, and other sympoiētic practices reflect their gaze through the eyes of another, making space through a kind of suturing, or drawing together. In doing so, they give us ways to explore intangible, ungraspable things that escape easy representation. Speculative practices are modes of research that pursue while maintaining uncertainty; following the "indeterminate flux of 'no-how' rather than 'the methodological steel tracks of know-how" (Maharaj, 2009: 3).

It is perhaps not a coincidence that many of the papers presented here engage with the unpalatable, the unpresentable, and the unavoidable. Waste, decay, death, dirt, erosion, dynamic and entropic processes significantly appear in what are seemingly unfixable and intractable contemporary problems: capitalist over-production and over-consumption, environmental degradation, class conflict, contesting cultural world views. By refusing to turn away from the uncomfortable and undesirable, not to afford oneself the comforting fiction of the *tabula rasa,* the *terra nullius,* or the autonomous field, these authors take up the subtle speculative arts of the fixer: pulling on threads, making use of unpromising materials, extending their ethical responsibilities, and finding new ways to weave a world.

This issue's articles

Interstices 21 contains ten responses to this contemporary territory of fixing, ranging from critiques of our approach to waste to ficto-critical explorations of the politics of maintenance. We have not sought to homogenise these into a single position or argument, but have relished the way fixing as a theme slips through them in various forms. They expand fixing as a notion, burrow into its underpinning of repair, and turning it inside out, to encounter its obverse, the open vitality of (un)fixing. Initial forays into the topic were shared at an online workshop hosted by Victoria University on 14th August 2021. This day-long event brought together authors to review and discuss each other's papers, and was orchestrated and administered by Julia Gatley, Susan Hedges and Simon Twose. It was a globe-spanning, constructive, and reciprocal exchange, and we warmly thank all the participants. .

Luciano Brina's article twists fixing and unfixing together, presenting a speculative solution to global waste that disrupts our preconceptions about waste and its governance: it proposes the landscape of Russia's inner periphery become a

vast 'waste sucker', storing the residue of globalised production. Through such a *pharmakon* landscape Russia acts as "an internationally-funded, planetary ecological donor". This is a confronting and enormous geodesign scenario in which waste is managed through "geo-bio-chemical governance", creating uninhabited zones of waste storage in the Siberian wilderness where carbon sequestration, rewilding of forests, harvesting of methane and heat are managed through a repurposing of Russia's military infrastructure, including its satellites and remote sensing capabilities. Brina's speculative scenario jolts understandings of waste so they begin to appear as a solution as well as a problem, a scenario in which "pollution and human exclusion equates to accelerated remediation".

Confrontations with waste are also presented by Jeanette Budgett, who looks to art for ways to shift our relation to matter out of place, the "inconvenient and relegated externalities of modern consumer society." Waste disposal landscapes, once regarded unproblematically as passive wastelands, demand new cultural and environmental considerations for their design. In *Dirt under our fingernails*, Budgett discusses a proposed new landfill site in Dome Valley, Auckland, crossing it with re-readings of works by Billy Apple, Mierles Laderman Ukeles, and Noel Lane "that made visible the matter, politics, and potential of overlooked residue." Their art practice critiques relations with waste and points to a parallel critique of how we manage and conceptualise waste in the landscape. Daylighting waste, rather than concealing it, may shift understandings from denial of accumulated residue, to waste being "reconceptualised as continuous with livelihoods, habitats and land".

The urgency of our impact on the land is also highlighted by Sibyl Bloomfield and Yue Yu, in their articulation of threats to coastal inundation through anthropogenic climate change. *From vulnerable to resilient* discusses a speculative project for Onehunga, Auckland, exploring ways that unfixing practices might enable a transition from vulnerable coastal settlement to a resilient, sustainable pairing of settlement and land. Learning from te ao Māori, Bloomfield and Yu present a proposition aiming to fix (in sense of repair) by unfixing, through dissolving property boundary lines that form an invisible network of barriers, with the ultimate aim of "re-establishing reciprocal relationships between communities and their environment".

Where Bloomfield and Yu speculate on ways to care for a landscape, through wider connections to social and cultural understandings, Verarisa Ujung describes the way that personal, cultural acts of care can constitute spaces in their own right. She gives an account of *mangokal holi,* a funerary ritual of Indonesia's indigenous Batak people, in which the bones of the dead are exhumed, washed, and carefully reinterred. Ujung sees this as boundary work that produces a social interior, a place of ethical and cultural obligations, embodied experience, and attachments. Her personal descriptions of the *mangokal holi* ritual map out a culturally rich interior space in which, "through caring touch that has filled my memory with depth, contour, and gesture, I share a space with my ancestors".

Julieanna Preston tackles themes of class, value, and care in a work of ficto-criticism. Exchanging the work of academic production for the labour of professional cleaner 'Maria' enables Preston to comment on capitalist transactional economies. Offering to perform Maria's job for a few days, Preston muses on the formal and material technique of sweeping, so-called menial labour, and socioeconomic

class politics in the form of a series of personal letters. Preston performs the fictive Maria's cleaning, occupying her place as she dons the duster coat on the back of the cleaner's cupboard door. The epistolary narrative shifts become increasingly personal, signalling a (perhaps one-sided?) closing of social distance.

The intertwining of social, political, and material relations is given historical context by Carl Douglas in his examination of 19th century Parisian piles: literal piles of refuse that blocked the streets, a pile amassed by French Communards to cushion the fall of the monumental Vendôme Column, and metaphorical uses of piles and disordered matter. In *Politics of the pile* Douglas examines the complex slippage between the materiality of the mounds, the "sticks and manure, … heaps of meaningless consumer goods, impromptu barricades piled up in the streets", and political and social orders. He reveals complex connections between the shared imagination of matter and non-hierarchical political organisation. The pile becomes a metaphor for "cobbling together a new public world and catalysing new collective subjects".

The oscillating imagery of material, social, and political relations also appears in relation to 20th century industrial modernism. In *Parallax projections*, Michael Chapman and Timothy Burke make hybrid drawings of a ruined power station in Wangi, New South Wales, Australia. The drawings combine photographs, drone photogrammetry, and pencil-work that foregrounds the "holes left behind in the digital process". Chapman and Burke's work captures a building "torn between its presence as a highly functional machine of the future, and its ruin and obsolescence". The fixing priorities of architectural representation are destabilised in this project, with drawing becoming a way to chart the building's entropy, employing it as a lens to "reconstruct the history of the modernist project, its optimism, its pessimism, and its ultimate incompleteness."

Creative practice again opens up, critiques, and dismantles conventional modes of representation and understanding in a work of speculative cartography by Tamsin Salehian and Louisa King. In *Cartographies of care,* they project us into the remote, stony world of West Antarctica's dry McMurdo valleys. Their 'carefull' drawing deploys unconventional cartographic modes in performances of 'ecologic listening' (Puig) and 're-worlding' (Haraway), illuminating flourishing combinations of plant, rock, and weather in this distant place. Through urgent and affecting writing that draws on feminist cartography and ecology, *Cartographies of care* critiques both the troubling history of mapmaking in the Antarctic and proposes ecologically sensitive ways to apprehend the natural world.

On the other side of the world, images of the mountainous marble ranges of the Greek Attic landscape have been blended with idealised representations of Athens as the 'White City'. Chris French and Maria Mitsoula lead us up the marble Mt Pentelicon to the Aloula Open Air Museum of Quarrying Arts, "a site of un-fixing," where "city-landscape relations" are re-made. Eighteenth-century changes in visual perception saw the mountain quarries shift from a "working landscape visited as touristic attraction to an imaged landscape" exemplifying the emergence of what has been called the 'tourist gaze.' In *(Un)fixing Aloula* French and Mitsoula propose that Aloula un-fixes such conventional tropes. They deploy Jane Hutton's notion of the reciprocal landscape to prehend the situation differently. Perhaps, they suggest, the agency of stone might precede imagery, and sympoiētic co-design might elude the 'fixing' of orthodox design methods.

The tools with which we might resist fixity of thought and conclusion are suggested by Simon Twose's proposition for the "open sketch". His collaborative creative practice with Jules Moloney, Lawrence Harvey, and Anastasia Globa explores phenomena that elude concision: unfathomably deep ocean trenches, seismic plate action, the engulfing unpredictability of bushfires. As Twose describes it, their practice "aims to extend gestural aspects of the sketch in response to the agency of matter, as a way of capturing unfixed, intangible presences between drawer, sketch medium, and imagined space." Immersive installations deploy multiple modes of making; casting, scanning, digital parametric procedures, VR, AR, and ambient sound tactics to make the resultant sketch-space "bodily appreciable" in what Twose calls "habitable drawings". The poetic force of architectural "sketch space", as a portal to the not-yet-fully-understood, leverages the sketch's agency for *sympoiētic* drawing of the irresolute, incomplete, and un-fixed.

In addition to discussions on fixing and (un)fixing, this issue also includes an interview by Julia Gatley with professor and emeritus dean of Columbia University, Mark Wigley; a review by Tim Nees of Aaron Paterson, Sarosh Mulla and Marian Macken's installation *Drawing Room*; and a selection of creative research projects from postgraduate students.

Loose weaving

Donna Haraway reminds us that "it matters what stories we tell to tell other stories with; it matters what knots knot knots" (Haraway, 2016: 12). In a similar vein, Shannon Mattern writes: "To study maintenance is itself an act of maintenance. To fill in the gaps in this literature, to draw connections among different disciplines, is an act of repair or, simply, of taking care—connecting threads, mending holes, amplifying quiet voices" (2018). Remaining open-minded and open-hearted seems more important than ever. Accordingly, the articles that comprise this issue are sensitive to the minor, irresolute, and under-recognised. It is not our aim to launch a polemic or frame a manifesto, merely to pull on threads that suggest new ways of practising architecture and its related arts.

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LUCIANO BRINA

Pharmakon landscape. An emerging territorial model for deep-time geochemical governance

Introduction

The Greek word *pharmakon* simultaneously signifies *remedy, poison,* and *scapegoat*. The first two senses refer to the everyday meaning of pharmacology, a combination capable of unleashing the productive potential of metabolism, here understood as a dynamic process of energetic and material transmutation, the outcome of which is not easily predictable. The third, according to Jacques Derrida, corresponds to an entity representing the sum of corruption and poisonousness. Originated during the aforementioned transmutation, and as a sub product of it, the scapegoat's eventual dismissal is by means of depurative protocols acting as a form of remediation (Derrida, 2000: 63–71).

If the scapegoat is an inevitable consequence of the interaction between remedy and poison, then it is not its existence that remains problematic, but rather the ways in which it is metabolised, processed, planned, and disposed—in short, the ways in which it is *deliberately embraced*. Pharmakon invites us to be opportunistic and systemically inclusive towards the leftovers of our metabolic regime, the one we perform while we extract, produce and consume, through scales which go from our own body to cities, landscapes, and the whole Earth system.

This essay is a development of the content and topics in the homonymous visual essay produced during mid-2020, in the context of *The Terraforming* postgraduate programme, at Strelka Institute for Media, Architecture and Design, in Moscow (Brina, Gong, & Tetekin, 2020). It presents the idea of a territorialising pharmakon, as a medium both for imagining alternative narratives, about our disbalanced, planetary metabolism, and a way to convert unwanted waste into vibrant, restorative landscapes. The initiatives presented in pharmakon could pave a path towards a viable future on Earth.

Waste, or the restorative potential of anthropogenic externalities

According to a 2016 World Bank study, the average person produces an average of 0.74 kg of human waste on a daily basis (2019). That does not sound like a lot. Now, imagine you had to store that waste where you live, whether it be a flat or a

house. In one year, you would have accumulated 270.1 kg of waste, which is more than four times the average body mass of a person. Imagine that four new people move to your place every year. That amounts to a lot of human waste. Waste is not as nice as people—it pollutes, stinks, rot, harms—but luckily, you are privileged enough to have a public waste management service, so you are not confronted with its abject materiality. Waste is somewhere else, somehow externalised.

Waste, the ultimate externality, is unaccounted, unmapped, and ungoverned poison. However, as Robert Pietrusko argues, in a truly metabolic cycle there is no waste: only excess, reproduction, transformation and vital will (2020: 2). This excess is wrongly acknowledged as waste because its manifestation has not yet been valorised by any of our life-support systems. The creation of value in our current metabolic regime is characterised by a highly unjust capture of benefits by entities—individuals, companies, global cities, and industries—that hold a privileged position within a network of worldwide extraction, production, consumption, and externalisation. At the other end of this relay chain, we find the peripheral hinterlands, towns and communities these entities exploit and feed on, which is precisely where so-called waste finds its burial site (Katsikis, 2014: 5–12). In effect, the infrastructure that maintains the connection between the global city and the exploited periphery is so absent from the narrative, sustained by our carbon-intensive regime, that without doubt we are facing (actually refusing to face) what Ghosn and Hazairy argue to be a convergent calamity: environmental, social, and aesthetic (2020: 10–27).

There is no outside in which the unwanted consequences of our actions can disappear as, right now, waste has become a geological layer (Parikka, 2015: 141–153). An enforcement mechanism capable of bypassing subjective decisions must be created, probably even a non-human one: subject-less, border-less, metabolic and geological. We need to adopt waste both as an operational measuring device, as a grounded, transformative geo-bio-chemical means of governance (Bratton, 2021: 56–60). We need to embrace the pharmakon now. But, how could we do that? Let us ask James Lovelock, father of Gaia theory:

> If permitted, I would happily store high-level [nuclear] waste on my own land and use the heat from it to warm my home … I have wondered if the small volumes of nuclear waste from power production should be stored in tropical forests and other habitats in need of a reliable guardian against their destruction by greedy developers (2001).

These quotes from Lovelock allude to an alternative rationale towards waste. His radical pragmatism is a call for de-dichotomising pollutants' disposal and climate change mitigation. For him, the precondition for ecological remediation, counterintuitively, begins with the deliberate and opportunistic management of waste. In the terms described in this essay, one could say that he is positing waste as a pharmakon, as a phenomenon which requires to be planned in order to be remediatory.

To use Russia as an example: unfortunately, there are only a small number of temperate rainforests in Russia's far east, which would be clearly insufficient to securely contain its nuclear waste, let alone all the pollutants coming from its hinterlands and its urban centres (Brenner, 2020: 23–25). Where do the waste products of Russia's hardcore extractivism go, then? Surely anywhere they can't be perceived: the vast Russian periphery. Considering that in such a centralised

Fig. 1 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Artificial hill of by-products from the iron smelting industry. [Film still: Andrey Tetekin, 2020]

country every place but the main cities is thought as peripheric, one might be facing the largest dumpster on the planet, as Russia's total area compromises 11.48% of the earth's land mass. There is a more precise category for this vast, forsaken landscape: it is called the *inner periphery*.

Entering the inner periphery

The current territorial expression of poison in Russia is what geographer Vladimir Kaganskiy has coined the *inner periphery* (2013: 23). It consists of once-developed, now declining territories, originated by the misplanned redistribution of human activities and industries during the USSR (Kaganskiy, 2013: 24–25). These territories have already lost their artificially sustained potential (i.e. their subsidy-based economy), their social capital, and any chances of normal economic self-development. As former collective and state farms they are in decline; the material and social infrastructure that once supported production is steadily degrading (Kaganskiy, 2013: 26).

Geographically speaking, the inner periphery's connectivity and accessibility is complicated because its administration is not within it, but surrounding it. From an economic point of view, it is possible to confirm that the limits of the inner periphery act as barriers rather than filters or buffers. However, seen from an ecological point of view, these limits form an environmental threshold, enclosing a vigorous and effervescent landscape.

These dichotomic conditions—a decaying socioeconomic fabric and ecological effervescence—are what imbue this territorial model with outstanding attributes for playing a key role in ecosystemic remediation and greenhouse gas (GHG) sequestration, one that fosters the spontaneous landscape rewilding and natural self-recovery of woods and steppes in former agricultural lands.

Given its extensiveness and massive ecological performance, and considering that metabolism is a concern at planetary scale, I argue that the inner periphery could make an important contribution to climate change mitigation and waste management. In a sense, Russia's landscape may be the only one in the world able to, literally, digest the Industrial era. Following Rodoman's proposal,

Fig. 2 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Abandoned greenhouses, pharmakon landscape. [Film still: Andrey Tetekin, 2020]

Russia has the possibility to shift its intra-border colonialism—both in terms of metabolic output and added value allocation—towards becoming an internationally-funded, planetary ecological donor (2017: 18–43).

However, the absence of concrete planning of the distribution of waste within the inner periphery has led to the collapse of Russia's metabolic regime. This clarifies the need for a conceptual and operational scaffolding to turn the Russian landscape's decline into an operational ecological landscape, one that can lay the foundations for a co-dependency between poisonous conditions and long-term remediation.

Pharmakon landscape: modelling geo-bio-chemical governance by means of waste management

Pharmakon landscape is a model of intense territorial intervention for climate change mitigation and geo-bio-chemical governance which, rather than reclaiming the decayed inner periphery for its former rationale and imaginary, aims to reorganise and enhance its ongoing poisonous, everyday practices, enabling them to have a positive terrestrial effect, across a timespan longer than human (social) time.

Pharmakon landscape is a model that comprises waste management, infrastructural repurposing, rewilding, curated direct human presence and self-funded relocation, remote and in-site sensing, and military enforcement. It is a geo-design initiative that challenges the clear boundaries between remedy, poison, and scapegoat. Here, pollution and human exclusion equates with accelerated remediation, increased biodiversity, and GHG digestion, so the ambivalent co-existence of this conceptual triad becomes figured by beneficial co-dependency. Pharmakon landscape aims to institutionalise the geo-bio-chemical regime of the inner periphery by means of five speculative, interrelated strategies.

1. Military and satellite repurposing

Since the maintenance of the metabolic cycles of the pharmakon landscape requires a permanent performance audit, functions such as territorial enforcement, remote sensing, surveillance, and protection against environmental

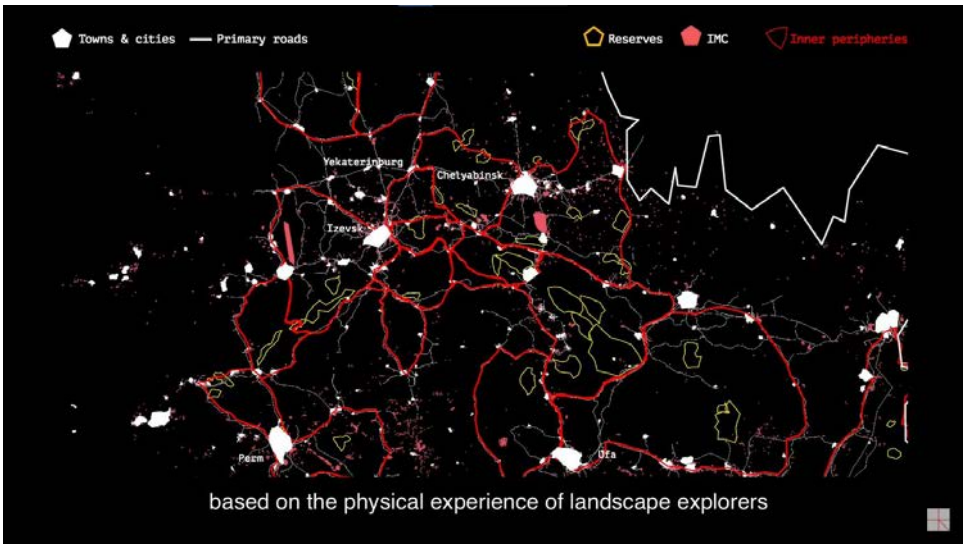


Fig. 3 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Pharmakon landscape. [Film still: Author, 2020]

aggressors could be undertaken by the Russian military forces. The Russian Defence Ministry is one of the largest social organisations in the world, directly employing about three million people, as well as the largest consolidated land user in the world, with about a tenth of the total area of the country under its control. The Ministry is in charge of two-thirds of Russian satellites and has 143 test ranges—mostly located in nature reserves or protected landscapes.

Currently, however, environmental protection for climate change is an issue practically absent from the Ministry's agenda (Brzoska, 2012: 43–54). Although the average temperature of the Arctic is increasing 2.5 times faster than the rest of the world (Conley, 2017), the Ministry's initiatives focus on securing the Arctic for naval and trade purposes, rather than addressing environmental protection as a matter of planetary ecology.

2. Solid, gaseous, and liquid waste management

Controlled contamination from strategic waste processing and human depopulation due to the risk of exposure to chemical threats would turn the pharmakon landscape into a human exclusion zone, where only flora, fauna, and essential part-time personnel coexist. In Russia, municipal landfills are the main waste management strategy. Only four percent of waste destined for these spaces is recycled, while the rest is dumped without additional classification or management (IFC, 2012: 5–7). Official subsidies and programmes were abolished after the collapse of the USSR: recycling and sorting facilities are now 50–70 percent obsolete, and waste collection services in small settlements and villages are now cancelled (IFC, 2012: 9). As a result, illegal dumping has become common practice. According to the Federal Service for the Supervision of Natural Resources, there are currently more than 17,000 illegal dumps in Russia, and between 2000 and 2015, the deposition in these dumps has doubled (McGee, 2018).

Pharmakon landscape proposes to reverse this trend. In these landfills the anaerobic decomposition of organic matter produces methane gas (NH4), and the installation of equipment to capture this gas would not only significantly reduce GHG emissions, but would also provide an alternative source of energy. This could be distributed to other regions or, alternatively, to the few permanent settlements and industries within the pharmakon landscape. In addition,

composting would play a fundamental role in the nutritional recovery of the soil, a prerequisite for the resilience of this degraded landscape.

The absence of concrete planning regarding waste has resulted in a complete misallocation of poison within the inner periphery, which has led to a collapse of its metabolic layer. Pharmakon landscape aims to restore this layer by establishing an everyday geoengineering practice based on systematic waste zoning and classification, in order to take advantage of the geo-bio-chemical composition of media that traverses its soil, its trees, its inhabitants, and its infrastructure.[1] Accelerated and intensively planned pollution results in an equally accelerated metabolic recomposition towards GHG reduction, soil nurturing, and energy production.

Fig. 4 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Pharmakon landscape. [Film still: Luciano Brina, 2020]

3. Forestry, ecosystemic regeneration and remote sensing

Pharmakon landscape proposes to configure a homeostatic cycle based on chemical processing through the photosynthetic capacities of native flora. The landscape displays a formidable number of air pollution removers: forests, steppes, and grasslands. Russia owns 19 percent of the world's forest reserves. This percentage could be increased through reforestation and replanting in abandoned or low-yield arable areas, or in already exploited quarries. According to the Russian Federal Ministry of Forests, at least 50 to 55 million hectares formerly used for agriculture are suitable for afforestation, while of the 76 million abandoned arable hectares registered in 2018, 30 million of them have already been spontaneously covered by new forests (Korotkov, 2018: 7–11).

However, spontaneous afforestation is insufficient both in quantity and pace to capture the amount of GHG required. Additionally, illegal logging and forest burning are a huge problem worldwide, and Russia is no exception. There, the former represents up to four percent of total felling, while the latter is presumed to amount to 25 percent of the loss of forest (Brzoska, 2012: 54). From satellite images, it is clear that in the last 20 years the rate of deforestation caused by fires in Russia has reached 400,000 hectares per year.

Again, the Russian military forces could take responsibility for policing this. On land, they could install and maintain sensor networks, providing an immediate

response to clearing and intentional fires, just as their Chinese counterparts have been doing (Brzoska, 2012: 55–57). In the air, Russia's satellites could verify the health of each ecosystem and audit its GHG removal capacity.

In addition to the locations where afforestation and reforestation initiatives could be carried out, as mentioned earlier in this paper, ecological buffers between different inner peripheries could be established. These could achieve a separation between toxic conditions in the pharmakon landscapes and surrounding human-inhabited areas. Despite being almost as unsuitable for permanent human settlement as the landscape they circumscribe, these green belts would displace population, commerce, recreation, and habitat to their outer edges (thus along road infrastructure), creating ecologically protected environments, with higher population density, and greater economic activity.

4. Infrastructural and industrial repurposing

Russia's main product is not commodities, but heat. Whether as a by-product of any of its extractive industries, or to heat housing complexes within the country, the generation of heat is an unavoidable requirement for the maintenance of life and production in the Federation. However, heating a country the size of Russia is an incredibly demanding task, and naturally produces a dangerous by-product: greenhouse gases.

According to Climate Transparency, almost 40 percent of Russian GHG emissions come from the burning of fossil fuels for the generation of electrical and/or heat energy (2019, 4–8). The capacity of this industry far exceeds current demand, which has been significantly reduced since the collapse of the Soviet Union in the early 1990s, and 40 percent of thermal power plants are now more than 50 years old (McKinsey & Co, 2009). In addition, half the emissions from the oil and gas industry come from leaks and losses during their distribution. These situations have enormous consequences in terms of efficiency, and therefore, in increasing GHG emissions.

The Russian industrial complex has to be called upon not only to clean up its own environmental disasters, but also to immediately shift to a negative GHG emissions scenario. The decrease in the participation of industry in the Russian GDP, compared to that of services since the last decade of the current millennium, indicates a necessary re-functionalisation of the manufacturing establishments and the infrastructure located in the internal periphery.

Firstly, underused or even unused factories across pharmakon landscape would shift their prior main activity towards *carbon capture and sequestration* (CCS), residual heat recovery to be used for residential heating, and methane capture to replace fossil fuel usage. Carbon capture and storage (CCS) is not just a singular technology, but rather a practice that combines several verbs: capture, transport, store, monitor. For example, decommissioned oil and gas pipelines in the Inner Periphery could be repurposed for CO2 transportation, abandoned mines and reservoirs could be repurposed as carbon sinks. Steel plants could utilise their residual blast furnace gas (BFG) for power and heat production. Attaching CCS equipment to existing chemical and steel plants, and selling the CO2 retrieved for enhanced oil recovery (EOR) could not only reduce emissions, but also decrease the CO2 price per ton. Then, methane produced by biomass fermentation could be recovered and distributed to provide energy to facilities and residential buildings.

Secondly, with waste being the main resource of the pharmakon landscape, large-scale recycling could be performed in ore and cement sectors. Regarding the former, metal scrap could be gathered and sold to steel and copper producers. Regarding the latter, retrieving specific by-products such as slag and fly ash to replace clinker, the main component of cement, could reduce CO2 emissions by 55 percent. Iron smelting mineral by-products could be repurposed as well.

After all, if growth results in a rising atmospheric concentration of CO2, the reverse of growth is not degrowth, but carbon-negative growth. Capturing, injecting, and remineralising soil with CO2 is a deep-time, deliberate poisoning of the geological layer of pharmakon landscape, facilitated by misused factories within the inner periphery.

5. Human exclusion and relocation

Just as the inner periphery is the land of ecological terrorism, where polluting companies get away with it, it is also the land of environmental racism. There is a clear spatial correspondence between ethnic minorities and/or low-income groups, and the distribution of environmental hazards (Lerner, 2010: 4). These inhabitants experience severe exposure to all types of toxic agents, a condition diametrically opposed to the inhabitants of highly urbanised and privileged regions, such as Moscow.

But environmental racism is not limited to chemical exposure, it is a multi-causal situation that includes three critical characteristics of the urbanisation of Russian territory during the 20th and 21st centuries: cold, remoteness, and migratory processes.

Regions such as Siberia or the Far East, characterised by their low temperatures and lack of transport infrastructure, are territories in which direct private investment would not flow *de facto*, since the costs associated with maintenance, operation and habitability are extremely high compared to warmer, more urbanised regions. However, during the centralised Soviet administration, planners overinvested in areas of the country that were either too cold or too remote to sustain themselves in the context of a market economy: during this period Russia became economically "colder" (Hill, 2003: 37).

In this sense, human settlements were conceived as a hierarchical network organised along the route of the Trans-Siberian railway. Take the case of the main cities such as Tomsk, Novosibirsk, or Omsk, which were urban centres of the first hierarchy, capable of concentrating specialised health, cultural and educational services. Somewhat further from the railway, small towns such as Surgut and Nizhenevarstovsk acted as a link between the main settlements and the most remote outposts along the Arctic.

With the collapse of the USSR, investments shifted to places where production could have a quality and cost efficiency capable of competing in the global market: Russia became an economically "warmer" country. The economic decline suffered in the northwest regions, in the Urals, and in the Arctic Circle, was accompanied by simultaneous and massive emigration. Between 1979 and 1994, about two-thirds of Russia's urban centres experienced an abrupt population decline, even to the point of abandonment (Mikhailova, 2012: 11–13). Thus, highly urbanised regions, diversified cities, and specialised R&D towns prospered, while monotowns, company towns and *besperspektivnyye* (unpromising towns) perished.

The combination of meagre labour opportunities, cuts in state subsidies, geographic disconnection, and low urban quality resulted in a social and habitational catastrophe. Without sufficient concentrations of people, not only is the provision of normal municipal services extremely expensive but urban life itself begins to break down. With fewer taxpayers, revenues are lower, often leading to higher taxes per capita, resulting in an overall deterioration of services. More people depart, and the downward spiral continues.

Most Russian migrants in the 1990s moved from remote villages and small towns and cities in the north and the Far East to the frost belt—in other words, from extremely cold places to other, somewhat warmer, larger settlements (Mikhailova, 2012: 26). However, not everyone departed, or were able to, even if they wanted to.

The decline in the eastern economy left large portions of population without the means necessary to relocate to more prosperous regions: they were tied even more to their current locations. Residents from *besperspektivnyye* villages were persuaded to leave, while the economically disadvantaged were often left behind because they could not afford to abandon their plots or their family networks. For them, even if they had the resources to move elsewhere, finding themselves in a new location, but far away from their remaining social networks of family and friends, had serious consequences.

After all, this is the social, economic, and territorial background of the inner periphery: decay, stagnation, emigration, pollution, obsolescence, aging, remoteness, solitude, defunding, degrowth, and extremely low temperatures. How might a pharmakon landscape reverse or at least propose an alternative, more qualitative scenario for this forsaken territory and its inhabitants?

Fig. 5 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Pharmakon landscape. [Film still: Luciano Brina, 2020]

Funding pharmakon landscape

> The choice is simple: to develop production and increase the extraction of raw materials so as to eventually give Siberia and the Far East to China; or not to carry out any activities in order to keep these lands as a nature reserve under the patronage of the United Nations, in alliance with Europe and the United States. (Rodoman, 2017: 37)

In this provocative statement, Russian geographer Boris Rodoman posits two very different possible paths for Russia. One is to continue depleting its natural resources in the name of profitability, thus accentuating the inequities between centre and periphery, with the guarantee of confronting an economic, social and environmental crisis in the short term. The other path is for Russia to become an internationally funded environmental donor, capable of providing ecological services for the entire planet. This alternative proposes that, given pollution is an unequally distributed, planetary produced phenomenon which affects commodity-based economies, and given the formidable ecological capacity of the Russian green infrastructure to contribute to planetary sanitation, both the Russian state, its companies, and its population (for that matter, the inhabitants of the pharmakon landscape) have to invest in and monetise its environmental potential.

As an example, firms such as Microsoft, Amazon, Glovo, SoftBank and others listed in the S&P 500 index transfer their GHG emissions by financing green infrastructure in Latin America thanks to NGOs and platforms such as Pachama (https://www.pachama.com) or Restor (https://www.restor.eco).

These leverage geospatial information, artificial intelligence and local communities, in order to provide accurate information on the ecosystemic capacity of landscape projects, to determine the cost of each ton of CO2 sequestered, and what investments are needed to enhance these landscapes. For this, Yandex, the largest internet-related service provider in Russia and the fifth largest worldwide, could take advantage of its extensive network of satellite, on-ground coverage, and its horde of programmers to carry out the geospatial audit necessary to allow government organisations and NGOs to monetise the pharmakon landscapes. This initiative would contribute to the creation of new jobs, necessary for the few and impoverished communities that would continue to live in the inner periphery.

The second has a more participatory, democratic and horizontally-managed character, engaging civilians, professional and local organisations in the restoration of the ecosystems they inhabit. Restor offers a free online platform for analysing ecosystemic performance by means of georeferenced information, as well as being a platform for economically supporting different projects and NGOs around the world. This alternative would be extremely valuable for the organisation and coordination of the inner peripheries' inhabitants seeking to recover their environment and quality of life, maintain their socio-emotional ties, and reconvert their productive matrix from toxic extractivism to planetary care and maintenance.

Both cases demonstrate how different layers of technology (geospatial, platform-based, and financial) could contribute to the interaction between material and human resources, one aimed at the development of what we can understand as a territorial technology: the pharmakon landscapes to come.

For those inhabitants who feel their future is somewhere else, emigration has to be promoted instead of being resisted or delayed. The question, then, is how to properly plan this emigration, and by what means to sustain and finance it.

As mentioned, emigration from colder to warmer, and from decaying monotowns to larger and economically diversified cities had been happening for some years prior to the collapse of the USSR. However, in a country such as Russia, with birth and growth rates declining since the mid-20th century, and in which two thirds of its territory have less than one inhabitant per square kilometre, human migratory flows are a real concern and require proper planning. Thus, it is a responsibility of pharmakon landscape to relocate its former inhabitants and guarantee them a better quality of life, a responsibility extended to the host cities.

The hosts could be what are known as "one million-plus cities": regional, emergent cities with more than one million inhabitants, whose growth could drive substantial development to country's economy. Research conducted by Strelka KB showed that 15 percent of Russia's GDP is produced by these cities (excluding Moscow), though their productivity is not accompanied by sustained investment, urban environment quality, and financial resources (Strelka KB, 2017). This imbalance between productivity and investment signals that these cities have a lot of remaining potential, that could be fulfilled with an inflow of highly qualified workers and consumers from the pharmakon landscapes. Relocation could be tailored so that newcomers land in a city where their skills are needed. To that end, Strelka KB's research states that sets of cities have specific specialisations, as follows: Krasnodar and Ekaterinburg specialise in trading; Omsk, Ufa, and Kazan in manufacturing; Krasnodar, Samara, Kazan, Nizhny Novgorod, Ekaterinburg, and Novosibirsk in construction and real estate.

Conclusion

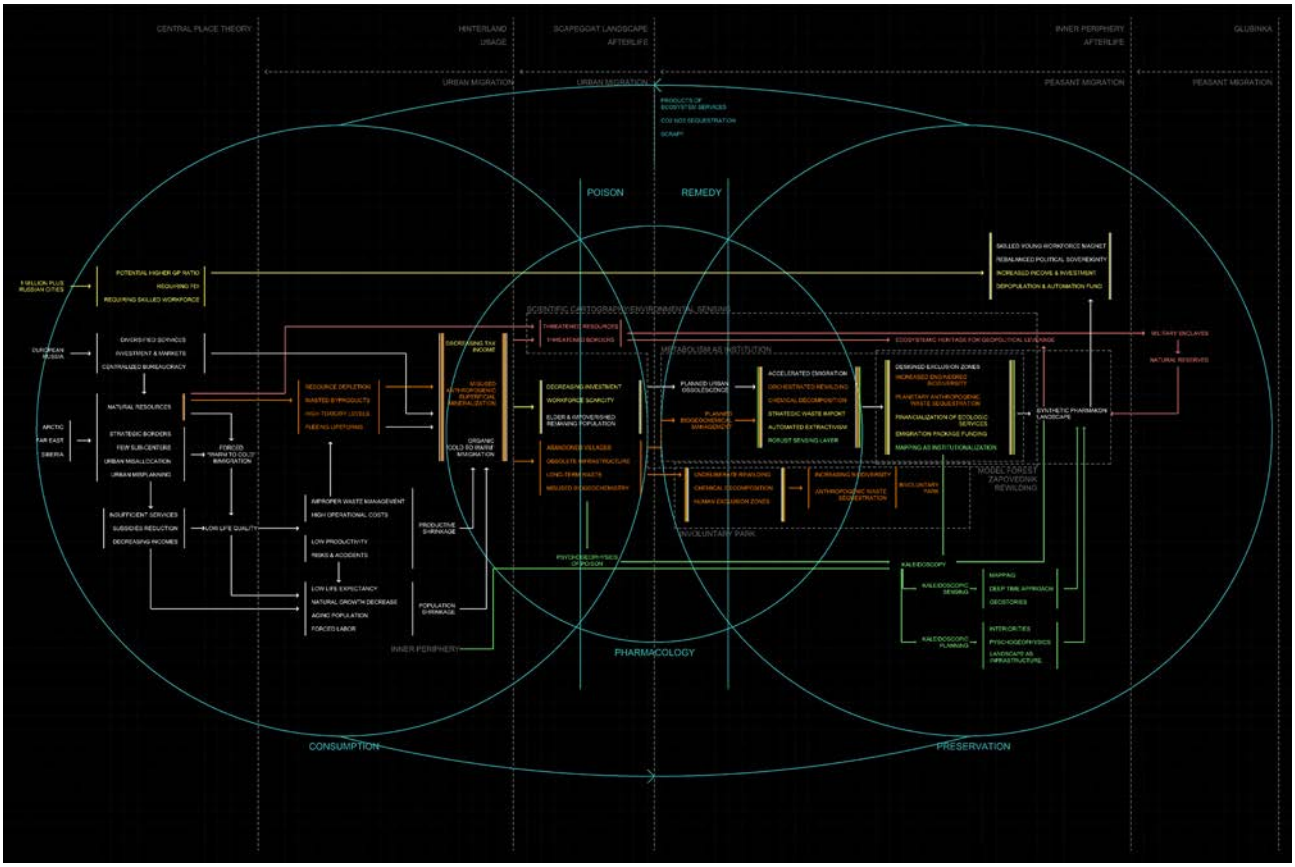
Pharmakon landscape stands as the reification of the transition from an extractivist territorial and economic model, to one based on planetary caretaking. In an attempt to propose an alternative development model for a viable planet, pharmakon landscape puts forward remediation and restoration of what has been contaminated, degraded or left over. Rather than building anew, it invites us to put further attention on the opportunities that waste holds for climate change mitigation. In a pharmacological sense, planetary remediation must emerge from the remains of the most mis-planned and least overseen territories in our globalised productive regime: the hinterlands and operational landscapes in general, and Russia's inner periphery in particular.

Internationally funded environmental services could be provided by Russia, by converting these territories into pharmakon landscapes, i.e., multi-layered green infrastructures, on which rewilding, carbon capture, energy production and depollution could be performed. In parallel, newly curated exclusion zones, created from the remains of the inner periphery, would promote an urban and demographic intensification around its buffer zones (i.e. the administrative borders between different inner peripheries) and towards one–million-plus cities, which would be co-responsible of providing a better life to communities that suffered the collapse of the Soviet Union, the transition to an open market economy, and the poisoning that decades of living next to highly polluting industries produced in their bodies.

To quote Bernard Stiegler, “technology is our pharmakon, an inescapable poison that has curative potential, and culture is a therapeutics that must recover from its colonisation by the digital-audio visual processes of cognitive capitalism” (2013: 4-11). Pharmakon landscape proposes a shift from using technology for advertisement, individual surveillance and narcissistic self-validation, to using it for to audit, support and promoting landscape restoration initiatives. As shown in the case of internet-based environmental restoration platforms, pharmacological conditions could be traced and taken advantage of all over the Earth, as a global territorial model, one not limited to Russia’s national borders.

This essay proposes pharmakon landscape as an experimental scaffold for ecosystemic governance, a toolkit for identifying metabolic phenomena, an invitation to configure and imagine new narratives for renewed landscapes to come, and a grounded platform for empowering communities and their culture. It is a proposition that would require taking a leap towards addressing the complexity of waste and its connection to territory and human endeavour. This is the point where an expanded form of architectural discipline must come into play, one that considers the Earth’s system as an architectural project (Sarkis, 2020: 10-17). Maybe, if architecture follows the poison, if it embraces *the city outside the city,* it will find a pharmakon landscape to be configured.

Fig. 6 Luciano Brina (2020). Metabolic regime of a Pharmakon landscape. [Diagram: author, 2020]



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ENDNOTES

1 Following Parikka's *A Geology of Media* (2015) and Easterling's *Medium Design* (2018), here media is understood as a material vector embedded with specific properties, whether they be intensive or extensive. This standpoint allows including the history of material processes and the ones from the formations emerging from them. Here I focus on matter itself as a means for human and non-human recomposition, mediation and intermingling.

JEANETTE BUDGETT

Dirt under our fingernails: Daylighting waste at the Dome

Steven Jackson's formulation of "broken world thinking" proposes that modernity's structuring of the last two hundred years of human history has led to an "always-almost-falling-apart" world in which entropic breakdown, dissolution and change are the prevailing conditions (2014: 221–2). Only through a constant process of fixing and creative reinvention has a fragile stability been able to be maintained. Jackson's observations of sociotechnical complexes suggest that in design and production-focused disciplines, innovation, novelty, and progress are prevailing paradigms. How might this "productivist bias" be countered by taking erosion, breakdown and decay as our starting points? In this article I explore this possibility with respect to a controversial proposed landfill in Dome Valley, north of Tāmaki Makaurau Auckland.

Soaring global consumption and massive waste production are problems largely masked: the management of the waste stream in wealthy cities has been rendered invisible. Waste is all too visible, however, in the cities of the developing world where waste management infrastructures are often informal and rubbish piles up on roadsides and riverbanks. Despite the good intentions of waste management and minimisation strategies enshrined in recent New Zealand legislation (Waste Minimisation Act 2008) and Auckland's own Zero Waste by 2040 policy (Auckland Council, 2018), the waste stream to NZ landfills increased by 47% between 2010 and 2019. In Aotearoa New Zealand, escalating construction waste and hazardous waste make up 57% of the Class 1 landfill waste stream, 33% and 24% respectively (Ministry for the Environment, 2021:1). This burgeoning waste has prompted a proposal for a new regional landfill in Dome Valley, north of Auckland (Tonkin and Taylor, 2018). Located adjacent to a forest park and a river, local residents including Māori iwi (tribal groups), have been catalysed to fight the proposal.

The controversial Dome Valley landfill proposal signals many complex ecological, planning, legislative, technical and design problems, as well as raising cultural tensions. There is no obvious "fix". Relentless urban growth and unremitting consumerism mean material waste streams and the design of the landscapes that absorb them remain intensely problematic. Irreconcilable environmental, cultural and developmental trajectories coalesce, no less so in the proposal for Dome Valley. In the absence of simple solutions, this paper seeks

alternative ways of living with waste, and examines the work of artists and architects who have explored such possibilities. It has been over 50 years since a dawning awareness of modernity's impacts provoked the artistic experiments of Billy Apple and Mierles Laderman Ukeles. Their work materialised matter, maintenance and labour in strategic (and often provocative) performances, and I suggest, still provides fertile ways to engage conceptually with this field of problems. By reconceptualising waste sites through these artists' broken-world thinking I hope to proactively reappraise our understanding of waste and indicate possible new perspectives on the Dome Valley proposal.

The Dome Valley landfill proposal

Visible waste is contentious. No-one wants a dump in their backyard, even when modern landfills and their associated renewable energy parks meet vastly higher standards than the chaotic tips of the past. Landfills are the municipal waste solutions of choice in New Zealand over international alternatives, such as incineration (Tonkin and Taylor, 2018: 22). Incineration requires more consistent waste streams than Auckland can supply, produces toxic atmospheric emissions, and generates a sizeable ash waste stream to dispose of (Bruce Middleton, Waste Not Consultants, personal communication, July 10, 2021). Notwithstanding aspirational future waste policies that focus on circular economy principles, reduction, reuse, recycling, recovery, and regeneration, "recycling growth has stalled" (Tonkin and Taylor 2018:16). Auckland's ballooning annual waste stream will exceed current landfill capacity in a few years.

A large secluded rural site in the Dome Valley (1020 ha) was selected to ensure little to no visual sighting of the landfill from public roads, although the trucking of waste to the location, 70 miles outside Auckland, will be visible and noisy (142). In reducing visual impacts, the Dome Valley proposal attempts to render invisible the city's inconvenient waste. Such practices are not new. Multi-coloured bins streamline the classifying, structuring and segregating of waste flows that mark a modern society. Water-based sewerage systems facilitate effortless and efficient disappearance of human waste. In general, "disposability, denial and distance" structure modern relations with waste and these inflect the current debate on the Dome Valley proposal (Hawkins, 2006: 21). Zero waste goals have proved hard to achieve (Trickey, 2019). The Auckland City Council's zero waste strategy calls for demolition and deconstruction centres to be established, yet it has contracted out much waste management to the private sector.

Independent commissioners recently granted resource consent to a private waste management company for the Dome Valley landfill in June 2021, after years of objection by mana whenua (indigenous Māori people with ancestral association and authority over the territory) and other community groups (RNZ, 2020). Ngāti Manuhiri object to the unacceptable risks to the ecology of waterways leading to the Hoteo River and the Kaipara Harbour, New Zealand's largest estuary. The harbour's seagrass meadows are a significant nursery for fish species (Morrison et al., 2014), and an exceptionally rich traditional food source for local Maori that would potentially be placed under threat.

Māori have established tikanga (customary values, protocols, and practices) in relation to managing different types of wastes. These "continue to play a role in contemporary life and have a large influence on the way Māori have consistently

responded to and involved themselves in dealing with waste management issues" (Pauling and Ataria, 2010: 19). For example, human waste did not enter into any kind of Māori agricultural economy as manure was strictly tapu (under sacred prohibition). A rigorous separation was required between the human food chain and human waste; hence the extreme sensitivity to pollution of waterways by human waste (Pauling and Ataria, 2010: 19). Sewage sludge and sanitary waste (currently 4.5 % of the waste stream to Class 1 NZ landfills) make this a matter for concern (Ministry for the Environment, 2021: 1).

The Integrated Kaipara Harbour Management Group, a Māori-led partnership of local and territorial authorities, has been shaped and guided by the joint visions of mātauranga Māori, (Māori knowledge) and Western science. Their goals have been endorsed in recent years by extensive Government funding for harbour restoration to reverse the impacts of sedimentation. The Dome Valley landfill proposal reconfigures the top of the watershed as a dump, reversing the trajectory of these restorative initiatives. It exemplifies the ongoing appropriation and "re-spatialising" of the land in an exploitative colonial history that prompts Rod Barnett to ask "How do you design a colonial landscape?" (2021: 1–3). Despite proposed measures to mitigate environmental impacts such as planting and protection of 15km of identified streams, Ngāti Manuhiri Settlement Trust acting chief executive Nicola MacDonald says that's not the point: "Auckland Council needs to consider, is it proper, is it practice, to establish landfills that are adjacent to natural water sources?" (Chiang, 2021).

Mana whenua argue that the proposal significantly denies their cultural worldview, guaranteed under Te Tiriti o Waitangi/ The Treaty of Waitangi. As the chief executive of Te Rūnanga o Ngāti Whātua, put it, "We can't continue the sorts of things we're doing to Papatūānuku. Imagine putting that on your mother and creating these sorts of landfills and toxic dumps. It's not acceptable in this day and age" (Bell, 2020). In Māori tradition Papatūānuku, is the land, the Earth Mother who gives birth to all things. Invoking the spiritual life force of the land gives full voice to the concepts of Maori kaitiakitanga (guardianship and protection of the environment), which is how iwi maintain their mana whenua. This goal is supported by the framework of whakapapa (genealogical connections of family and relationships between all things in the cosmos). Whenua—meaning both land and placenta in te reo Māori—is the place from which humanity emerges and to which it returns. These frameworks of whakapapa, creation myths and kaitiakitanga mean "people and communities are one component of this holistic view, and their roles and behaviour are modulated by a system of mutual dependency, reciprocity, obligations and consequence" (Allen et al., 2009: 240).

Māori are not the only objectors. Other groups also strongly oppose the siting of the tip near waterways, fearing environmental destruction, and many in this rural community object to being Auckland's dumping ground (RNZ, 2021). Banishing waste from the city plays out a familiar trope of environmentalism, what Gay Hawkins would call a "disenchantment story" in which waste is othered as the dark "underworld of capitalist accumulation" (Hawkins, 2006: 16, 63). It plays into an environmentalist discourse that posits purity and pollution, nature and culture in oppositional pairs. "Dumping waste is an expression of a contempt for nature. Humans establish their sense of mastery over and separation from a passive desacralized nature by fouling it" (16). When caught in this dualism, "Waste can only be bad [...]" (17).

What happens when rather than being disenchanted with waste, we pay close attention to its presence? Are there alternative ways to imagine waste in thought and practice that might reconcile such divided views. While ecological science provides one such approach, the work of two artists I suggest may provide another.[1]

Billy Apple ®: Persistent matter

Between 1969 and 1973, New Zealand artist Billy Apple made ephemeral installations and processual performance art in his alternative artist-run gallery, APPLE, in Soho New York City. He claimed "every act that took place in the space from the moment the artist entered was considered an integral part of his/her art activity. In the space there was no breakdown between art and non-art activities" (Barton, 2020: 136). Apple's arrival in New York coincided with a period of slowing post-war growth: declining manufacturing industries had left the city, and their former factories and warehouses became studios and galleries, cheaply rented by artists and art collectives. A countercultural context: the rise of anti-war, race and gender equal rights and environmental movements had a catalytic effect on the emergent alternative art scene of the late 1960s and early 1970s. In this context, aspects of material consumption and its messy residue came to preoccupy Apple.

Apple's art from this period involved handling and transferring materials, transforming them in both real and perceptual ways. He used the general title *Accumulations* for a number of these works. Apple had previously used neon as

Fig. 1 Billy Apple, 1971. Matter transformation: Glass, earth, stone 1971. [Photograph, courtesy of Billy Apple® Archive, Jerry Vis]

a sculptural medium. From compositions of form and light like the *Neon floors* series (1969) he increasingly focused on the light tubes themselves, broken and randomly distributed as glass matter, and this led to acts of sorting, arranging, tidying and cleaning that culminated in grinding the broken glass shards into fine dust (e.g. *Matter transformations: Glass, earth, stone*, 1971; Fig.1). The dust was eventually laid to rest on a forested back road in upstate New York, in an attempt to finally expunge it. The scene was recorded by photograph and text, a new residue capturing the "conundrum," as Barton describes it, of Apple's work; "the quest for purity and its material remainder: the play or tension between art and life, idea and actuality" (2020: 136). Motivated in part by a natural fastidiousness, Apple's attempts to erase matter came from his ontological interest in the "negative condition", a preoccupation that brought non-art activities into the sphere of art (Barton, 2020: 156). He mused about his series *Spot Cleaning,* "If you wipe a dirty spot off the wall, you've removed it, but you haven't eliminated it. You're stuck with a dirty rag you didn't have before" (10).

In *Manhattan Street accumulation parts 1 & 2, 1970* Apple collected broken glass from New York streets, meticulously recording weights, colours, and personal injuries sustained. His fieldwork was tightly prescribed by a set of rules that generated processual and formally contingent results. He followed this work with *Coca Cola elimination* (1970) in which he collected and redeemed found Coca Cola bottles, obsessively recording times and places on scraps of recycled paper, in the process spatially mapping an alternative city. Bartering bottles for refunds reversed the typical commercial exchange of goods for consideration. Barton contextualises this work as a timely critique of rampant consumer culture at the beginning of the 1970s, when the impacts of mass consumption and disposability (which the Coke bottle represented par excellence) were becoming increasingly visible (154).

Apple actively deployed his own bodily waste in this period, famously culminating in work (*Excretory wipings and bodily activities May 1970–June 1973)* that documented his own secretions and eliminations over a period of three years, preserving them on tissue paper. Shown at the Serpentine Galley (London, 6–28 April 1974) this work produced a public outcry. In the absence of institutional support a humiliated Apple removed them from the show—duly retitling them *A requested subtraction (10.04.74)*. The project was risky and the apparently wretched material of the Serpentine show was too confronting for a London gallery-going public. Although he ultimately retracted the work, he upheld his conceptual position that a human life and its abject waste might be art.

Apple made the show all about himself, but Barton contends he did not centre himself as a humanist subject. Rather he made himself "nothing more than an organic machine going about the ordinary business of living" (Barton, 2020: 175). His work exposed the human body in a way that recalls eco-feminist philosopher Donna Haraway, who wrote:

[B]odies as objects of knowledge are material-semiotic nodes. Their *boundaries* materialize in social interaction. Boundaries are drawn by mapping practices; 'objects' do not pre-exist as such. Objects are boundary projects. But boundaries shift from within; boundaries are very tricky. What boundaries provisionally contain remains generative, productive of meanings and bodies. Siting (sighting) boundaries is a risky practice (1988: 595).

Apple's artistic attention to waste matter shows he was alert to the growing environmentalism of the early 1970s: the piles of colour-sorted glass and the rigorous collecting of tissue samples, his careful documenting of time and place. He rejected, however, the dualism between human culture and non-human nature, implicit in many environmental discourses, in which each "ultimately stands as ontologically distinct from the other" (Hawkins, 2006: 17). Apple signalled a deep ontological continuity between humans and their waste, and implicated waste in the formation of an ethical and aesthetic sensibility. Behind the horror that greeted his Serpentine show was his public outing of private personal rituals of elimination and pleasure. Apple's alternative (and provocative) artistic experimentation led him to reveal what had been made private and invisible by the modern infrastructural apparatus of bathrooms, drains, sewers and treatment stations. Apple thought about "waste not as phobic [...] but as things we are caught up with" (20). In Haraway's terms Apple presented himself not as a classically sealed masculine body but a leaky "boundary project" (Haraway, 1988: 595).

Mierles Laderman Ukeles: Labour matters

An artist who made the politics of maintenance, and in particular the labour of cleaning up, more explicit still, was Mierles Laderman Ukeles, working in New York at the same time as Apple. Her *1969 Manifesto for Maintenance Art* resulted from her experience of motherhood and is considered one of the first artworks to frame the work of home and mother as art. Caught between her avid desire to be an artist and the compelling demands of childcare, she was driven to rethink maintenance and care as art. The manifesto proposed an exhibition (to be named 'CARE') and made an important conceptual distinction:

B. Two basic systems: Development and maintenance. The sourball of every revolution: after the revolution, who's going to pick up the garbage on Monday morning? Development: pure individual creation; the new; change; progress; advance; excitement; flight or fleeing. Maintenance: keep the dust off the pure individual creation; preserve the new; sustain the change; protect progress; defend and prolong the advance; renew the excitement; repeat the flight (Ukeles, 1969: 1).

Interestingly this dual formulation of development and maintenance came from an understanding of New York as both a creative force and a planning project. Progressive ideals galvanised a group of city planners working for the Department of City Planning, including Ukeles' husband, Jack. This group drafted a plan that identified two outstanding missions for the city's governors. The first idealised the city as an "opportunity generator" offering a chance for residents to be lifted out of poverty, primarily through development (Freilich, 2020: 1). The second provided traditional maintenance services such as cleaning streets, collecting rubbish, protecting water supplies and other key services. While her husband was captivated by development, Ukeles found herself compelled by the ordinary work of city sanitation workers and sought to make it visible as art (Freilich, 2020: 1).

New York's escalating sanitation crisis of the late 1960s most affected low-income neighbourhoods and resulted in protests and the famous 1968 nine-day strike by sanitation workers that left the city wading in rubbish. A fiscal crisis had already resulted from the loss of manufacturing, and was further exacerbated by a

mass exodus of the white middle class to the suburbs and a resultant loss of city revenue. As social theorists and geographers Stephen Graham and Nigel Thrift point out, infrastructure becomes uniquely visible on breakdown: "The sudden absence of infrastructural flow creates visibility just as the continued normalized use of infrastructure creates a deep taken-for-grantedness and invisibility" (Graham & Thrift, 2007: 8). The cultural visibility of infrastructure, like that of housework, is undermined by its embeddedness, ubiquity and routine practice, and Ukeles set about returning it to view.

Manifesto for maintenance proposed that Ukeles would perform domestic chores in the museum, conduct interviews with the public about their relationship to maintenance, and bring a truckload of city rubbish (or alternatively a container of polluted Hudson River water) into the museum for rehabilitation and recycling. Ukeles imagined the museum as "the secular center of culture, as the fulcrum where the transformation of material of our lives and of the planet becomes robust" (Freilich, 2020: 1). Radically she proposed that this highly-valorised institution might become a place where the ordinary and necessary work of cleaning could be performed and profound acts of repair occur.

Ukeles' vison of bringing together the museum with the infrastructure of waste disposal found an accidental sequel many years later in 2015, when the new Whitney Museum of American Art was established in the former meat-packing district on the west side of Manhattan. One commentator appreciated architect Renzo Piano's architectural references to the gritty history of the neighbourhood and argued that the new museum on the banks of the Hudson River set up a "fundamentally different relationship to the city" through large glass windows (Kennicott, 2015). Unintentionally granting Ukeles' desire for visibility of the city's cleaners, these windows overlooked the premises of the New York Department of Sanitation on the river pier. This fortuitous view of the city's essential infrastructure was not expected to remain; Kennicott eagerly anticipated the gentrification of the waterfront: writing that the "magnificent views of New Jersey will only improve as the city replaces functional buildings, including an incinerator, with more park space" (Kennicott, 2015). One can imagine Ukeles' disappointment. Her desire to make visible "the transformation of the material of our lives... that miraculous transformation" from within the culturally sanctioned space of the museum was only briefly granted (Freilich, 2020: 1).

Ukeles and Apple were less interested in making aesthetic objects for exhibition than advancing manifestos and performative processual work. They attested to a difficult cultural relationship with waste; noting in passing the conspicuous consumption that underpins contemporary social life, recognising the daily tasks of managing waste, confronting the distaste and provocation of abject matter, acknowledging the low-status of lowly paid work and addressing the difficulties of disposal. Their work requires us to "think about waste as a flexible category grounded in social relations"(Hawkins, 2006: 8), and to see the cultural and metaphysical implications of anthropologist Mary Douglas's famous assertion that dirt is "matter out of place" (Douglas cited in Lindner & Meissner, 2016: 4).

Noel Lane: Situated infrastructures

A decade later in New Zealand a postmodern architectural proposal reversed Ukeles' proposal to take the city's waste to the museum, and instead took the museum to the tip. David Mitchell and Gillian Chaplin concluded their book *The elegant shed: New Zealand architecture since 1945,* with a discussion of an international competition for a hometown museum and culture centre "that will inspire delving into the past, research and growth for the future [. . .]." (1984: 110). Noel Lane, then an architectural student at the University of Auckland, grew up in Helensville, a small town on the Kaipara Harbour. His museum project monumentalised the town rubbish dump, sited on tidal flats where he had hunted for treasure as a child: "the resting place, to him, of Helensville's culture" (109). Here amidst smells and squawking gulls, he laid out a walled enclosure with a postmodern classical sensibility, positioned a diagonal portico set against a mirrored wall to reflect the hills behind the town, erected an obelisk to mark the spot where the river crossed the site and laid a hovering black granite ramp for the rubbish

Fig. 2 Noel Lane, (1980). Hometown museum made of the Helensville rubbish tip. [Photograph, Denise Moore]

trucks. Lane depicted his field of allegorical elements one thousand years in the future, after fire, water and sand had raked the site's surface. Only monumental fragments poking through the midden of matter and memory remained.

Mitchell was impressed by this poetic and powerful monumentalising of "the processes of everyday life in this country" (109). Lane's cross-programming of museum and tip aspired to the same kind of performative visibility for waste sought by Apple and Ukeles. Lane's hometown museum of culture memorialised ordinary objects and recognised the potential for a redemptive relationship with cast-off waste. The informal recycling that took place at municipal rubbish dumps in the mid-twentieth century hints at the tip as a source, as much as an endpoint, of value and cultural stories.

Lane's view was framed through the postmodern archaeological preoccupations of the 1980s, according to which there is no *tabula rasa*, only palimpsest. Culture is laid down in layers of waste. The project is pervaded by surrealist bricolage and a culture of memory activated by strewn ruins and cultural debris. The rubbish of the past is today's archaeology. How might today's discarded artefacts, defamiliarised and made strange, reflect on the present in the future?

Hawkins points to Walter Benjamin's thinking on "the energy surrealism was able to invest in everyday debris [...] and how confrontations with wasted things can crystallise the dynamics of commodity value" (Hawkins, 2006: 109–10). She quotes Bill Brown to make this point again: "Benjamin recognised that the gap between the function of objects and the desires congealed there became clear *only when those objects became outmoded*" (Brown in Hawkins, 2006: 110). Used goods and second-hand artefacts resonate with provenance and are subject to oscillating vagaries of desire. They counter the deadening effects of commodity culture's cycles of appearance and disappearance, disposal and replacement, offering instead glimpsed cycles of renewal and regeneration. Benjamin's speculations on "how commodity culture has displaced nature's transitoriness onto commodities" prompt Hawkins to speculate that simply seeing wasted things may be enough to "change the destructive logic of commodification, to make us aware of the impacts of disposability as transience without renewal" (108, 110). Lane's Helensville museum project rejects the view of the town dump as a passive wasteland. He contributes a new urban imaginary in which waste disposal is a locus of cultural significance and artfully brings transience into view.

In(Con)cluding

Controversy over the Dome Valley landfill proposal, currently caught up in multiple approval and appeal processes, is far from over (RNZ, 2021). The issues are complex, involving overlapping fields of care: care for the environment, the city, and the indigenous world view. At present, infrastructural policy premised on making waste invisible frequently trumps these fields of care. How might the toxic waste stream of a contemporary global city be reconceptualised as continuous with the livelihoods, habitats and land to which it is proposed to be returned? How can the handling of waste honour its material origins as well as deepen connections and uphold our responsibilities to that land? (Hutton, 2019). This article has tried to indicate some prospects for such a reconceptualisation.

The assumption that the valley is an empty passive receptacle for waste has been thoroughly challenged by ancestral occupiers. The lack of timely consultation with mana whenua for whom co-creation of a solution may have opened a productive exchange has not helped. Commentators suggest there will be other sites, however objections might apply, in principle, *to all sites* in the Auckland region. The Auckland isthmus is sheltered between three harbours, seldom exceeding 40 kilometres across, and is nowhere far from waterways and ancestral Māori mahinga kai (traditional food growing and harvesting sites). Simply choosing another site is unlikely to avoid the underlying problems.

Gary Taylor of the Environmental Defence Society encapsulates the tensions, "How do you weigh up intangible cultural values strongly opposed to a rubbish dump, when the tangible reality is that Auckland desperately needs another landfill?" (Chiang, 2021). To instigate a meaningful co-creation between Māori and Pākeha that honours Te Tiriti o Waitangi; and find a way to resolve these tensions, we need to face the ideologies of waste implicit in policies and practices, and manifest in existing infrastructures. This will require broken-world thinking, understanding ourselves in a material world of constant entropic change, cycling between the new, improvised, maintained, and barely going. As Hawkins suggests, zero waste is an illusory goal: wasted states are a necessary precondition

of life itself. In this paper, I have offered the work of Apple, Ukeles, and Lane as provocative attempts to think about what it means to be reciprocally entangled with waste. Theirs is an art of transience connecting waste, culture, and the techniques of self in an attempt to find a new ethical disposition for relations with rubbish; one not founded on disposability, denial, and distance.

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ENDNOTES

As Pākeha, it is not my intent to evaluate Māori ideas, experiences, or practices; nor to assume they can be conflated with Pākeha ones. Rather, they have prompted me to inquire into alternatives to the prevailing modern relation to waste. It would be for Māori to determine the extent to which the practices and possibilities I discuss are compatible with their own tikanga (values and practices), particularly as regards human waste.

SIBYL BLOOMFIELD AND YUE YU

From vulnerable to resilient: 'Fixing' mechanisms and 'unfixing' practices in Onehunga, Auckland

Climate change threatens modern urban communities. For vulnerable, high-density, high-demand coastal communities to thrive proactive modifications addressing the ecological and economic impact of a changing climate are required. We will need to address anthropogenic pressures: global energy descent, economic crisis, debt problems, increasing inequalities, geopolitical instabilities, and technological disruptions. New Zealand's predominantly coastal population will be at the forefront of this global shift.

Onehunga, a suburb of Tāmaki Makaurau Auckland on the northern edge of the inner Manukau Harbour is a prototypically vulnerable area exposed to climate-related threats and lacking adaptive capacity. Auckland Council's recent climate change risk assessment identified Onehunga as a "vulnerability hot spot" (Fernandez & Golubiewski, 2019: 17-18). The primary concerns are sea level rise and terrestrial flooding, with aging infrastructure in flood zones. These physical threats are exacerbated by intensifying socio-economic and cultural pressures from population increases and more high-density housing. Onehunga shares characteristics with many vulnerable urban areas worldwide. This paper discusses possibilities for building desirable resilience and sustainable development in Onehunga with a view to this broader relevance. It suggests design could reinforce and foster courage, resourcefulness, and compassion, and explores alternative approaches to community and landscape development.

It would be incorrect to assume that resilience means returning to a desirable equilibrium state, an original form that promises sustainability. In complex adaptive socio-ecological systems returning to the past is impossible. The focus should be future opportunities. We consider three crucial aspects: First, in the anthropogenic world scalar interactions and dynamics within and between systems are changing the biosphere at unprecedented speeds, scale and patterns. An 'original form' or 'earlier state' does not guarantee resilience to overcome the unknown, unpredictable, and unknowable. Second, embedded in socio-ecological systems, landscapes are hybrid landscapes formally shaped by human cultural patterns and practices (Hood, 2019; Walker & Salt, 2006). Efforts to restore, reinstate, sustain, conserve, preserve and reserve, are not sufficient for these dynamic and regenerative landscapes. Third, memories are fallible, and perceptions of the past do not necessarily reflect past realities. We need to look forward while accepting

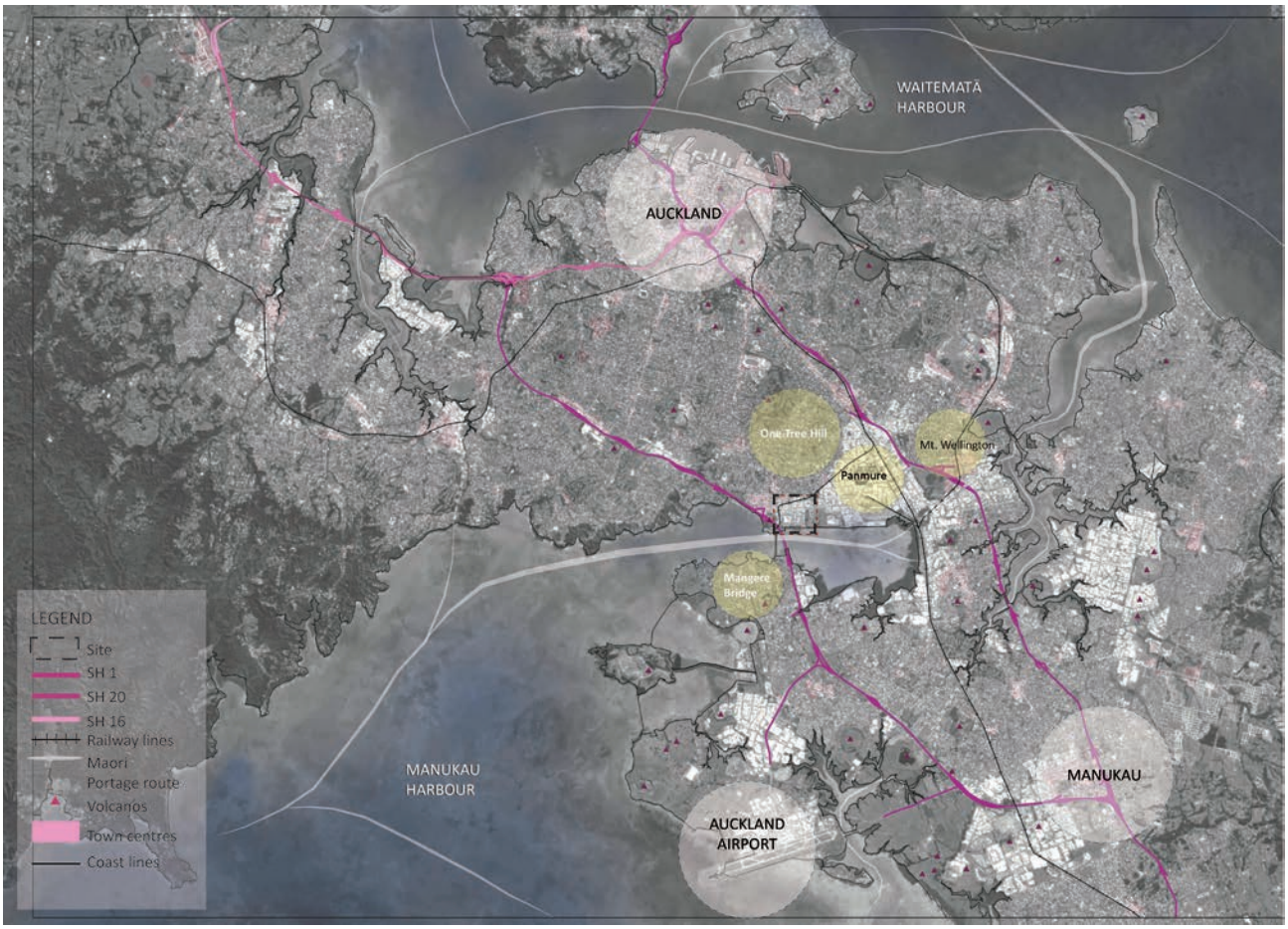


Fig. 1 Bloomfield and Yu (2020). Contextualising Onehunga. [Map, Yu & Bloomfield, 2020]

and respecting the accruing palimpsest of culture (Hood, 2019: 114).

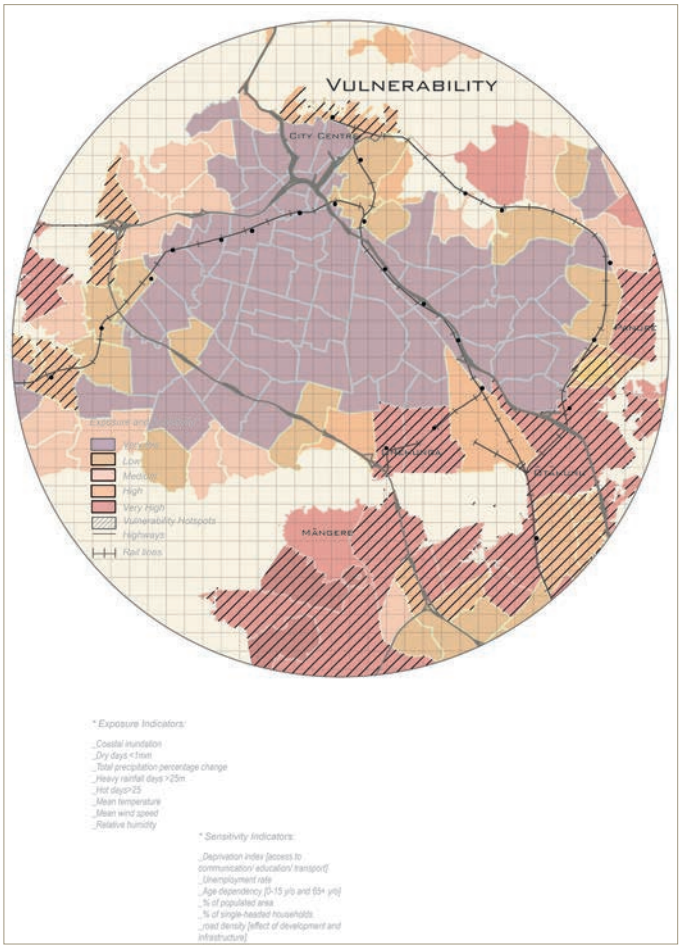
Māngere Inlet provides the shortest route between the Manukau and Waitematā harbours, via the narrow isthmus of Otāhuhu, site of two Māori portages (Kāretu and Te Tō Waka). It remains a regionally important transport nexus connecting Auckland Central with the International Airport and Manukau via State Highway 20. Onehunga takes its name from a historic papakāinga, known for kumara cultivation. Onehunga Beach served as an important canoe landing place for generations and was a marketplace for trading with other hapu and later European settlers (Murdoch, 2013). This important strategic position encouraged the development of industry, generating large daily volumes of transport and labour. As land prices have risen in Onehunga and adjacent suburbs, the industrial fabric is being transformed. Manufacturing is moving further south, replaced by logistics and wholesale businesses. Fewer local residents work in local industries and manufacturing, instead travelling out of the area each day. The most vulnerable land is the coastal reclamation along the Onehunga foreshore of Māngere inlet. Locked in by seawalls and SH20 the reclaimed area is characterised by impermeable surfaces over landfill loaded with industrial contaminants. It is also the site of Waikaraka Cemetery and Waikaraka Park, cultural heritage sites and important cultural amenities for Onehunga.

Vulnerability and maladaptive practices

Vulnerability to climate change is the degree to which geophysical, biological, and socio-economic systems are susceptible to adverse impacts of climate change. Vulnerability assessments diagnose drivers of vulnerability, their social and economic implications, and their spatial variation at local scales. In Auckland Council's 2019 assessment, Onehunga was designated a vulnerability hot spot by looking at three main factors: exposure, sensitivity, and adaptive capacity.

> Exposure to climate change effects are represented by the number of dry and hot days, the number of days with heavy rainfall and total precipitation change, mean wind speeds, mean temperature, relative humidity, and exposure to coastal inundation risk … Sensitivity is represented by indicators of local socio-economic structure and land use patterns … Adaptive capacity is closely linked to the concept of social vulnerability, the characteristics of an individual or group that influences their capacity to anticipate, cope with, resist and recover from a physical hazard (Fernandez & Golubiewski, 2019: 11–12).

The primary climate change-related concerns for Onehunga are sea level rise, increased recurrence and intensity of terrestrial flooding, and aging infrastructure under pressure from high-density housing and a growing population. By 2043, Onehunga is predicted to have 10,000 more residents, 4,773 more houses, and a



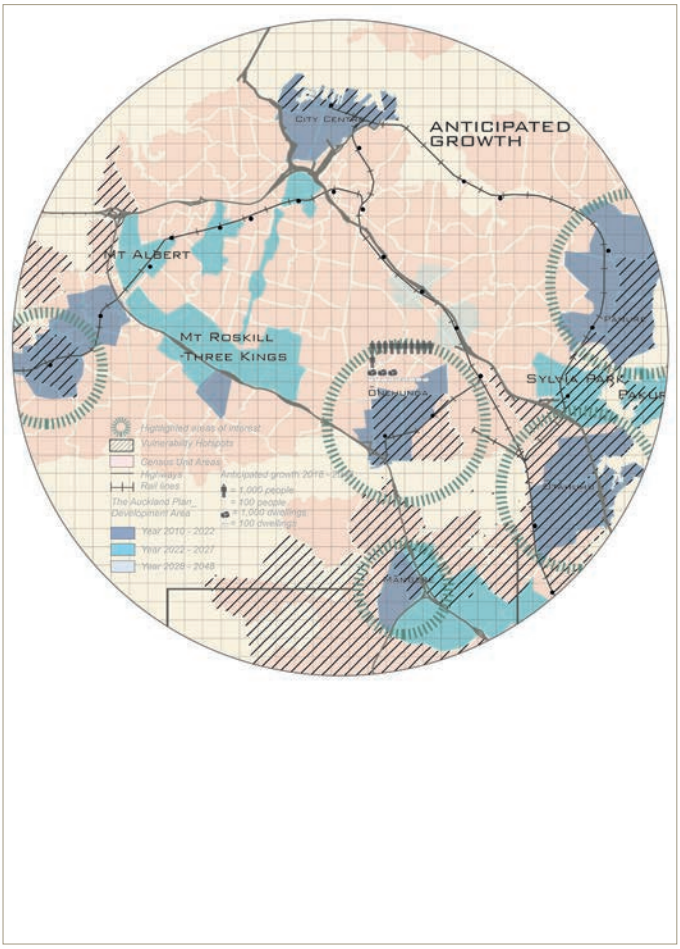


Fig. 2 Bloomfield & Yu (2021). Vulnerability mapping Onehunga. [Map]

Fig. 3 Bloomfield & Yu (2021). Population and development projection for Onehunga. [Map]

significant increase in elderly and youth population (Statistics NZ, 2013). As the population grows, health of the coastal ecology declines. Water is contaminated, benthic condition degraded, habitats threatened, and biodiversity diminished. Substantial investment in built infrastructure does not necessarily mark a shift away from vulnerabilty. On the contrary, if proposed developments are still based on existing paradigms, they will exacerbate the situation to crisis point.

We could term such developments maladaptive practices, symptomatic of short-term thinking and politically driven reactions to immediate concerns, especially the protection of assets. Such practices highlight tensions between natural processes and human inhabitation. In the urban environment these maladaptive strategies can take the form of seawalls to protect low-lying land, reclamation for coastal development, and the investment in nationally and regionally critical infrastructure that remains vulnerable to climate-related impacts. Existing seawalls are no longer sufficient in withstanding inundation. Residential development increases impermeable land cover in areas already prone to terrestrial flooding. In Onehunga, reclamation of land on the seaward side of SH20 for the coastal Taumanu Reserve exacerbates the threat of coastal inundation along other parts of the Māngere Inlet foreshore.

The Intergovernmental Panel on Climate Change (IPCC) has proposed three basic adaptation strategies: protect (to reduce the probability of an event's occurrence), accommodate (to increase society's ability to cope with effects of the event), and retreat (to reduce the risk of the event by limiting its potential effects (IPCC, 1990: 135). The New Zealand Coastal Policy Statement encourages local authorities to favour 'managed retreat' in the coastal environment, with the only exception being the protection of regionally or nationally significant infrastructure (Department of Conservation, 2010). Crisis can create space for transformation towards resilience, and encourage functions, feedbacks, and identities in tune with the biosphere's own resilience. Systems can be reset onto more sustainable trajectories, and human agents empowered for shared learning (Folke, 2016: 4, 9; Lerch, 2017: 14-31, 22-23). There is exciting potential for the Auckland Council Vulnerability Assessment to trigger the unshackling of Onehunga from status quo land management practices, leading towards a progressive, adaptive, and resilient community.

However, this will require selecting and inventing adaptive rather than maladaptive strategies. We suggest that such strategies could be understood as 'fixing' mechanisms initiated by 'unfixing' practices such as de-paving, stepping back, decommissioning, repurposing industrial facilities, blurring property lines and eliminating existing maladaptations. But these 'un-fixing' practices cannot achieve community resilience alone. It is important to provide physical fixing points that connect people to place, socio-cultural narratives, shared memories and heritage landmarks. In this way social capital can be cached as the environment shifts and adapts.

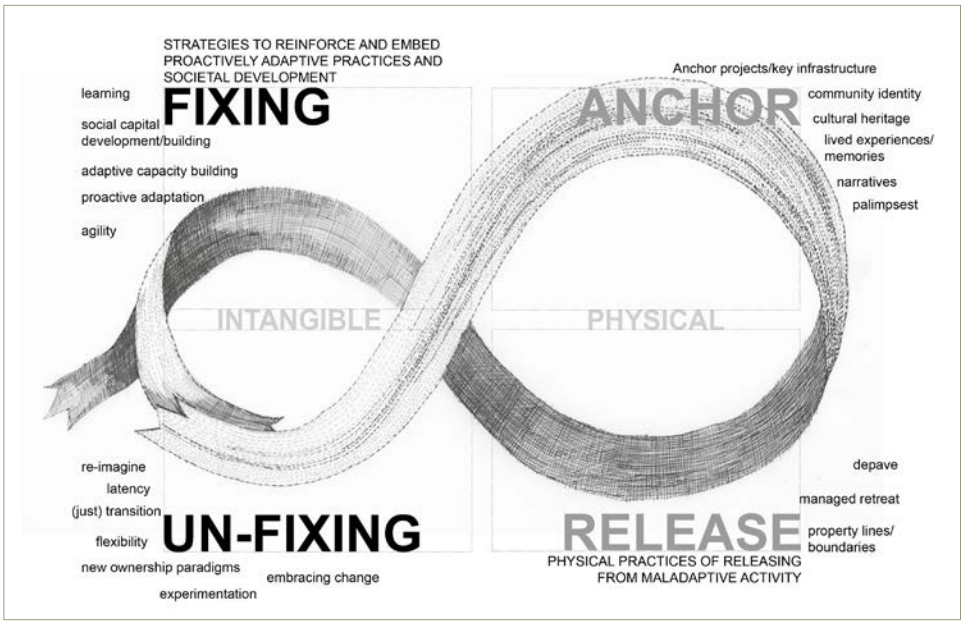


Fig. 4 Bloomfield & Yu (2021). 'Fixing' mechanisms and 'un-fixing' practices. [Diagram]

A masterplan for a novel resilient community in Onehunga

To explore ways that unfixing practices might enable the transition from a vulnerable to resilient Onehunga, we undertook a speculative design research project. It proposed a socio-ecological biosphere based on a flexible community structure focused on collective problem-solving rather than traditional property. Our lens of inquiry was provided by resilience thinking in general, and the balance between unfixing practices and fixing mechanisms in particular. We focused on exploring land-use programmes that could regenerate and build biosphere capacity, support healthy ecosystem structure, and reinforce socio-ecological connections with the biosphere within and across scales. The proposal, developed as a final year Bachelor of Landscape Architecture student project, consisted of a conceptual master-plan for Onehunga. While we also visualised how it could appear if implemented, our focus was on planning and landscape strategies rather than architectural resolution.

Our key strategy was to unfix housing by means of off-grid, nomadic living models. By framing housing as temporary and situating it amongst ecological regeneration, we promote the interests, responsibilities, relative rights, and duties of individual social actors as part of a new social contract that responds to the challenge of managing human interactions with natural ecosystems in a changing climate. We posited three stages of unfixing towards resilience. These are not necessarily to be applied as linear stages, but as iterative and continuous processes:

In Stage One, we asked how landscape architecture design interventions could assist in community resilience to climate change, and how resilience could be built into the daily lives of neighbourhoods. Communal spaces oriented the masterplan by providing a connected spatial structure and defining a module for living spaces (Fig. 6). This light landscape infrastructure would include renewable energy technologies, biological water purification, passive heating systems, greywater treatment, and recycling, as well as waste processing and nutrient recovery for food production.

In Stage Two we asked how vulnerable land could be made safe for communities, and conversely, how the community might restructure its daily life around this version of land use. Through GIS mapping and analysis, we identified the land most vulnerable to flooding, and made this the centre of the scheme. This land would be encouraged to flood, creating new wetlands and tidal zones. Off-grid, light-footprint, nomadic community housing and pop-up inhabitation would gather around this new fluid landscape. We demarcated quick-release and slow-release zones suitable for shorter or mid-term use. Historically reclaimed industrial land became high ground: a strategic nexus for shelter, cached resources, and community hubs fostering social capital. Three housing typologies are proposed for the slow-release zone: 'stilts', 'wheels' and 'rails'.[1] Households were grouped around communal buildings and outdoor spaces to tighten the bond between residents and enhance a shared place-based identity. In these communities, people would be encouraged to learn how to build their own passive houses using recycled resources.

In Stage Three we looked at how to engage this emergent landscape regionally. Auckland Council's long-discussed light rail line through Onehunga was activated to create connection across the project site and into the rest of the city. By

Fig. 5 Bloomfield & Yu (2021). Understanding Onehunga's fabric. [Diagrammatic map]

introducing light rail on an elevated bridge and replacing existing train tracks between Penrose and Onehunga stations, a major disruption to hydrological flow and filtration was lifted. Pedestrian and cycle paths wove between this new line and the changing zones of the new landscape. Movement through the landscape would tighten socio-ecological feedback loops. People would regain observational skills to recognise important ecological signals and allow timely responses and adjustments to behaviour.

Exploring a new ownership paradigm

Existing property-ownership paradigms would present a significant obstacle to a community like this. Attachment to private property rights, monetised land value and other societal measures of security set limits on the adaptive capacity of communities. Silos of ownership and responsibility need to be unfixed by blurring abstract rigid planning boundaries, property lines, edges and defined eco-domains. Sea level rise will impact vulnerable land regardless of private property boundaries. Transcending fixations on land ownership would ease

fundamental land-use conflicts. Spatially, it would create room to restore environmental functions that have been appropriated by the city: clearing flood paths, creating wetlands, allowing rainwater infiltration, and recharging aquifers (Folke et al., 2021b: 1). Temporally, it would address the tension between long term strategies and short-term private interests.

This tension has prompted community resistance and legal challenges (such as *Coastal Ratepayers United Incorporated* v *The Kāpiti Coast District Council)* that have limited local government's ability to identify environmental risks and plan for adaptation to climate change. There is also tension between the need for consistent long-term commitment from decision-makers, and comparatively short political terms. This is exacerbated by fluctuating political will under the influence of changing community understanding and acceptance of climate change challenges. To build resilience, we need to prioritise multi-generational thinking and sustainable livelihoods over short term property rights and values. Long-term thinking provides opportunity and space for multi-faceted experimentation and learning, which is identified by many resilience thinkers and professionals as a key resilience-building priority (Folke et al., 2021a: 4; Lawrence et al., 2013: 8-9). Functional and responsive diversity can be trialled and developed at community level, alternative and adaptive pathways that complement and empower top-down planning and policy framework can be initiated.

Small-scale experiments have the possibility of evolving into lived experiences and narratives, and eventually transforming into a new collective paradigm (Folke, 2021c: 17). De-paving (the removal of impermeable surfaces) for example, can be instigated in public space, public-concerned space, commercial and industrial land, or private property. Where terrestrial flooding and inundation are significant threats, this is a very simple and effective response. The physical and highly visible nature of this 'un-fixing' practice engages the community by demonstrating a realisable 'fix' to the threats of overland flow, flood damage, biodiversity loss, and the urban heat island effect, while also enabling placemaking and community building activities to take place from the bottom up.

A more fluid idea than ownership is land stewardship:

> While traditional land management is typically led by decisions primarily driven by the site owner (according to regulation requirements), [Land stewardship] entails dialogue, collaboration, and proactive stakeholder engagement, to be defined by specific planning considering site complexity, and expected community end goals... To see the current impacts (positive and negative) and the opportunities for change, it is important to consider the parcel of land being evaluated in the context of multiple spatial and time scales: the overall property, adjacent property owners, down gradient hydrology, the local landscape context (watershed and community), regional, and international/global context. But also short and long term goals, ambitions and gains (Common Forum and NICOLE, 2018: 11-12).

We do not have to look far for models of alternative land ownership and stewardship considerations. Te ao Māori does not recognise absolute ownership of land as western traditions do. Multiple hapū and whānau can have different rights to the same piece of land, and these rights are constantly renegotiated. Exclusive boundaries are rare (McAloon, 2008). Whenua is considered a living entity that supports and nourishes life, rather than a resource to harvest and own.

This symbiotic relationship is at the foundation of Māori customary resource management practices. Establishing a bi-cultural partnership for resilience would embrace mātauranga Māori, indigenous communities' duty of care and their spiritual connections with the land that combine to inform everyday life (Thompson-Fawcett et al., 2017: 176-177). By unfixing the absolute lines of private ownership defined by western common law and replacing them with stewardship, we can reinstate flexibility and agility and develop the ecosystem's adaptive capacity.

This new ownership paradigm would lay the foundation for (un)fixed inhabitation models. New Zealand has a proud history of off-grid living in dynamic coastal and waterside environments. 'Bach' and 'crib' communities were seasonal escapes from the trappings of the urban rat-race. These typologies have since become tangled in the consumer web and become status markers. (Un)fixed living offers the opportunity for transience and seasonal responsiveness to again become part of our inhabitation patterns. Modularity and homes with a generalised site relationship will enable transferability and return flexibility to coastal settlements, ensuring permanence through community rather than built form. We see this not as innovation but return: "ka mua, ka muri".[2]

Fig. 6 Bloomfield & Yu (2021). Resilient Onehunga Masterplan. [Diagrammatic map]

Our project imagined a resilient Onehunga facing climate change by enhancing biosphere capacity and connectivity. Socio-ecological processes and patterns would be reconnected via tangible and intangible infrastructure, forming a palimpsest of ecological and social heritage. By holding two seemingly conflicting spheres together we propose a modular structure that is self-sufficient, ecologically diligent, and flexible. A stewardship model provides opportunities for on the ground experiments, co-learning, co-production of knowledge, and shared experience. We would hope to initiate an adaptive wave that cultivates new behavioural and social patterns that propagate from the top down and bottom up concurrently.

Fig. 7 Bloomfield & Yu (2021). (Un) fixed Inhabitation. [Composite image]

By reinforcing and re-establishing reciprocal relationships between communities and their environment, we aim to shape the future's past today, for those who will bear the consequences of our action or inaction.

Conclusion: Living within the biosphere's capacity

As much as we need to unfix maladaptive land use paradigms and practices, we also need new fixing practices to reinforce and embed proactively adaptive practices. Demand for resources must remain in balance with ecological capacity. Individuals need to consume less resources, produce less waste, and control the horizontal sprawl of building coverage. As Greer puts it, we need LESS, "Less Energy, Stuff, and Stimulation" to face "a future of hard limits and inevitable scarcities" (2015). Our response to this context is to imagine a lifestyle we term '(un)fixed inhabitation', a responsible way of living based on a social contract for sustainable development within the carrying capacity of our ecosystems. While some might see it as retrogressing to a frugal past, we argue it recalibrates the way we balance quality of life against the quality of the earth.

On the government and organisational level, (un)fixed inhabitation would step away from engineering solutions and centrally supplied infrastructural services. It would decommission vulnerable and maladaptive infrastructure and integrate resilient, modular, and agile ones. Such systems already exist. The RISE project (Revitalising Informal Settlements and their Environments), for example, delivers water, sanitation, and hygiene infrastructure for 24 informal settlements in Makassar, Indonesia and Suva, Fiji by means of site-specific 'smart' sewage tanks, bio-filtration gardens, constructed wetlands and recycled wastewater systems (Wright, 2020; RISE, 2020). Critical infrastructure does not have to lock down a built environment but can provide essential services in an adaptable way. Another example is the De Ceuvel project in Amsterdam, where the local government awarded a 10-year lease for a contaminated shipyard to communities who were willing to transform it in innovative and sustainable ways, and return a cleaner, healthier landscape at the end of the lease (Metabolic, 2021; Delva, n.d.).

On the individual level, (un)fixed inhabitation recognises that building adaptive capacity and changing the trajectory of climate change require actions from all

(Folke, 2021c: 15-24). Behind growth-driven economies are individuals conforming to market norms and consumerist ideologies, relying on cheap energy and extraction of natural resources. (Un)fixed inhabitation builds resilience skills and knowledge at household levels, caching essential resources and skills locally, ready to respond to unexpected disruptions. Existing examples of this shared learning include 'tiny house' movements internationally and in New Zealand, as well as the Living Lightly programme in Auckland (a collaboration between community groups, Auckland Council and other partners), which provides personal footprint tools and invites Aucklanders to discover their environmental impact and track personal progress (Auckland Council, 2021).

To transcend maladaptive paradigms, shifts do not need to be initiated by top-down actions, rather the process can be more fluid and responsive, happening both at individual and collective levels concurrently. Building resilience will require courage to challenge categorical definitions and formal boundaries set by the maladaptive paradigms; courage to open to multiple knowledge systems and interdisciplinary dialogue; courage to live with the unknown and unknowable; and courage to test utopian prototypes in the hope of arriving at a sustainable coexistence (Lerch, 2017: 25-27). In particular, we need to find the courage to re-imagine property 'rights' as property 'responsibilities'.

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ENDNOTES

1 We drew from architectural precedents including the De Ceuvel Cleantech playground (Metabolic, 2021), Cedric Price's Potteries Thinkbelt (Martin, 2014), tiny house movement (Radio New Zealand, 2018), and Crosson Architects' hut on sleds (Crosson Architects, 2012).

2 This Māori whakatauki is commonly translated 'walking backwards into the future' and implies learning from the past.

VERARISA UJUNG

Interiority of caring relations in the *mangokal holi* ritual

In its psychological sense "interiority" refers to the "inner life or substance" of an individual (Merriam-Webster, n.d). Individuals are the originators of interiority; interiority "is responsive to the individual at its centre" (Pimlott, 2018: 5). This individualistic conception becomes important in attempting to understand multiple and overlapping dimensions of the self. It is particularly troublesome when attempting to understand how traditions and cultures construct self, and, in turn, how cultures figure interiority, articulate space, and perform caring relations. This paper delves into how the interiority of caring relations is framed and understood in relation to a specific ritual passage, the Batak *mangokal holi* reburial tradition. It foregrounds indigenous knowledge, experience and ways of being in understanding interiority, and in doing so contributes to ethnographic theories of ritual and caring relations. As an indigenous Batak researcher trained in interior architecture, I describe my own experiences of *mangokal holi* and its interiority.

I will focus on how the Batak, one of Indonesia's many ethnic groups, perform interiority through caring relations. For Batak, as anthropologist Andrew Causey noted, the self or an individual's personality is multi-faceted: "a combination of one's physical quirks and character [...] [and] [...] one's particular spirit (or *tondi*) ... a complex conflation of individual personality, the particular spirit, and the collective group" (2011: 9-10). *Tondi* is a complex concept which captures the living essence of the individual (Sinaga in Causey, 2011: 3). Acknowledging the duality of a self that is part material body (including personal characteristics) and part spiritual entity (the *tondi*) is necessary in understanding the interiority of caring relations in Batak culture. Care in this context is both material and spiritual.

To Batak, care is also social. Arne Bendtz, a scholar of Batak culture, noted the principal concept within this: that humans are esteemed beings with responsibility to respect and extend goodwill to each other, to nature, to supra-human powers, and the supreme deity (1986: 26). However, this is not solely individualistic, Bendtz maintains, because the individual in Batak culture "does not have a personal life apart from the collective life of the clan [. . .] loyalty to the community is therefore absolute'' (26). Being Batak is being part of the collective, and love of community is love of self: these are not separable. One's sense of self is inextricably bound to community and family. One's actions are guided

by the community's laws and regulations, and one supports them as an expression of self. Similarly, the self is inextricably bound to one's family, particularly in the patriline clan relationship known as *marga* (Causey, 2011:32).[1] The *marga* relationship organises how groups engage socially and participate in rituals. A common Batak *umpama* (parable) signifies how important *marga* is in defining caring relationships:

> *Tinitip sanggar bahen huru-huruan*
> *Djolo sinungkun marga asa binoto partuturan*
>
> To make a birdcage, one has to cut the reeds
> To know the kinship, one has to ask the clan

Further, care is situated. Causey writes that "for the Bataks, the individual is always part of a group: family, peer group, profession, clan, ethnicity, and nation" (2011: 32). Batak are strongly attached to their home base: a crucial philosophy is "*mulak tu bona ni pinasa*", which means "return to the homeland". This ancestral homeland is the cultural and geographical landscape which Bataks identify as the origin of their ethnic and cultural selves. Returning to the homeland implies drawing close to where ancestors were buried. Cultural performances such as *mangokal holi* pertain to ethnocultural boundaries, becoming a terrain for history and tradition to flourish. In this way, ethnic belongingness is sustained, and conflicts resolved. Chinese philosopher of place Yi-FuTuan describes the importance of physical artefacts in this experience:

> If community embraces the dead as well as the living, we are required to heed the voices of our forebears. Artifacts are such a voice. By attending to them we can envisage the needs and aspirations of our predecessors, saddened by their burdens and errors, heartened by their forays into beauty and truth (1986: 110).

Mangokal holi exposes these caring relations and the way obligations to care are fixed through traditions, narratives, myths, memory, spaces, and communal activities. Care is intrinsically bound to performance in a situational and relational context (Fisher and Thompson, 2020: 12). Batak perform their social and cultural interaction within the system of *dalihan na tolu,* or "the three hearthstones". Just as three stones are needed to support a pot in the kitchen firepit, community rests on multiple relations of care (Causey, 2011: 32). These caring relations form an interior, I suggest: a space for collective memory and ancestral belonging, what Ionescu calls "a space where all the trajectories of (both the secular and the religious) consciousness as intentional experience unfold, from awareness to remembrance and imagination" (2018: 3). The inner self of Batak is not an individual matter, as my opening definition suggested, but a collective interiority of caring relations.

The *mangokal holi* tradition: performative care for the dead

Among Batak there are two categories of deceased marked by two stages of funeral rites. First is the primary funeral or burial that represents the separation between the dead and the living. Two decades later, funeral rites continue to be celebrated in a second phase in which the human remains are exhumed, cleaned, and placed in a communal burial place (*batu napir*) containing the remains of

five to seven deceased ancestors. This series of performative events is called *mangokal holi* (Sinaga in Simatupang, 2006).

The events are organised by the descendants of the commemorated ancestors. Because of the ceremony's cost, it can usually only be staged for those with "the necessary material resources and [a] large kinship network" (van Bemmelen, 2017: 128). Batak aspire to "a large offspring (hagabeon), wealth (hamoraon), and social esteem through many kinship alliances (hasangapon) which not only determine the power and status of *rajas* [hereditary leaders] in this world, but also the status of their spirits in the hereafter" (128). These three elements determining the social position of the deceased are strongly related to the fortunes of the living.

As it is practiced today, *mangokal holi* consists of several pre-events before the main ceremony, lasting about seven days and nights. These historical ceremonies or *horja turun* involve an assembly of musical instruments called *gondang sebangunan*. To begin, various community groups are invited, to request blessings at the ceremony. Next all the participants—village elders, friends, neighbours, related clans, *dalihan na tolu* relatives, and priests—gather to eat together. These meetings often entail highly technical discussions about the upcoming ritual.

Fig. 1 *Mangokal holi* and the performative care of the dead in Dairi, North Sumatra (1998). [Photo: Author]

The main event lasts a couple of days and starts early in the morning with religious leaders opening the ceremony, at the cemetery, with prayers of worship to God Almighty. During the exhumation, all participants in the ceremony play a role in digging in search of the bones, starting with the religious leaders, moving through various significant community and family members, and on to parents-in-law, biological children, and female descendants. When the bones are found, the husband of the biological daughter of the deceased is invited to remove the remains and take them to the family yard. Male descendants receive and clean the bones in water mixed with kaffir lime and turmeric paste. Once prepared, the bones are put in a crate, and arranged into the shape of a living human. No bones can be thrown away. This part is continued by *marsipanganon:* eating

together and discussing Batak customary rules, praying and asking for blessings. After this meal, the cleaned and neatly wrapped bones are handed over to either the deceased's daughter, the daughter of a brother or sister of the deceased, or a daughter-in-law, who carries them on her head from the family yard to the communal monument, the *batu napir* (the term refers to the top or highest place). This is accompanied by ceremonial dancing.

As the ceremony continues, people are appointed to look for *sari marnaek*, a particular type of wood found in the forest. This wood signifies the regeneration of life. Before dawn the next day, a post made from this wood is planted in the ground and a buffalo tied to it. At dawn, after more dancing, the buffalo is slaughtered in thanksgiving. The ritual concludes with ritual speeches and prayers on behalf of the descendants of the deceased. Through these rituals, the deceased is understood to cross the threshold to a new ancestral identity, becoming part of an enduring lineage. As an ancestor cult, *mangokal holi,*

> not only sets up the unity of temporality by focusing on death— the existential event that marks the beginning of someone's career as ancestor—but also asserts the unity of temporality by keeping the relative identity of the temporal sequences (Geană, 2005: 350).

Narratives of lineage are important aspects of Batak social life, promoting family networks and interactions between Batak and their ancestors. Ritual passages define the progress and transitions of life (such as birth, marriage and death) that delineate a sociocultural order. Ritual passages reveal obligations that manifest spatially and temporally as part of "a heritage that gives prestige, but also imposes an obligation" (Author?? 1986: 85; Bell, 1997). The complex performative rituals of *mangokal holi* unfold a relational space of obligations to care.

Fig. 2 *Manortor* or ceremonial dancing in *mangokal holi* as the performative care of the dead in Dairi, North Sumatra (1998). [Photo: Author]

Framing the performative interiority of caring relations

Tradition consists of social encounters, modes of expression, situations, and regulations. Together, these provide a sense of ethnic belonging (Christou, 2006: 71). Images, events, stories, objects, symbols, and practices take on special value as cultural components, of individual and social ethnic identity and pride. As a mode of representation and identification, tradition is performed and situated narratively. The basic structural feature of Batak tradition involves stories of remembering and acts that fix relations and ways of life according to narrative rules and schemata. Tradition is also performed spatially. The continuity of tradition is maintained through the cultural production and consumption of objects, events and artefacts that define space. The physical acts of handling these things—repairing or fixing them—ensures memory and continuity of tradition and also is a way of investing cultural meaning to the places where people inhabit, connect, and interact. In this way, it recalls how built environments in Western traditions acquire significance through "a process of equating socio-historical, cultural, and political values to things–buildings, trees, streets, laneways, parks, and even the relationships between these built forms" (Chan, 2012: 280).

Batak traditions maintain an active relationship to the past, defining an inwards space through a performative series of events that maintain cultural continuity through caring. In other words, these traditions have socio-spatial and temporal dimensions articulated through controls, boundaries, exclusion, habitation, bodies, time, and atmosphere. As theorist of the interior Christine McCarthy has suggested, interiority promotes the making of relationships, allowing exchanges across boundaries which condition habitation (2005: 113). For McCarthy, spatial experience relates to a temporality that is necessarily variable, through subtle changes in boundary, performance, intimacy, between-ness, and enclosure (2005: 120). I propose that we can understand traditions like *mangokal holi* by invoking ideas of interior spatiality and temporality.

Andrea Cossu has argued that understanding ritual as action promotes the importance of roles, settings, and "what constitutes the 'raw cloth' of ritual: its sequences, its perceptual components, the waves of movements, the sounds and visions enacted in the course of the ritual process" (2010: 35). As performance and action, "ritual is characterised by fluidity, polyphony, use of different media of expression, and an active and selective role of the audience in making sense of what actually happens during its celebration" (2010: 36). McCarthy points to such selectiveness as one of the most important mechanisms of interiority. Following this line of thought, we can recognise the way ritual evokes interiority by selectively and collectively detaching a ritual space from ordinary life and transforming social relations by marking time:

> *Rituals* are 'marked' moments of heightened experience [...] which punctuate the flow of time and which are characterized, as any sacred thing is characterized in its relationship to the domain of the profane, by difference, opposition and heterogeneity. The flow of time, thus, is internally differentiated, and it is structurally organized by the presence of relevant moments which stand out of the ordinary, and which are characterized not only by a different way of living, [...] but also by a different perception of the self and of the other people cooperating in or experiencing ritual (2010: 39).

Ritual performances differentiate and separate the flow of time, dynamically producing temporal interiorities through the "emotive, physical and even sensual aspects of ritual participation" (Bell, 1997: 73). The sensual qualities of physical movement and bodily practice come to the fore in rituals. In similar ways to interiors, they rely "on the perception and sense-making of boundary features, degrees of enclosure, social conventions, behaviour rules, symbolism, verbal cues, and labelling of spaces" (Popov, 2010: 98). Ritual happens in a setting, "a force field [...] a *frame*" (Grimes, 2004: 260). Framing brings meanings into action; for anthropologists such as Catherine Bell, ritual

> indicates the way in which some activities or messages set up an interpretive framework within which to understand other subsequent or simultaneous acts or messages. Frames, for Bateson, are a form of "meta-communication." For example [...] it is the frame placed on a ceremonial blow that makes it clear whether one is initiating war or making peace (1997: 116).

Frames reveal edges, mark boundaries, and permit the formation of contained elements. As architectural theorist Elizabeth Grosz explains:

> The frame separates. It cuts into milieu or space. This cutting links it to the constitution of a plane of composition, to the provisional ordering of chaos through the layering down of a grid or order that entraps chaotic shards, chaoid states, to arrest or slow them into a space and a time, a structure, and a form where they can affect and be affected by bodies (2008: 13).

Framing articulates a space and time to be experienced. The Batak ceremonies frame, and thus produce inward space, by fixing relationships of care. In *mangokal holi* ritual acts to fix the recognition of roles, relationships, obligations, and settings, organising space, time, and bodies. Attentively caring for the dead articulates thresholds and establishes new roles for them. At the same time, the selves of the living (both their embodied character and their spiritual *tondi*) are collectively balanced (Causey, 2011: 35).

Fig. 3 Act of cleansing the bones in *mangokal holi* as the performative care of the dead in Dairi, North Sumatra. [Photo: Author]

Caring touch, caring space

In *mangokal holi*, the narrative frame and social space are particularly expressed through touch. Skin touches dust and bones, triggering sensory experience. As a nine year old, I vividly remember touching and cleaning bones in our family yard. I will never forget my startled fascination on slowly touching them for the first time. In my case, touch prompted an ever-deepening sense of care. McCarthy writes that touch is critical to interiority, as "the point of physical exchange at which body and interior cause change in each other (bruises, contagious diseases, fingerprints, food stains, steamy windows, scent, vibration)" (2005: 119). Touch gives nuance to the sensation of attachment between different existences.

> Touch (as the perpetrator of the trace) is a perpetrator of interior transformation. It enables interiority to change and transform, to be a subject of time, and to figure familiarity (closeness) as a literal exchange, wearing body, surface, and space to become threadbare, worn, and nostalgic. Touch is the closest form of interiority. It belies habitation while desiring it (McCarthy, 2005: 119).

For Batak, bone cleansing is also an act of remembering, commemorating the embodiment in time of the deceased, and defining new relationships in the present. It figures familiarity, produces intimacy, and frames a social space. In Batak burial ceremonies, the sequence of events, objects, and performances are experienced as caring relations that frame an inward space that is a repository for collective memory. *Mangokal holi* enables the community to place their cultural selves in the continuum of their culture. This is a kind of inwardness, opening to a world where community extends across the threshold between death and life. Twenty-three years later, I recall experiencing *mangokal holi* through the textures of selves, feeling my way into a sense of *tondi*. Through the caring touch that has filled my memory with depth, contour, and gesture, I share a space with my ancestors.

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ENDNOTES

1. As Causey puts it: "The Bataks' marga society consists of three conceptual groups: (1) those who share your clan name (*dongan sabutuha*, translated roughly as "womb sharers," with whom marriage is impossible because it is considered incestuous); (2) those to whom your clan provides daughters as wives (*boru*), and who are considered to be slightly inferior socially; and (3) those from whom your clan accepts daughters as wives (*hulahula*), and who are considered to be socially superior. These relationships are eternal, and cut across geographic distance and socioeconomic class; one may never marry *dongan sabutuha*, no matter how distant the actual ancestral connection is; one may always expect a favour from the *boru*; and one must always respect the *hulahula*." (2011: 32).

CARL DOUGLAS

The politics of the pile: Material imagination and improvisation in the 1871 Paris Commune

The events of the 1871 Paris Commune, in which a working-class collective briefly took control of Paris before being brutally suppressed, have become an enduring part of leftist myth.[1] In the year of the Commune's 150th anniversary, this article considers the event's material imagination and improvised urban constructions. In particular, it discusses the crucial figure of *accumulated matter*, embedded in the idea of the "masses" or "mass action". I take the term "material imagination" from Gaston Bachelard, who points to the way our intuitive experiences of matter fuel powerful analogical imaginations of other things (1983: 1–5). As a shared "system of poetic fidelity" a material imagination conditions how situations, experiences, problems, and possibilities for collective action are understood (5). That is, it is also a political imagination. Attending to the Commune's material imagination, I suggest, casts a light on how public worlds are improvised through a shared imagination of matter. I present this collective improvisation as "articulation work", cobbling together a new public world and catalysing new collective subjects (Star and Strauss, 1999: 10).

My central theme is the *pile*: I refer to a mound of sticks and manure built to cushion the fall of a monumental column, an imaginary heap of meaningless consumer goods, impromptu barricades piled up in the streets, stellar matter pictured by an old imprisoned revolutionary, conjugations of terms in poems by Arthur Rimbaud, and ultimately the piled bodies of the Communards themselves. Sometimes these piles are understood as degenerate, something to be cleared away so order can be restored; and at others they are sites of construction and connection. Following this thinking, the public space of the Commune would consist not only of relatively permanent and stable constructions, but a pattern of public things being temporarily reconfigured, disputed, and suppressed in a broken world.

The Paris Commune

In the winter of 1871 Paris was besieged: freezing, starved and under Prussian artillery fire. France had instigated an ill-advised war with Prussia and been decisively out-maneouvred. With rising unrest in the city, Adolphe Thiers, the chief executive of the French Government, signed an armistice that was effectively an

unconditional surrender. Working-class Parisians felt abandoned by political elites, and the motley militia of the National Guard (under the influence of radical groups) refused to be disarmed. They seized cannons and stormed the seat of government at the Hôtel de Ville. Thiers's government fled the city to Versailles.

Factional disputes between the rebels were resolved with the election of a Commune Council on March 28, which immediately began instituting socialist-democratic policies: the return of workers' tools that had been pawned for food, remission of rent paid during the siege, universal child-care and the abolition of child labour, strict separation of church and state, civil unions, secularisation of schools with education for all children, and pensions for the families of dead soldiers (Eichner, 2004: 29). While there was no single coordinating plan, the Communards aimed to reconstruct society, "improvising the free organization of its social life according to principles of association and cooperation" (Ross, 2015: 10). For seventy-two days, with the French government excluded from the city and lacking the military strength to retake it, the Commune worked energetically on their new world.

In May 1871, once the French army had been regathered after the Prussian defeat, the Commune was brutally suppressed by Versaillais forces. The Communards were driven from the Hôtel de Ville, and burned a number of public buildings as they retreated. They were met with little mercy. During the retaking of the city, and in the immediate aftermath, thousands of Communards were summarily executed.[2] In the Père-Lachaise Cemetery, one of the last places defended by the Communards, a bullet-riddled wall remains as a memorial.

It would be easy to consider the spatial legacy of the Commune as nothing more than a mess: pock-marked walls, burned buildings, demolished monuments, and rubbish in the streets. The Commune left no architectural heritage, nor even speculative proposals. But perhaps the political space of the Commune materialised in a different form?

Articulating public things

There has recently been renewed interest in the role of physical things in politics and the production of public spaces. Noortje Marres, for example writes of "the materiality of citizenship and participation" and the formation of "material publics" (2012: 7). For her, materials and material things are not a reliable or uncontroversial frame for public life, but catalyse publics precisely because they are unstable. Similarly, Bonnie Honig describes the "public things" that we "deliberate about, constellate around, or agonistically contest" as manifesting "stability, adhesion, attachment, resilience, concern and care" (2017: 5, 3; Ahmed, 2019: 41). Such things, however "may not just stabilize but also derail our world [...] they not only condition human experience but also have the power to undermine it" (Honig, 2017: 2). The public world, Honig suggests, is not a stable substrate, but must be constantly contested, cultivated, and maintained. Following this thinking, the public space of the Commune would consist not only of relatively permanent and stable constructions, but a pattern of public things being temporarily reconfigured, disputed, and suppressed in a broken world.

Facing breakdown and failure, the inhabitants of broken worlds engage in situated "articulation work": repairing, adapting, reusing and recuperating what is

to hand. This labour is "work that gets things back 'on track' in the face of the unexpected, and modifies action to accommodate unanticipated contingencies" (Star and Strauss, 1999: 10). Stephen Jackson suggests that "the fixer", well-acquainted with breakdown, maintenance, adaptation, and re-use, might "know and see different things—indeed, different worlds—than the better-known figures of 'designer' or 'user'" (2014: 229). Fixers don't prioritise systemic overview, but rather the practical facility that comes from keeping things going, recognising their characteristic failures. They improvise with what is to hand rather than proceeding according to a master plan. Such a position, Jackson suggests, offers a "special epistemic advantage" in revealing how power and social relations are not statically congealed in the material world, but must be constantly maintained (230).

Public space is an unfolding tangle of the material and political. The invested and improvised articulation work of fixers does not centre on a single vision, but is diffused through an ambiguous mix of physical constructions, social assemblies, as well as metaphors that enabled them to make sense of these.

The failure of space

One metaphor that had been crucial over the past century of episodic revolutions in France was that of clearing space. The original French Revolution, according to historian François Furet "sought to restructure, by an act of imagination, wholeness to a society which lay in pieces" (Sennet, 1994: 285). A key spatial figure of this new wholeness was empty, open space. Revolutionaries cleared new public spaces in the city, with the idea that these would be innately freeing, places of transparency and access. They removed statues, trees, and informal contructions to make the city a place of "Sheer volume: free of the twisted streets and irrational accretions to buildings which had accumulated over the centuries, [...] free of tangible signs of human damage in the past" (Sennett, 1994: 295). The French revolutionaries *cleaned* the city, clearing away the mess of the past to provide a rational space for their new society. They imagined freedom would result from clearing away, tidying up, opening up the windows and ventilating the city, shaking off its dust, "a chance to start over with a fresh, blank slate" (296).

Dramatic festivals with huge stage sets, costumes and songs were intended to activate the potential of these spaces, but the actual experience of these spectacles was one of "unremitting boredom": "'I cannot say how dancing on the Champ de Mars made me a better citizen', one declared; 'we were bewildered,' said another, 'and so we soon made our way to a tavern'" (Ouzoff, 1988: 28; Sennett, 1994: 307). The revolutionary clearing and the production of open space in the French Revolution were not as liberating as expected. The newly cleared spaces of the city were anticipated to be part of the forming of new, modern subjects, actively engaged with producing a civic realm. In practice, according to Sennet, they neutralised crowds, producing apathy and passivity.[3]

If the revolutionaries imagined clearing a sheer open space, however, the political imagination of the Communards was distinctly different. While it shared the problem of trying to recuperate a new kind of social wholeness, it grappled with the impossibility of starting from scratch as well as the nonviability of simply taking over existing political and social structures. There is no sense of a blank slate. Rather, Communards imagined a new wholeness accomplished by

reconfiguring the physical materials of the city and its socio-political organisation. Like Jackson's fixers, they applied the "complicated work of fitting to the varied circumstances of organizations, systems, and lives" (2014: 222). It was not a matter of clearing away matter to produce a rarefied political space, but of seeing the material dimensions of the political. Piles and disorganised matter recurred in physical, metaphorical, and poetic registers during the Commune as symptoms of this stance.

Common matter: Felling the Vendôme Column

There were few attempts at symbolic festivities under the harsh circumstances of the Paris Commune. There was, however, at least one staged event: the Vendôme Column was torn down. The column (Fig. 1) was originally completed in 1810 to commemorate Napoleon's 1805 victory over the Russian army at Austerlitz. Modelled on the column of the Roman emperor Trajan, its sequence of four hundred bronze relief plates depicted the events of the battle, crowned with a pseudo-classically dressed figure of the emperor.[4] Rome had shaken off tyrannical kings to become first a republic and then an empire; the Vendôme column asserted a parallel story of the revolution, culminating with the emperor. The column literally "narrat[ed] France", asserting linear historical time in a single frieze spiralling upwards (Smith, 1996: 153). To follow its story, one would have to circle the column repeatedly, eyes rising until the images became too small to discern from the ground.

Fig. 1 Ambroise Tardieu (1833). The Vendôme Column. [Engraving, Bibliothèque Nationale de France]

Fig. 2 Bruno Braquehaïs (1871). The Vendôme Column rigged for demolition. Plate from album "Siege de Paris, 1870-1871". [Photograph, Collection Centre Canadien d'Architecture/Canadian Centre for Architecture, Montréal]

The painter and Communard Gustav Courbet was an early advocate for removing the column, considering it "a monument devoid of any artistic value, tending by its character to perpetuate the ideas of wars and conquests" (King, 2006: 305).[5] After the Commune was declared, support for the idea grew, and on April 10 the Communards announced that as "a symbol of brute force and false glory" it would be demolished (305).

Ropes, winches, and a large capstan were installed in the square. A photograph by Bruno Braquehaïs shows the arrangement (Fig. 2). The capstan sits on a base of paving stones, and coils of rope lead to the top of the column where they are attached just below the figure of the emperor. Long diagonal braces have been positioned to control the direction of the column's fall. Barricades of paving stones are black in the foreground, there is muddy snow on the ground, and muskets can be seen stacked to the left of frame.

> The shaft had been given a bevel cut into which wedges of wood were driven, and then, on the afternoon of May 16, after the singing of the *Marseillaise*, the capstan was tightened and, following an initial miscue, the

Fig. 3 Jules Andrieu (1871). View of the Vendôme Column after demolition. [Photograph, Collection Centre Canadien d'Architecture / Canadian Centre for Architecture, Montréal]

Fig 4 Alphonse Liébert (1871). View of the Vendôme Column after demolition. [Photograph, Collection Centre Canadien d'Architecture/ Canadian Centre for Architecture, Montréal]

> column crashed to the ground amid cheers from a crowd of 10,000 onlookers. (King, 2006: 305)

The mood of the event was resolute determination rather than celebration, and the scene more like an engineering demonstration than the stage set for a revolutionary festival. As one Communard remembered it:

> The music played fanfares, some old greybeard declaimed a speech on the vanity of conquests, the villainy of conquerors, and the fraternity of the people, we danced in a circle around the debris, and then we went off, very content with the little party (Ross, 2015: 41).

Braquehaïs's photograph telescopes the distance between column and capstan; there was room for the column to fall its full length well before the barricades. In this space there was another significant spatial element: a huge pile of material, "a bed of sand, branches, and manure" to cushion the impact of the column's fall (King, 2006, 307). The engineers Jules Iribe, Ismaël Abide and Georges Cavalier, responsible for orchestrating the column's fall, had been concerned that the falling column would shatter the stones of the square, collapse the main sewer line under it, and blow out the surrounding windows. The pile they arranged is just visible over the barricades in Braquehais's photograph. In other images, taken after the fact by Jules Andrieu (Fig. 3) and Alphonse Liébert (Fig. 4) its remnants can be seen as a dark halo surrounding the fallen column.

Other destructive acts by the Commune (such as the burning of the Hôtel de Ville) were impromptu and indiscriminate, but the Vendôme column's removal was careful and deliberate. The column was offensive, but the cushioning mound exhibits a concern to protect and maintain the urban fabric.[6] The mound also gave narrative meaning to the column's fall. Napoleon's tightly-coiled imperial history collapsed onto a pile of prosaic (even abject) matter, and he was left on his back amid sticks and manure. The demolition explicitly rejected imperial political form and nationalist historical time; a significance well-understood by witnesses:

> I saw the Vendôme Column fall, it collapsed all in one piece like a stage décor on a nice bed of trash when the machinist's whistle blew. Immediately a huge cloud of dust rose up, while a quantity of tiny fragments rolled and scattered about, white on one side, gray on the other, similar to little morsels of bronzed plaster. This colossal symbol of the Grand Army—how it was fragile, empty, miserable! It seemed to have been eaten out from the middle by a multitude of rats, like France itself, like its old tarnished glory, and we were surprised not to see any [rats] run out along the drainpipes (Ross, 2015: 41).

The column was shown to be a piece of stage décor furnishing a fictional narrative. On impact it shattered and its constituent materials were revealed to be mundane. It was as hollow as a drainpipe, and the witness imagines it similarly populated with voracious rats. Imperial art and hierarchical meaning were abruptly levelled, spilled out across the ground.[7]

Excess matter: Capitalist overproduction and barricade-building

Bulk matter, without hierarchy, was also a contemporaneous metaphor for capitalist excess and consumerist overproduction. Bourgeois society generated abundance, but it was generic and irrelevant, a "senseless luxury" (Ross, 2015). Paul Lafargue, in his *The Right to be Lazy* (1883) railed against the way capitalism demanded excessive consumption, first for the bourgeois (who "crams himself with capons stuffed with truffles [...] in order to encourage the breeders of blooded poultry") and then workers, who have "developed abnormally the stomach of the capitalist class" (Lafargue, 1907: 35, 40). Excess and indulgence were not merely personal vices, but a social disorder characterised by senseless accumulation. Karl Marx famously described capitalism as fundamentally accumulative. Capitalism, he argued, generates abstracted commodities that can accrue endlessly. Capital not only circulates, it builds up, and one of the basic challenges of capitalism is discharging this accumulation by finding new markets and fueling new demands.[8]

As a result, Lafargue lamented, "nothing, nothing can melt away the mountains of products heaped up higher and more enormous than the pyramids of Egypt" (Lafargue, 1907: 42). These unnecessary products have no meaning as individual items, but have become "a mass of things which no sane man could desire" (Ross, 2015: 98). Sense dissolves in the face of sheer quantity. These mass goods cannot be melted down into a liquid that can trickle away, but pile up into an ironic monument. Lafargue compares the intentional piling of the pyramids with the seemingly involuntary discharges of capitalist production. Capitalism deprived matter of meaning and context, threatening to overshadow and overwhelm the shared public world.

Fig. 5 Barricade in the Rue du Faubourg Saint-Antoine (1848). [Engraving, Ilustrated London News]

Lafargue's image suggests a new reading of the barricades, improvised street blockages that had long featured in Parisian urban unrest.[9] The excess of bourgeois things spilled chaotically into the street during times of insurrection. Interiors were tipped outwards:

> Home furnishings were offered by sympathetic residents (or simply confiscated if cooperation was withheld). Books, tables, chairs, beds, armoires, and chests of drawers were frequently mentioned, but the list of materials occasionally included more unusual items, such as pianos, bathtubs, a perambulator, commodes, dead horses, and, on one occasion, a blacksmith's anvil (Traugott, 2010: 52–3).

The list goes on: cobblestones, materials from construction sites, vehicles (purportedly even a train in 1848), "vegetable baskets, egg crates, brooms, and counters from merchants' stalls … public urinals, bales of wool … lamp posts … shutters … street benches … trees … mattresses", and of course the barrels (*barriques*) from which the term barricade derives its name (52). The barricade had reached its apotheosis in the monumental heap built in the Rue du Faubourg Saint-Antoine in 1848 (Fig. 5). Victor Hugo, who witnessed this construction, described it as

> jagged, makeshift, and irregular, castellated like an immense medieval survival … Everything had gone onto it, doors, grilles, screens, bedroom furniture, wrecked cooking stoves and pots and pans, piled up haphazard, the whole a composite of paving-stones and rubble, timbers, iron bars, broken window-panes, seatless chairs, rags, odds and ends of every kind and curses … The Saint-Antoine barricade used everything as a weapon, everything that civil war can hurl at the head of society … a mad thing, flinging an

> inexpressible clamour into the sky … It was a pile of garbage and it was Sinai (1982: 989–90).

From upstairs windows revolutionaries rained furniture and stones onto their attackers, filling the air and the street with detritus. Lafargue's image of the mountain of products resonates with these chaotic piles. The same dissolution of sense occurs as the specificity of items is overridden by their status as bulk matter. A barricade's materials are non-specific. It can be made from almost anything, and its identity and function doesn't rest on any particular element. This dissolution of particularity recalls Marx's account of the irrelevance of use-value to the capitalist:

> clearly, the exchange relation of commodities is characterized precisely by its abstraction from their use-values [...] The capitalist knows that all commodities, however scurvy they may look, or however badly they may smell, are in faith and in truth money (1887: 127–8, 256).

In the imagination of Communards like Lafargue, capitalist overproduction reduces useful activities and meaningful things into a pointless heap. Amongst their other physical and social ends, barricades could be seen as a manifestation of this redundancy and a rejection of the world of excess things. The crucial spatial image of the Revolution was the cleared surface that would act as a pure ground on which the elements of a new society could be arranged. By contrast, that of the Commune was the pile, a heterogeneous excess that cannot be escaped, only reconfigured.

Specified matter: Auguste Blanqui's barricades

Such a rhetorical idea of barricades would have been deeply foreign to the anarchist Auguste Blanqui, one of the driving figures behind the Paris Commune. From his prison cell on an island off the coast of Brittany, Blanqui prepared a manual for revolutionaries, *Instructions for an armed uprising* (1868), in which he offered systematic designs for barricades and directions for their use. Although their leader remained incarcerated, Blanquists were among the most assertive and active Communards.

Blanqui lamented the chaotic nature of previous insurrections, contending that revolution could only succeed through "organisation, unity, order and discipline"

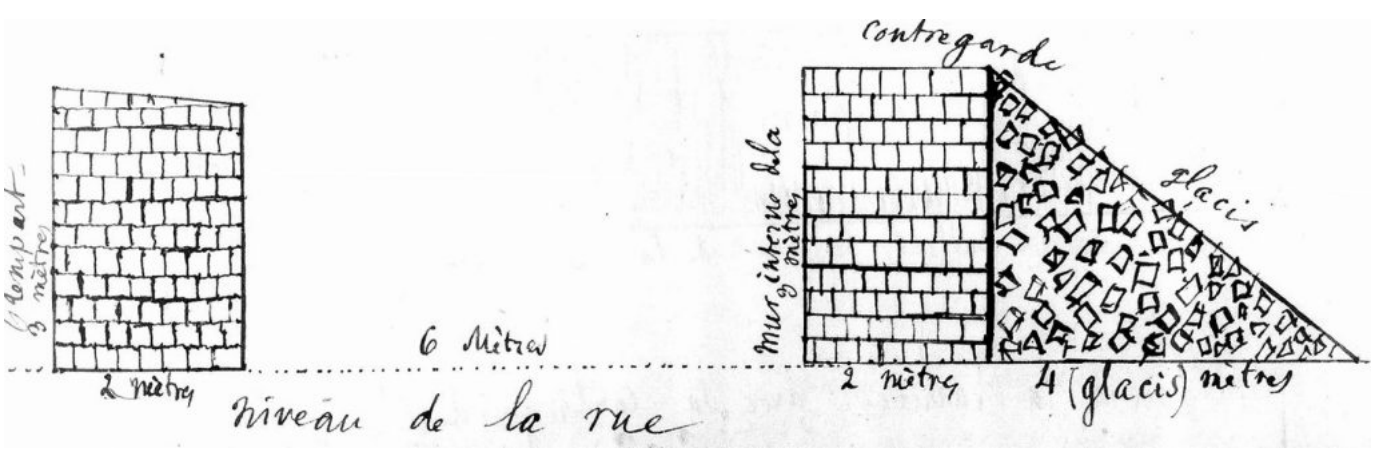

Fig. 6 Auguste Blanqui (1868). Section drawing of a barricade. [Ink drawing, Blanqui, 1868]

(1886). Uprisings in 1830 and 1848 had ultimately been ineffective, he believed, because they lacked coordination: "Enough of these tumultuous uprisings, with ten thousand isolated individuals, acting haphazardly, in disarray, without any thought for the collective, with everyone in their own corner and following their own whim!" (1886, n.p.).

Barricades were central to the problem, being poorly located, constructed, and defended; "ill-conceived and ill-placed barricades that waste time, block the streets, and prevent movement" (n.p.). They could no longer be a "shapeless heap of paving stones, interspersed with carriages on the flanks, beams and planks of wood" as in the past, but needed to be systematically laid out at strategic locations using the module of the paving stone. In his treatise, Blanqui gave detailed specifications, basing his designs on the module of the paving stone, a 25cm cube. He provided a dimensioned section drawing of a barricade with two thick walls, 3m high and 6m apart (Fig. 6). Their construction was to be staged: the inner rampart first built up to 1.5m so fighters could shoot over it; and then extended to full height with protruding joists to support an elevated firing platform. Beyond the regular stonework of the outer wall, there was to be a *glacis*, a sloped apron of rubble extending four metres to absorb cannon fire and prevent attackers from using the wall as cover.

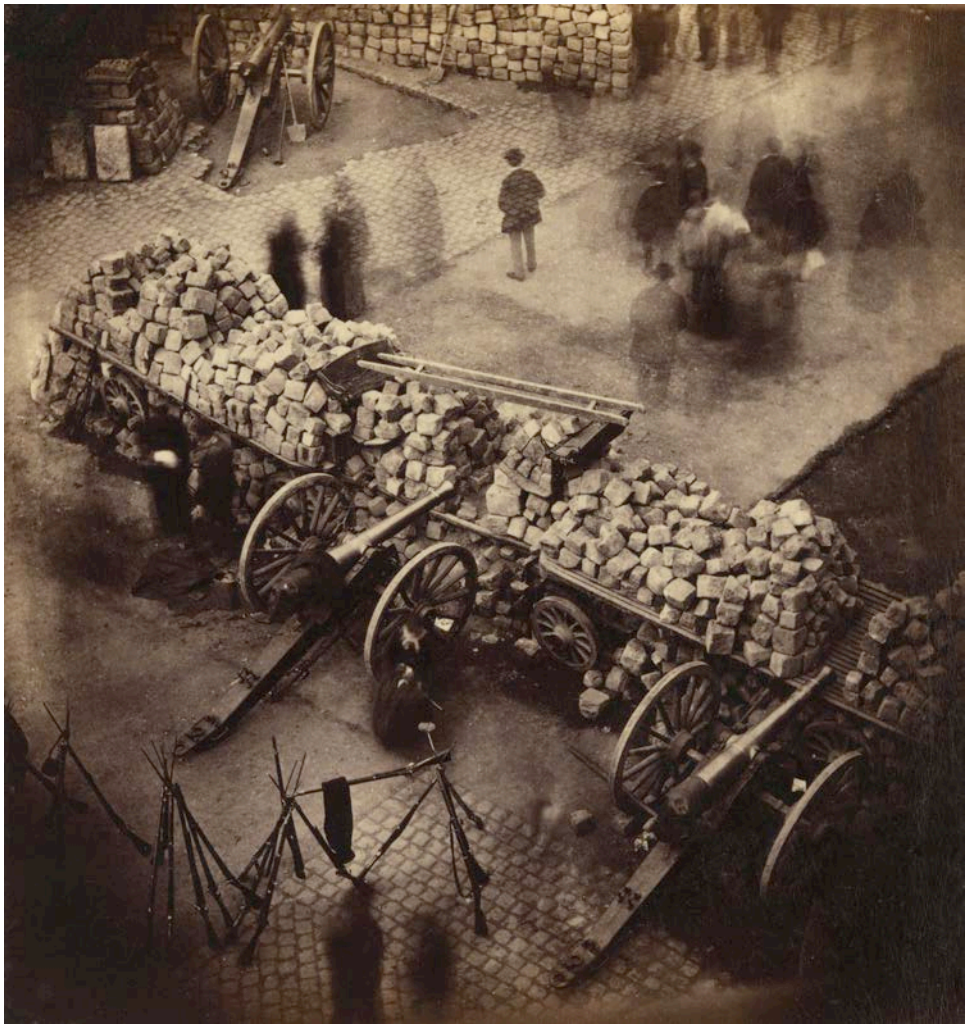

Fig. 7 Ambrose Richbourg (1871). Barricade of the Paris Commune, Ambrose Richebourg. [Photograph: NY Metropolitan Museum of Art]

The Commune's barricades seem to display something of Blanqui's influence, but would not have met his exacting standards (Fig. 7). They were relatively sober constructions of pavers compared to Hugo's riotous piles. The double-wall construction seems to have been frequently effected, but there is rarely any attempt at a *glacis*. Communards posed proudly for photographs in military-style dress on their constructions (Fig. 8). Traugott dismisses these "prefabricated" or "industrial" barricades as "monumental showpieces" more concerned with style than defensive advantage (2010: 54). Certainly, they provided little obstacle to the French troops seeking to retake the city, being easily outflanked and rendered irrelevant (54).

Fig. 8 Barricade in the Chaussée Ménilmontant (1871). [Photograph, Musée Carnavalet Histoire de Paris]

Traugott's critique is that Communard barricades lacked spontaneity, but Blanqui would have seen their failure as a matter of insufficient organisation. For him, rigorous order was the only way emergent acts of rebellion could be brought together into a coherent revolution that would culminate in a new social reality. In *Instructions for an armed uprising* he set out a military command structure, and described how this would enrol bystanders, disciplining and synchronising their action. Somewhat optimistically, he specified: "As soon as the citizens rush into the streets in response to the uprising, arrange them into battle formation with two rows" (1886). In place of "ten thousand isolated individuals" improvising at once, the central problem of the revolution as Blanqui saw it was how to turn them into modular units of a single construction, like the stones of one of his

barricades. The heterogeneity of the masses (whether human or the inanimate material of the barricades) was threatening, and to be successful the revolution needed to bring it under control. Scenes and metaphors of accumulation enabled people to imagine stripping away heirarchies, but they also threatened to undermine the possibility of order.

Deterministic matter: Cosmic materials at infinity

Blanqui was a fixer, exquisitely aware of the materials he had to work with. He knew the dimensions of paving stones; where to find lead, scales, nitric acid, and scythe blades; how to improvise with butchers, sewers, staircases, and drums. But his faith in improvisation had limits, and in other respects he was a designer with a plan. The muddle of the city had to be subjected to a new order, and loose arrangements of participants had to be configured according to a predetermined hierarchy. Masses figure in his imagination as simultaneously a source of vital improvisation and a source of dispersal and dislocation.

This ambivalence about matter showed up again when Blanqui wrote from prison after the failure of the insurrection. *Eternity through the stars* (1872) is a strange work of philosophy and amateur cosmology, entirely unlike *Instructions for an armed uprising*. In it, Blanqui imagined an infinite universe. If there is no end to the cosmos, but the elements that make it up are limited, he speculated, then every possible configuration of those elements must occur and recur. He imagines "billions of earths, absolutely identical, personally and materially, where neither a blade of hay, nor a spider's thread, vary in either time or space" (137). Ultimately, in spite of tumult and chaos this universe would repeat itself inescapably: "That which I am writing at this moment, in a dungeon of the Fort du Taureau, I have written and shall write again forever, on a table, with a quill, under clothes and in entirely similar circumstances" (146). Walter Benjamin famously considered *Eternity through the stars* "an unconditional surrender … a vision of hell" seen in despair after the fall of the Commune (Benjamin: 112).[10]

It is a vision preoccupied with the nature of matter. Blanqui imagined stars and solar systems emerging from an "original agglomeration of chaotic matter", expiring and recondensing forever. The deterministic chaos of the universe is driven by gravity, "the great fertilizing and inexhaustible force that no prodigality so much as dents" (102, 105). Gravity churns the universe, "divides, blends and kneads" until every solar system "is a compound of the dust of all the others" (105). We might be reminded of the perpetual circulation and prodigality of Marx's capital. Even if it is made up of simple elements, matter, like capital is excessive: it overflows, circulates, disperses and recondenses.

Instructions for an armed uprising and *Eternity through the stars* differ dramatically in subject matter and style, but they share an underlying concern with making sense of matter, and frustration about its resistance to sense. Whether he is wondering about what comets are made of, or how best to make a serviceable pile from scrounged materials; on the forces and energies that cause matter to accumulate, or the value of a rubble *glacis*, Blanqui endlessly imagines matter stripped of its hierarchical organisation, and reassembled.

Conjugated matter: One thing after another

Blanqui's universe seems stifling despite its vastness, like a printer with a fixed plate or a factory mechanism: "In spite of its constant becoming, it is engraved in bronze and relentlessly prints the same one page" (144). A counterpoint can be found in the poetry of Arthur Rimbaud, at the time an adolescent Communard sympathiser. Rimbaud wrote startling proto-surrealist poetry for only a few years, before abandoning it altogether at twenty. He seems to have been in Paris in 1871, although the degree to which he was an active participant in the Commune is debated (Ross, 2010: 87). Rimbaud's universe, unlike Blanqui's repetitive one, is bewilderingly fecund, and manifests through disjunctive lists:

> In the woods there's a bird whose singing stops you and makes you blush.
>
> There's a clock which doesn't strike.
>
> There's a clay-pit with a nest of white animals.
>
> There's a cathedral coming down and a lake going up. There's a little carriage abandoned in the woods or rolling down the path with ribbons all over it.
>
> There's a troupe of child actors, in costume ... (Rimbaud, 2005: 311–13).

Blanqui tends to see mass as made up of repeated molecules: the hundred or so basic elements of the cosmos, or the paving stones of the barricade. Rimbaud cannot perform this abstraction. Generic forces or substances are foreign to him, and his poems pile up heterogeneous elements in a way that reminds Ross of the "and...and...and" logic of the barricade (2010: 248). He suppresses conjunctions, eliding any clear sense of relationship.[11] So we encounter "helmets, wheels, barges, rumps", "saints, veils, weavings of harmony, and chromatic legends in the sunset", and:

> Temples lighted up by the return of theories, tremendous views of modern coastal defenses; dunes illuminated by warm flowers and bacchanalia; great canals of Carthage and Embankments of a degenerate Venice, mild erupting Etnas and crevasses of flowers and glacier waters, outside laundries surrounded by German poplars ... (Rimbaud, 2005: 341, 345, 343)

How do these various scenes relate to one another? They are not quite metaphors, in which one term figures the other, nor literal descriptions. Rimbaud's poems, Ross argues, are not organic wholes or integrated structures, but a kind of rubbish heap or overloaded phantasmagoria. They imagine a new kind of collective existence that is no longer the idealised rational order of the eighteenth-century revolutionaries with their clearing away of sheer space. Rimbaud rejects both hierarchy and flat uniformity.

Blanqui and Rimbaud share a sharp awareness of being in a confusing, excessive world in which clear hierarchies have dissolved. Imperial history had collapsed into a pile of rubble in the Place Vendôme, the neat furnishings of bourgeois interiors had been tipped into the boulevards, and political order had been upended. Both tried to imagine the articulation work needed to produce new spaces from the materials surrounding them. They vividly observed the way things around them could take on new meanings and be fixed into new constellations. But Blanqui's imagination rested on finding uniformity underlying heterogeneity. The old materials were to be reconfigured using new diagrams (or rather co-opted

diagrams like that of military command structures). The resistance of those materials to his diagrams results in the impatient and frustrated tone of *Instructions for an armed uprising* and the vertigo of *Eternity through the stars*. Rimbaud, by contrast, seemed happy with simple concatenation, delighting in the way that adding one thing to another triggered new meanings and affects in both and seeing aesthetic potential in resistance and excess. Blanqui's improvisation took the form of slotting things into a predetermined structure of relationships, where Rimbaud's sought to discover unexpected relationships by simply putting one thing next to another.

Conclusion: Cleaning up after the Commune

How could new collectives be formed while rejecting existing political hierarchies? No blank slate was possible, and the idea of cleared, empty space, "freedom conceived like a pure, transparent volume" was far less prominent amongst the Communards than it was amongst the revolutionaries of eighty years earlier (Sennett, 1994: 309). Jackson characterised design as involving systemic overview and fidelity to a plan.[12] Rather than *plans*, the collective improvisation of fixing coalesces around *problems*. Philosopher Jane Bennett (glossing John Dewey, and exploring a concept of material publics similar to Marres's and Honig's) writes: "When diverse bodies suddenly draw near and form a public, they have been provoked to do so by a problem, that is, by the 'indirect, serious and enduring' consequences of conjoint action" (2010: 100).

In this article, I have tried to show how materials and the way they trigger imagination can be problematic in this way. The Commune, I argue, was preoccupied with imagining accumulated mass. Collectives, collective action, and shared spaces were imagined through metaphors of mounding and scattering. In this light, physical piles like barricades and the Vendôme mound take on rhetorical significance. Piled matter provides a way to imagine non-hierarchical organisation, but also to encounter the threats of such organisations, piles become an ambiguous figure that blurs the distinction between metaphoric and literal realities.

To build a barricade was not only to block a street, but also to express continuity with revolutions of the past and to catalyse public action. Consumer goods were stripped of context and use, revealed as senseless overproduction by a wasteful and interminable process. Motley mounds built across the streets indicated that conventional partitions between domestic, commercial, recreational, and public spaces had ruptured, and expressed a collective purpose that overrode individual ownership and use. Blanqui's attempt to regulate the construction of barricades underestimated this aspect. In spite of being an anarchist, he saw disorganisation as a threat to communal action, and sought to enforce discipline.

Others in the Communard world saw emancipatory potential in heterogeneous accumulation.[13] For Rimbaud, juxtaposition and the *non-sequitur* became a force for creation. In his piled-up poems, unlike things are placed together, prompting their reinterpretation. They are restless journeys, an open-ended concatenation of steps away from a starting point without any clear vision of the journey's end.

Mass materials in the Communard imagination were variously something unruly to discipline, something base to expose, or something wild and emancipatory.

Mass affects were posed against the hierarchies of the empire.

Reasserting hierarchical order was a crucial priority for the French government on repossessing Paris. During the Bloody Week of May 21–28, 1871, thousands of Communard bodies were left lying the street, mingled with the remnants of their barricades. The French army had been recently equipped with cranked machine guns, which proved highly efficient tools for mass execution (Ellis, 1993: 63–4; King, 2006: 309). Photographs the Communards had posed for were used to track them down and they were re-photographed, stacked in their coffins (Doy, 1979). Under the restored regime, responsibility had to return to individual actors. A disturbing form of collectivity manifested in the cleaning away of piles of bodies:

> The executions abated, and the sweeping off began. Carriages of all kinds, vans, omnibuses, came to pick up the corpses and traversed the town. Since the great plagues of London and Marseilles, such cart-loads of human flesh had not been seen (Lissagaray, 1876: 392).

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ENDNOTES

1 For a detailed and sympathetic contemporary account of the Paris Commune, see Lissigaray's *History of the Commune of 1871* (1876). Karl Marx responded early to the event; see *The Civil War in France* 1818–1883 (1871). For subsequent accounts see Horne's *The fall of Paris* (1965) and Chapter 3 of Alain Badiou's *The communist hypothesis* (2010).

2 Figures up to 25,000 Communards killed are still commonly cited, following Lissigaray's partisan account. Robert Tombs has argued for a dramatically lower figure of around 1,400 (2012).

3 In fact, he argues, "Modern forms of individual passivity and insensitivity in urban space made their first, more collective appearance on the streets of revolutionary Paris" (284).

4 It was designed by Pierre Nolasque–Bergeret and cast from cannons captured at Austerlitz.The original figure had been replaced with a flag after Napoleon's defeat at the battle of Waterloo, then reinstated in military uniform in 1833, and finally replaced in 1863 with a new version of the original neo–classical figure with toga and laurel leaves (King, 2006: 303–4).

5 Courbet was an active member of the Commune, organising a Federation of Artists. He seems to have intended for the column to be disassembled and removed, not demolished. This made no difference to the re–established French government after the Commune's fall, who held Courbet personally responsible for the cost of replacing it (King: 2006: 305).

6 In 2014, architectural historian David Gissen proposed the reconstruction of the mound, as "a way to recuperate the complex and often absent history of these events within the contemporary city" (2014). He claims the mound "wasn't solely quotidian, nor solely an object for maintaining the surrounding plaza", but echoes monumental mounds made in 1789 as stages or improvised platforms.

7 This reduction was clearly understood by those who

opposed the Commune. One wrote in outrage: "it's unearthing your fathers in order to slap the fleshless cheeks of their skeletons" (Ross, 2008: 38). Fathers, who should be respected in the full significance of their role, were instead being treated as mere materials.

8 In a famous section of *Capital*, Marx describes the way that capitalism can only have come to take the form of an endless circulation because of an earlier phase of "so-called primitive accumulation". This resulted from the expropriation of public goods as private wealth (Marx, 873). This is "an accumulation which is not the result of the capitalist mode of production but is its point of departure" (873).

9 For historical studies of the barricades, see Douglas, 2007; Traugott, 2010; Corbin and Mayeur, 1997.

10 Against Benjamin's view Hallward argues that Blanqui's aim is to dismantle the positivist argument that just because something existed meant it was inherently necessary or just. In Blanqui's universe everything is necessary: just, unjust, or otherwise. There could be no recourse to nature in justifying any status quo (Hallward, 2014). There is always another way the world could be configured.

11 Ross gives this effect the rhetorical term "parataxis": "The following linguistic and grammatical elements are eliminated: conjunctions expressing logical relations, causal links, a great deal of verbs, syntactic transitions, subordinating clauses. The poems, in other words, are organized paratactically" (249–50)

12 Whether this is an accurate view of design is outside the scope of this article. Shannon Mattern frames the distinction slightly differently, comparing *maintenance* with *innovation* as paradigms (2021: 108).

13 However, after the Commune's defeat, Rimbaud, like Blanqui, was in despair. A friend recalled touring the city with him: "We took quite a long walk on the boulevard and around the Panthéon. He showed me the white holes in the columns: 'From the bullets,' he said. Everywhere, in fact, we saw the traces left on the houses by machine gun fire. I asked him where Paris was from the point of view of "ideas." In a weary voice he spoke a few brief words that revealed he had lost hope: "Annihilation, chaos … all the possible, and even probable reactions." (Ross, 2010: 229).

JULIEANNA PRESTON

In the service of...

Fig. 1 Patricia Rueda Diez (2013). Julieanna Preston's *ground maintenance*. [Video still]

Note to the Reader[1]:

What follows are a series of letters written on the occasion of a performance staged at the 2013 *Plenitude and Emptiness Symposium* in the INSPACE Gallery, Edinburgh. Expanding, transgressing or subverting the traditional academic essay[2] and rubbing up against the grain of art criticism, these letters chart the relationship between an artist and a commercial cleaner named Maria, in a stylistic, subjective, and idiosyncratic voice that draws out the artist's personal reflection on dirt, cleaning and other dimensions of the cleaner's everyday work. Such an approach seeks:

[...] to repair social relationships through aesthetic gesture while also challenging capitalist transactional economies of work. These aims are explored through video and narrative description of the bodies who do and don't do this work ... [including] themes of value, class, duration, relationality and care through the simple acts of sweeping the floor and writing little personal notes. (Badham, verbal communication, 17 August, 2017)

These letters seek to connect, much as Ben Campkin and Rosie Cox have described, "theoretical work, physical spaces and environments and their representation [along with...] the world of material objects, communities and individuals" (2012: 6). Though nearly one-sided, the letters reveal an increasing familiarity between the artist and cleaner, a sign of the speed at which strangers can become acquaintances, friends, and sometimes lovers (not always in that

order) in the short span of time of events such as conferences, festivals, nights out on the town, airplane rides, ocean cruises and beach holidays. Such is the socio-political potency of personal letters.

The letters cast an air of ambiguity: did the performance really happen?; does Maria exist?; did these letters find their way to her?; what does she think now that they are being made public?; have ethical responsibilities been respected?; or, alternatively, is the power of autotheory, fiction and ficto-criticism enough to hold one's imagination. Is this conversation about dirt confronting, even tense, viable, immersive, and therefore that much more affective? Read on and see.

Wednesday 2 October 2013

Good morning, Ms. Maria Woźny,[3]
Wondering if you found this note. For the next three days, I offer to clean the INSPACE Gallery. Feel free to sleep in; enjoy yourself. I checked with the manager at Spotless Commercial Cleaners who promised me that you will not be docked any wages.[4] *Hope you are happy with this gift of time.*

I am a live artist and academic here to attend the symposium Plenitude and Emptiness. When I arrived this afternoon to check out the space, I found the door to the janitor's closet unlocked. Inside I found cleaning supplies and a work coat embroidered with your name. I tucked this note in the pocket. The clipboard on the back of the door indicated that you are scheduled to tend to the gallery from 5-8 am each morning of the symposium. At that moment, the score for my performance became clear.

The performance ground maintenance practices the work of a relatively invisible labour force; to take stock of its value, and to take note of the tender care that building interiors require to endure. This is one of many performances acting out maintenance; I take cues from feminist artist Mierle Laderman Ukeles, who washed the steps of a museum on hands and knees, and who shook hands with every sanitation worked in NYC.[5] *While it appears that it was Ukeless' aim to raise respect for the working classes,*[6] *mine is to pay respect to the labour of maintenance and to the material itself— dirt. I plan to clean the gallery each day of the symposium: to do as you do every day. I will carry out this responsibility on your behalf with reverence for your labour, skill, and care of so many smooth, hard, and shiny surfaces. All that glass! I have no fear of hard work, getting my hands dirty, or pre-dawn hours. I know by your work coat that we both have fulsome bodies. The orderliness of the closet tells me that you are tidy, and by the packet of lollies in the left pocket, you, like me, adore black liquorice. Everything suggests that you take pride in your work.*

Having never been a commercial cleaner, I don't under-estimate the attention to detail that is required. I suspect that, like many custodians, janitors, and cleaners, your effort goes unnoticed, taken for granted. I know how that feels having worked as a house cleaner for some wealthy people with big expectations living in big mansions. I have, in minor ways, felt the division that orders people according to their relation to dirt.[7] *Do the people you serve know you beyond your coat and mop? Some say this thankless and low-paying work has an anonymous history, a history that does not register until these small acts aggregate*[8] *or are neglected on purpose to make a point such as the 1981 seventeen-day garbage strike in NYC.*[9]

Your name, is it Polish? Were you part of the surge in Polish immigrants to Scotland around 2016?[10] *How has the transition been? Did you immigrate alone or with family? Why Edinburgh? I hope these questions are not too forward.*[11] *I am curious because I am an immigrant of sorts; in 1997 my husband, daughter and I moved from the USA to New Zealand, for a better life away from guns and violence, prejudice, racism, and pollution. I don't regret that decision despite the long distance between family and all the subtle points of difference that reveal themselves every day even 20 years later. So, tomorrow when I arrive at 5 am to the gallery, if the closet door is unlocked, this letter no longer in the pocket, I will know that you have accepted my offer. I promise to do a good job.*

Sincerely,
Julieanna Preston

Thursday 3 October 2013

Good morning Maria,
Imagine my smile at finding the door open and the letter missing. The small packet of Walkers shortbread left in its place was an unexpected treat. Thank you. So kind.

I have decided to continue writing to you. Not sure why exactly, but it feels like we are in this together.

Well before dawn, I made my way through the dark streets where I joined a procession of custodians, caregivers, cleaners, rubbish collectors, shift workers, construction roadies and bus drivers. Heavy coats and scarves hid our blue collars, theirs more authentic than mine. Everyone walked through the clouds of their exhales. Heads bowed, we held our balance on the icy footpaths. I felt an unspoken comaraderie amongst this informal parade plodding to fix the needs and desires of the city folk still slumbering in warm beds.

I turned the gallery door key and crept in as if intruding, then locked the door, startled by the sound it made. Sensing my presence, the ceiling lights blinked. Their cold fluorescent white light vapourised the outside world. The interior space imploded; there was no escaping my own reflection.

This may well be your daily reality. What a solitary existence! Do you enjoy the silence? Do you sing or listen to music? I am partial to beats like "Where is the Love"[12] and "Love Shack"[13] both highly recommended by professional maids to reduce fatigue, improve motor coordination and increase stimulation.[14]

Last night I researched methods of sweeping. Despite much practice sweeping the house as a girl, and later in life, keeping the building construction site debris-free, it seems that I have been doing it wrong.

Choosing the right broom is paramount. Stiff long bristles are for exterior surfaces like concrete and asphalt. Soft short bristles are for smooth interior surfaces such as vinyl or ceramic tile.[15] Two types of broom are in your closet: 1) a standard, straw or corn broom fits into corners effectively, covers large areas easily, and yet, it is susceptible to losing bristles and not picking up dust and, 2) a push broom with a medium-large head that will cover big areas and catch larger bits of debris in the flagged polypropylene bristles though it is known to kick up dust.[16] Both brooms had a basic varnished round wooden shaft adorned by marks where your hands have been many times, more evidence of the word 'maintain' as a reference to support, aid, hold, hold fast, sustain, hold in hand, and practice habitually.[17]

I selected the push broom thinking that efficiency and quantity of collection were key factors. A systematic plan was needed. Some people sweep from the perimeter of the room to the centre while others divide the room into sections and join the small piles into one as it finds its way to the exit; many use a moist paper towel to avoid the "dreaded line of dirt" that the dustpan tends to leave behind.[18] Keeping the bristles in continuous contact with the floor and pushing the broom away from your body in short strokes is essential.[19] But then I do not need to tell you all this!

I went to the corner furthest from the door. A sea of shiny white vinyl tiles lay next to a large glass window wall frequently used to display moving image work to pedestrians.[20] The low sun angle amplified every impurity on those surfaces. I aimed to sweep the entire gallery in one continuous push-stroke, a method met with opposition by the columns, floor grills and sculpture on display; it was not expedient. The broom and I herded the pile in successive strokes like a snowball that collects everything in it is path: across the vinyl, through the tiered seating, and down the steps to the polished concrete lower-level. The pile came to rest near the door at the far end of the projection wall

at the far end of the projection wall and precariously in the path of every speaker walking to the lectern.

No way to sweep the room. Are you laughing? I am. Tomorrow is another day.

I returned the broom and the dust coat to the closet, sat on the steps in front of the dirt pile, and munched the shortbread. Yum. Much to my chagrin, fog had invaded the city streets. Someone waved at me daydreaming; I was now visible to the outside. A stiff wind found its way under the glass door and redistributed the pile. Futility.

Cleaning is not my forté. This fact may not bode well with you: I love the activity of cleaning but am better known for the 'holidays' left on the windows, the crumbs remaining between the couch cushions, and the dust bunnies behind the door. The verb 'cleaning' is more fun than the adverb 'clean.' It has been written: "The world is our home. It is placed in our charge, for us to take care of. But the world refuses to comply with our will. Dirt is a visible expression of this."[21] Here, for me, process gazumps product.

One of your workmates stopped by the gallery. He described you as a hard and dependable worker and mentioned you grew up on a farm in Kampinos outside of Warsaw and now live above a shop called Beautiful Things/ Unique Polish Artworks on Morningside Road. This new information makes me wonder if cleaners tend to keep their homes as clean or cleaner than their workplace,[22] or is it a different kind of cleaning? Maybe dirt is different when it is one's own.

I am told that as a toddler I was always out in the yard playing with dirt — shaping, throwing, painting, and even eating it. It is not surprising that to this day I relish the pungent smell of compost and am happy in gumboots and jeans out on the land in all kinds of weather. But dirt a la land is very different culturally from dirt as in the stuff that falls to the floor during human activities or even human waste itself.[23] It was mind over matter the time I needed to dig out a long drop. And I found the range of earthy colours (and aromas) in my child's diapers fascinating rather than repulsive. My family believes I inherited this odd (their word) sensibility from my great grandmother who grew up on a farm on the outskirts of Zagreb. Apparently, she was a cow whisperer and spent many hours shovelling manure from the horse stall, the chicken coop, and the pig pen. Happy as Larry as the saying goes. Her house was immaculate, though humble. So, it seems that my relation to dirt is shaped by my ancestry and is very much related to bodily states of sensation — a matter of perception and intuition.[24] Dirt is as theoretical as it is a slippery matter, a concept, experience and metaphor.[25] Far from abject, 'dirty' and 'clean' are not opposed to one another. Under certain circumstances, they might create pleasant or enjoyable encounters.[26]

Such pleasure in dirt is not something easy to explain to my family. The proverbs below resound in my childhood my memories. Each one calls for cleanliness, good hygiene, order, tidiness, purity, chastity, morality, good taste, spiritual faith, good upbringing, social codes of behaviour, productivity, and class distinction:

Cleanliness is next to godliness.
Clean out a corner of your mind and creativity will instantly fill it.
A clean conscience makes a soft pillow.
It is at home, not in public, that one washes his dirty linen.
Cleanliness makes it easier to see the details.
If you want to sweep the steps clean, start at the top.
A new broom sweeps clean, but the old brush knows all the corners.
Open the window, change the air.
The purpose of art, is washing the dust of daily life off our souls.
Dirty water does not wash clean.
Housekeeping is like being caught in a revolving door.
Who walks in the mud, at some point must clean his feet.
The world is our house. Keep it clean.
Cleaning and organizing is a practice, not a project.
Clean your own doorstep before you clean someone else's.
Cleanliness is the luxury of the poor.
Clean your own yard first before asking others to clean theirs.[27]

Do any of these proverbs ring familiar to you? Bring your blood to a boil? The list makes me want to revisit the 1955 performances of Kazuo Shiraga crawling through mud, 'shaking hands' with the material as he relinquishes mastery over it in favour of co-creating a painting.[28] Or Heather Cassilis' attack on 2000 pounds of clay in a durational act that divulges the tensions and seductions of an artist's labouring transgender body.[29] Or the 2019 retrospective exhibition The Cleaner showing the works of Marina Abramovic, in which the art of cleaning showed the capacity to transform how one experiences the self, others and the collective.[30] These creative works and many others guide my daily life more than any bible. In this case, there is hardly any division for me between life and art, a well-worn mantra that joins the internal and external concepts and the lives we live with the world.[31]

I read these last few sentences back to myself and confess a sense of privilege; here I am with the ability to travel around the globe for a week at the expense of my university only to present at a symposium. With money, time and education, I have the luxury of living art. Oddly so, my performance art usually engages a specific architectural space over a long period of time in a labouring gesture, a practice that uses time and space excessively and intensively. No matter how much sweat is perspired or how many class boundaries are traversed, it is not the same as living the reality of a labourer like yourself—earning below living wage, working more than 40 hours per week, in a job with limited professional development and mobility. I wish to acknowledge this fact.

A good place to end for the day; off to join the symposium.

Do widzenia,
Julieanna

Friday 4 October 2013

Good morning Maria,
After only two days of doing your work, I am exhausted. Not sure how you do it. Maybe jetlag, the early starts and days of dense symposium presentations are catching up to me. My respect for you grows. Hoping you have been able to indulge in some good honest laziness. And by laziness, I mean Mladen Stilinović's definition: "…the absence of movement and thought, dumb time—total amnesia… indifference, staring at nothing, non-activity, impotence…sheer stupidity, a time of pain, of futile concentration…about laziness is not enough, it must be practiced and perfected."[32]

This morning, I took a very different tack to sweeping. I adopted the approach of a sociological miniaturist who examines the details and minutia of the everyday life to find micro-level order relating to larger world systems and social structures.[33] Looking closely, brushing lightly, and taking my time meant I nearly did not finish the task before the symposium started at 9 am. Instead of gathering large bits of dirt such as scone crumbs, leaves, gum wrappers and stray threads, this sweep focused on dust, a material connected with human identity, a threatening health agent, a symbol of death, neglect, and devastation, and not the least, a sign of poor housekeeping.[34] Think about it: dust infiltrates our daily life literally and metaphorically, including social aspects of labour, economy, concepts of progress and industrialisation, gender, and nationality; it links personal experience, our interactions with others and our engagement with institutions.[35]

I found myself on my knees a good part of the time, removing the broom's handle and stroking every corner and crevasse with the head's soft bristles. Slow and methodical, I was cautious to not agitate the dust particles enough to make them airborne, because as we know, as a disease-ridden substance, dust is largely human skin, hair, and dandruff.[36] Just who was I inhaling? As unsettling as this thought was, this manner of sweeping proved very introspective even as a fine film of particles coated the floor almost too small to be seen by the naked eye. I lost sense of time while indulging in this "women's work," unbothered by my blackened hands, pants, coat, and nasal passages. My ears rang with derogatory rants equating dust with women, poverty, and immigrants: "beggar's velvet" or "slut's wool" and "the great unwashed,"[37] a reference to Third World industrial pollution and a prejudice towards nations' poor cleaning habits as a sign of moral and monetary impoverishment.[38]

Here is where dust bears out its political dimension. I learned through practical means that when dust is dry, it hovers and floats; it goes everywhere. I was swimming in a colloidal atmosphere. 'Tis the magic sparkle of confetti, of creativity, of transformation and speculative realism evading sweeping's violent erasure.[39] Tasting the grit in my teeth; I might as well have licked the floor as I have done in other performances. Was this what feminist philosopher Judith Butler meant by the radicality of Other: "What we expel, the dirty, the abject, is exactly what composes us, what we already are?"[40] Dust seems to be the universal organising material of the world including an influence in social order. Would that fact grant you power or authority? Keeper of dust? Maintenance worker of the world? Have you ever heard of the story Horton Hears a Who! about an elephant who protects a world of miniature people living on a s peck of dust?[41] A story ripe with satire. A story about caring.

You must have noticed that the gallery has a false floor. When the broom smacked the floor, an underworld sounded. The floor is supported by a space frame that enables all kinds of technology to be housed out of sight and yet accommodate many variations of multi-media installations. Prying a tile up was both thrilling and horrific; it was a secret inhabitable interior lined with wires and cables much like the scene in the 1985 film Brazil, and the 1920 macro-landscape photographic world Dust Breeding by Marcel Duchamp.[42] With a spooky deep voice, I whispered, "Hellooooo. What is brewing down there?" Perhaps like me, you considered brushing a bit of newly swept dust into that cavern? Who would know? Better than any rug, right?

I succumbed to gravity, belly down, chin on folded arms, eye level to the floor. Far from posing as a reclining

woman subject,[43] my gaze settled on the expansive landscape before me. Thermal vapours rising—a dry mirage. In that heat, I slipped into a stupor, how briefly I am not sure. Perhaps it was the sound of the front door whining and chatter entering the space? I bolted up for fear of being caught in a state of laziness, the antithesis of work and not the appropriate behaviour of a custodian. An aberrant moment in the live performance.

Or maybe not. A bit of a yarn coming on. From 2015-2018 artist and scholar Mick Douglas and I directed a research collaboration called Idleness Labouritory which aimed to challenge modern ideas of labour and idleness.[44] Lying on the floor brought back a moment of a 2015 performance that we orchestrated at Motutapu Island off the coast of Tāmaki/ Auckland, New Zealand. For a week, a group of artists workshopped collaborative forms of performance; ours took the group to the front porch of the hut and asked each person to take account of their body's weight, the ground and the sounds they heard. Within a few minutes most bodies were sprawled across the deck, draped over benches, wrapped around posts or snaking down the stairs to the beach. Within ten minutes, the same bodies were languid, lounging, lack lustre—for all intents and purposes, idle, lazy and slothful. These bodies started mimicking a specific sound heard in the environment. After nearly one hour, bodies started to stir, rise and praise the generative nature of doing nothing.[45] This tale highlights that this last few days, while you may have been sleeping in, going out for coffee, getting your hair cut, mending your clothes, napping, writing a letter to your family back home and visiting the local market, you have been serving a very important purpose in life: well-being and taking care. An under-rated form of counter-intuitive labour. Restorative. Creative. Fleeting moments of capitalism's dust blown away.

Three hours later. The sun rose, the sleet turned to heavy rain, and the ice turned to slush. Puddles told the story of bodies gathering and circulating. Those same puddles absorbed the smutty residue of dust I had yet to fully sweep up. What a mess. A mess incapable of being cleaned up by a push broom; only a mop and detergent could do that work. It was a wonderful smeary drawing. If only I had had time to play in that mud longer.

Just so you know, I mopped the floor when everyone left for lunch and phoned your supervisor to explain. All was made good, no worries. A box of Polish Kolaczki Cookies from Bakery Andante, a recipe almost identical to my Croatian great-grandmother's Kolachy awaits you. Hope this makes amends.

Be well,
Jules

Sat, 5 Oct

M.
Oh, it has been such a long day. The symposium is over. Everyone has left for the pub. Sitting on the stairs, a cup of hot tea keeping me company. It is bitter outside, so I don't really mind lingering behind to clean up one last time. This morning, the streets were darker, colder, and more solitary than other mornings. Maybe because it is the weekend? Ironically, a street-sweeper machine nearly bowled me over as it gobbled up litter.

Today, my approach was leisurely. Perhaps I am feeling at home with this sweeping role? Your work coat has become more fitted to my form and more aromatic with my perspiration. Before washing it, consider the power of that humus fluid. Artists Caitlin Foley and Misha Rabinovich did. They captured the sweat of festival goers as the active ingredient towards making energy to charge phones for the event.[46] The coat is also more personalised by the small things now housed in its pockets to sweeten my sweeping time: hand lotion, packet of tissues, lollies, and my phone. I called my daughter who was just about to go to bed (New Zealand is 12 hours ahead); missing her a lot. Familiar feelings? Is there someone back home that looks forward to your calls and you to theirs? It's what comes with caring.

Caring is essential to being a custodian, especially if we regard custodianship broadly such as a keeper, curator, conservator, steward, attendant, warden, superintendent, and guardian. The indigenous people of NZ have a concept, a world view that refers to the way that people and land are closely connected; it is a way of caring for or preserving the natural environment and valued objects in spiritual and practical ways: kaitiakitanga.[47] Though not Māori, living in their land means that concepts such as this influence how I think, live, and make. At the risk of applying this concept that is not mine to use, a web of relations between the sweeping of an architectural interior and guardianship of the environment emerged over the last three days. Caring is what bridges these two roles—one considered menial, unskilled, and unremarkable, the other serving the earth with moral integrity and a critical conscience.

What is it to study dirt aside from the science of geology, agriculture, and horticulture? What is it to care for dirt? Is it possible that cleaning has virtues other than hygiene, appearance or fashion? Can the care for dirt combat assumptions of it as abject, taboo, disdainful, and impure to an angel, a nurse, a mothering gesture?[48] This inversion of attention from sweeping to cleansing the architectural interior is more akin to an act of gathering the dirt as a valuable, vulnerable, or virtuous material. Intent is significant. Matter not out of place, but of place.[49] My sweeping actions changed from efficient thrusts to gentle culls. The particles were herded without concern for the state of the floor left behind. The broom and I worked together to rescue the material. Tedium turned to light-hearted song and dance. Remember Gene Kelly and Fred Astaire dancing with a broom, a mop, and a hat stand?[50] One heck of a 'smoko,' right?[51]

The pile grew as I worked my way around the room in a random manner, joining small mounds into one and recognising bits of the exhibition. This recalls events when a cleaner mistook an artwork as rubbish and when an artist orchestrated a pile of trash as an artwork (and won the prize)—different spectrums of aesthetic judgement in plain sight.[52] From the seating area, fragments of dried mud were pried up. Bits of paper, pins, clips, and food crumbs became lodged in the broom's bristles. Strands of hair of all colours felted themselves with all the other bits, some of them easily identifiable.

All piles assembled at the front of the room. The broom was propped against the wall for all to see. Could not have been more obvious. To my knowledge no one noticed the discarded bits of themselves trapped in the dust of unspoken, exhausted, or frivolous architectural theory. The pile lingered as a mute reminder of all the other services that support an architectural space. The floor, glass and broom became more than extensions of my labouring body; I was in service to them, but more so, in the service of, the care of dirt, a precious/ precarious substance, and more so, in the practice of a custodian. Crouched over the pile, I recall the archaeologists I met

in Chaco Canyon sifting through the remains of an ancient trash heap; "One man's trash is another man's treasure."[53] This heap, however, in its unpetrified formation resisted staying in one place; nothing to fix here—it just kept circulating to be reformed in the next sweep.

Hoping that these letters are more than drivel.[54] It was a joy to sweep in your place. Would you feel comfortable if I published these letters as a visual essay? If not, please say. My contact details are on the back side of this letter. If ever you are in New Zealand, please visit.

j

P.S. I took two pinches of the pile as a memento. I tucked one into your coat pocket and the other in my pants' pocket disguised as lint to the NZ biosecurity scan.

NOTES

1 Because the creative expression of the letters included here as images strain against *Interstices'* official citation style, the author and the editors have sought to prioritise the narrative intent of the letters and so have limited APA in-text citation to this initial framing text. Citation and reference within the letters themselves have been unconventionally formatted as endnotes to better sustain the performance of intimacy intended for the correspondence. These endnotes are, in turn, supported by the references that follow.

2 What constitutes an academic essay is not a singular homogenous thing, and yet, in the realm of creative practice research or artistic research, the name carries connotations associated with essays or articles that take a very specific structure, form of argumentation and delivery of evidence and findings akin to the social sciences and humanities. In this essay I am highlighting and demonstrating an alternative approach to that historical model that maintains the primacy of the creative inquiry embedded in the performance and, subsequently, flows through in what is known as performance writing.

3 The name Maria Woźny is a pseudonym. "Maria is a feminine given name [...] influenced by Latin Christianity. It has its origin as the feminine form of the Roman name Marius (see Maria gens), and, after Christianity has spread across the Roman empire, it became the Latinised form of the name of Miriam: Mary, mother of Jesus," and "Maria means "exalted one" (from Hebrew "róm/רוֹם" = height), "rebelliousness" or "wished for child." "Maria," (CharliesNames, n.d.). The surname "wozny" (from wozic 'to convey') means 'caretaker' or 'janitor' in modern Polish. "Maria" (Ancestry.com, n.d.).

4 Recent online posts state that an average commercial cleaner hourly wage rate is £9.44 per hour in Edinburgh, which is below the living wage in Scotland of £9.50/hour. See, "How much does a cleaner make in Edinburgh?" (Indeed, n.d.). See also, Living Wage Scotland (2020).

5 See Phillips, et al. (2016).

6 See Frichot (2019: 66).

7 Campkin and Cox remind us that "Cleaning is a continual activity, yet not something we all do. In fact the doing, or not, of dirt is divided down the lines of class, ethnicity and gender—the most powerful social divides in contemporary life [...] Dirt and cleaning exist within and constitute social relations both within and outside domestic environments" (2012: 5–6).

8 See Gideon (1948: 3).

9 See Stetson (1981, 18 December).

10 See Davies (2019, 27 January).

11 A peer reviewer made me aware that this essay may transgress the boundaries of proper address as it provoked a discomforting level of intimacy. I have retained this condition on the basis that during events such as in-person conferences and even online symposia, processes of becoming familiar occur very quickly such that in a few days or hours one can change from unknown to acquaintances and, sometimes, even friends.

12 Black Eyed Peas (2009, 16 June).

13 B52s (2013, 3 December).

14 See The Maids (2020, July 22).

15 See Verger (2017).

16 See Iristify (2016).

17 Online Etymology Dictionary (2021).

18 See All Kleen (2018).

19 See All Kleen (2018).

20 For internal and external images of the gallery space, see https://www.instagram.com/p/CRorW4OIY4x/ and https://www.reiachandhall.co.uk/work-culture/inspace-the-informatics-exhibition-space-edinburgh.

21 See Lagerspetz (n. d.).

22 Frichot (2019: 73).

23 Frichot (2019: 5–41).

24 Frichot (2019: 5–41).

25 Douglas (1999: 47–51).

26 Campkin & Cox (2012: 1).

27 See Davison (n.d.).

28 See Shiraga (1995).

29 See Jones (2015: 59).

30 See e-flux/Museum of Contemporary Art in Belgrade (2019).

31 See Lagerspetz (n. d.).

32 See Stilinović (2021).

33 See Figes & Shore (2019: 1–15).

34 See Figes & Shore (2019: 2).

35 See Fine & Hallett (2003: 2).

36 See Pelley (2017).

37 See Fine & Hallett (2003: 6–8).

38 See Fine & Hallett (2003: 9–12).

39 Frichot (2019: 137, 149–160).

40 Frichot (2019: 26).

41 See Dr. Seuss (1954).

42 See Gillam (1985); see also, Campany (2017).

43 See Figes & Shore (2019)

44 The Lab developed performative projects that critiqued existing capitalistic modalities of work and looked to idleness as a necessary antidote and form of resistance to the pressures; it has to be productive as a prerequisite to being a good citizen. Our research sought to generate examples of artistic practices necessary to engage with current challenges facing living systems, including human society. See "attuning", "appending", "attending", and "reading labours" at www.julieannapreston.space.

45 See Russell (1935).

46 See Rabinovich & Foley (2016).

47 See Royal (2021).

48 See Preston, etal. (2021).

49 See Douglas (1966).

50 See Green (2021).

51 See Alves (2017).

52 See Cleaner throws out 'rubbish' Sala Murat artwork (2014).

53 See Farlex (2015).

54 Throughout this essay I have attempted to hold true to two values: first, that even though the tone and voice of the letters shifts from a formal to a familiar register, a calculated level of respect, decorum and generosity is maintained such that assumptions, stereotypes, and other unconscious bias I might have towards a person I do not know and a person who cleans for a living are not in play; and second, that the manner of writing letters is a mixture of introspective thought, description, conversation, and storytelling that is idiosyncratic, subjective, and linked to ad hoc references to popular culture that dominated by formal/academic modes of theory and criticism. In this case, writing letters to a specific person on a specific event is a tactic to eclipse the theory-practice binary in a method that aims at affecting intimacy between strangers as much as it is an aggregation of bits as the pile itself. For that very reason, this is dirty work. See, Frichot (2019) and Leddy (1995: 259–268).

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MICHAEL CHAPMAN AND TIMOTHY BURKE

Parallax projections: Decay, entropy and obsolescence at Wangi Power Station

Opened in the early 1950s in post-war Australia, Wangi Power Station is a decaying, post-industrial relic that sits on the edge of Lake Macquarie, north of Sydney, and at its height provided one-third of the state of New South Wales's (NSW) electricity. The building embodies an era of architectural ambition for industrial infrastructural development and was the first power station built on the site of a coal seam (as opposed to the site where the electricity was required). It is also the last power station constructed in Australia to follow the English model of industrial architecture, employing intricate brick massing as opposed to the more skeletal steel structures that followed. From the time of its conception, the generation technology utilised in the power station was already mostly redundant and when it closed in the mid-1980s, it fell into disuse and decay. It has sat dormant ever since, laced with graffiti, slowly ravaged by vandalism and overgrown with vegetation like an ancient jungle temple. The precarious state of the building opens questions of the preservation and archiving of industrial heritage and the role drawing plays in documenting both the architecture of these highly complex buildings and their state of imminent collapse.

This paper discusses recent drawing projects of Wangi Power Station exhibited as part of *Counternarratives* (Watt Space Gallery, January 5–28, 2021) that supplement the existing archive of drawn and photographic material from the period. These creative works explore hybridised digital and analogue technology and document the dereliction and decay of this highly complex and threatened building that sits at a critical junction in the history of the twentieth century. The authors of this work develop different but related methods to represent Wangi in its current state of abandonment, with each author bringing their own toolkits and modes of representation to develop a more complete and nuanced picture of industrial ruination.

Permeated by Walter Benjamin's writing on obsolescence and technology, these drawings embody notions of time, decay, and erasure; processes of collapse that have replaced meticulous regimes of maintenance. The *Counternarratives* projects set out some methods of drawing to record decay and decomposition, using a range of media for documenting the complex industrial structures and their geological and social contexts. Hybrid drawing processes augment, stitch together and reconstruct the varying resolutions, inaccuracies, distortions and

incompleteness of photography and drone capture. This process of drawing embodies the rigour and technical detail of the working drawing, and its multiple frames of reference, further inflected by processes of erasure, decay and entropy. The paper positions these documentary processes within a broader context of architectural drawing and its theory, and proposes decay, entropy, and obsolescence, captured through hybrid drawings, as a new form of architectural knowledge.

Wangi Power Station

With the rapid mobilisation of industry in the early twentieth century, through the pressure on cities after the World War II, the relationship between architecture and industrialisation became one of mutual interdependence. Where the early avant-gardes, such as the futurists, saw the promise of a utopian future city, in the dams and power stations of the pre-war decades, the post-war city embodied industrialisation as an essential engine in the development of the modern city, embracing the programmatic connectivity of the machine, as much as its towering aesthetic. However, this was also accompanied by scepticism of machinic industry, tied to its perceived lack of emotion, its complicity in the horrors of the two world wars, and its increasingly dialectical relationship to nature and the environment. The twentieth century saw industry framed in successive architectural histories as a paradigm of both the new and the obsolete, both discovered and recovered as innovation and ruin. As industrialisation advanced, it left behind a trail of dormant and rejected technologies, rusting in the shadow of newer ones. For Benjamin, it was in its obsolescence that technology assumed its ultimate form of cultural expression, binding aesthetics of ruin and new within technologies of industry (Benjamin, 1978a). As Sigfried Giedeon observes in *Mechanisation takes command*, by 1948 the processes of industrialisation had directly and dangerously impacted humanity's relationship to nature. Technology

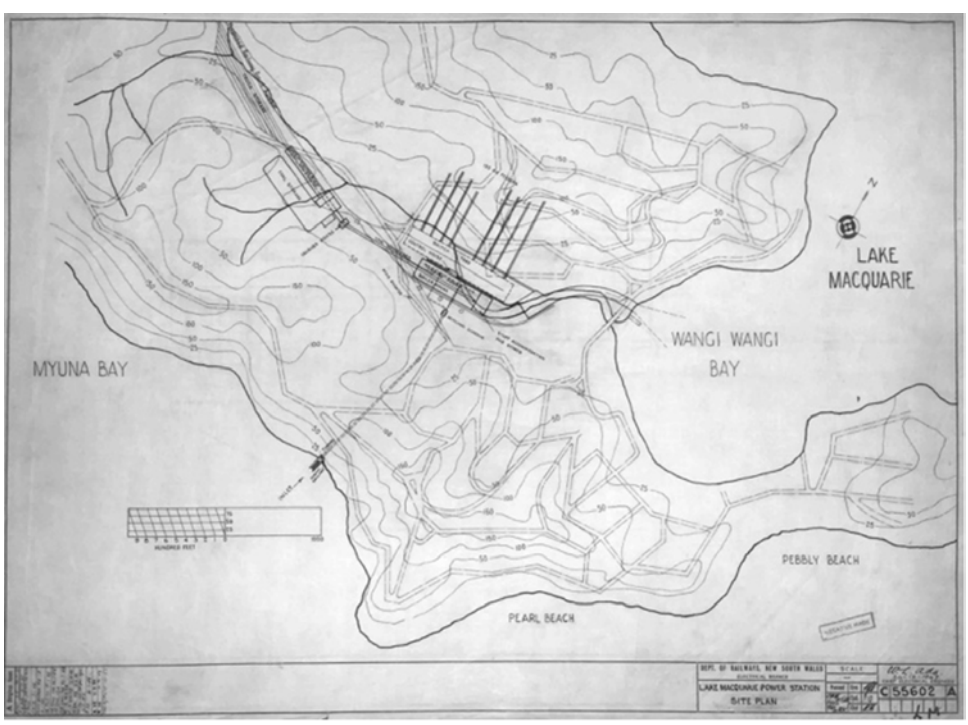


Fig. 1 Site Plan from the Wangi Archive, (1947) . [University of Newcastle Cultural Collections]

was no longer an adjunct to everyday life, but a barrier to genuine and authentic human existence (Giedeon, 1969; see also Chapman, 2012).

It was from this vantage point, in the aftermath of World War II, that the epic project for Wangi Power Station first emerged. Sited within a tranquil, and largely untouched area of bushland, next to a large lake, the power station at Wangi was a complete transformation of the environment and the demographic and cultural character of the region (Fetscher, 2018). The initial construction took over a decade and involved over a thousand workers. Not only did the site offer access to clean and consistent water supply, but also direct access to coal, critical to the production of power. The history of the Hunter Valley is inseparable from the extraction of coal (Ellis, 1959), but in the 1940s this changed: it became more economical to transport power than coal, and power stations were built close to coal's extraction, rather than near cities where power was needed (Anderson, 1955). Wangi was the first power station in Australia built on this model. It linked to vast infrastructure projects that connected Sydney with state regions in a network of production and distribution unprecedented in Australia's history (Thornton, 2020; see also Thornton, 2015). The power station is imposing and prominent in the landscape, but it is the layers of coal seams below it, unseen beneath the landscape's surface, which define its historical and cultural significance and legacy. The original drawings of the site, preserved in the Cultural Collections archive at the University of Newcastle, show the extent to which architectural decisions impacted upon landscape's industrial transformation. Interwoven across hundreds of pages, drawings mark out the shape, space and directionality of a new industrial machine, designed to extract the fuels required for its sustenance (Fig. 1).

Amongst the first drawings undertaken for the *Counternarrative* show were drawings of this geological relationship, of co-located industrial extraction, through drawing the sectional relationship of the power station with Lake Macquarie. The drawing *Rockbottom: Section* (Fig. 2) is an east-west section through Newcastle, cutting through Wangi and Lake Macquarie. This drawing was in response to two sections produced by BHP in 1961 that recorded coal seams deep within the landscape, and the points where they surfaced. The *Rockbottom* drawing was across 11 panels, each 600 x 1200mm, and used a methodical scoring technique to texture the page, prior to graphite rendering which revealed these marks. The primary role of the drawing was to open questions in the relationship between time and scale. A meticulous and labour-intensive drawing process resonated with the 300-million year history of the 22 coal seams under Newcastle. An enormous drawing captured geological dynamics over several weeks, with graphite removed and then built up in a sedimentation of temporally charged marks over the page.

The outcome of the Wangi power station's siting was the complete and total transformation of the environment. Large areas were deforested to make way for the power station and supporting infrastructure, with tunnels and slipways being constructed to manage complex natural hydraulics. By the time the power plant opened on November 7, 1958, it was a symbol of innovation and modernity that put Wangi on the geopolitical map, and a source of pride that shaped a new identity for the working class region of the Hunter Valley around the purposeful production of the state's power. The architecture itself (designed by C. H. Smith & Johnson Architects) appeared to make a nod to this futuristic imagery, with

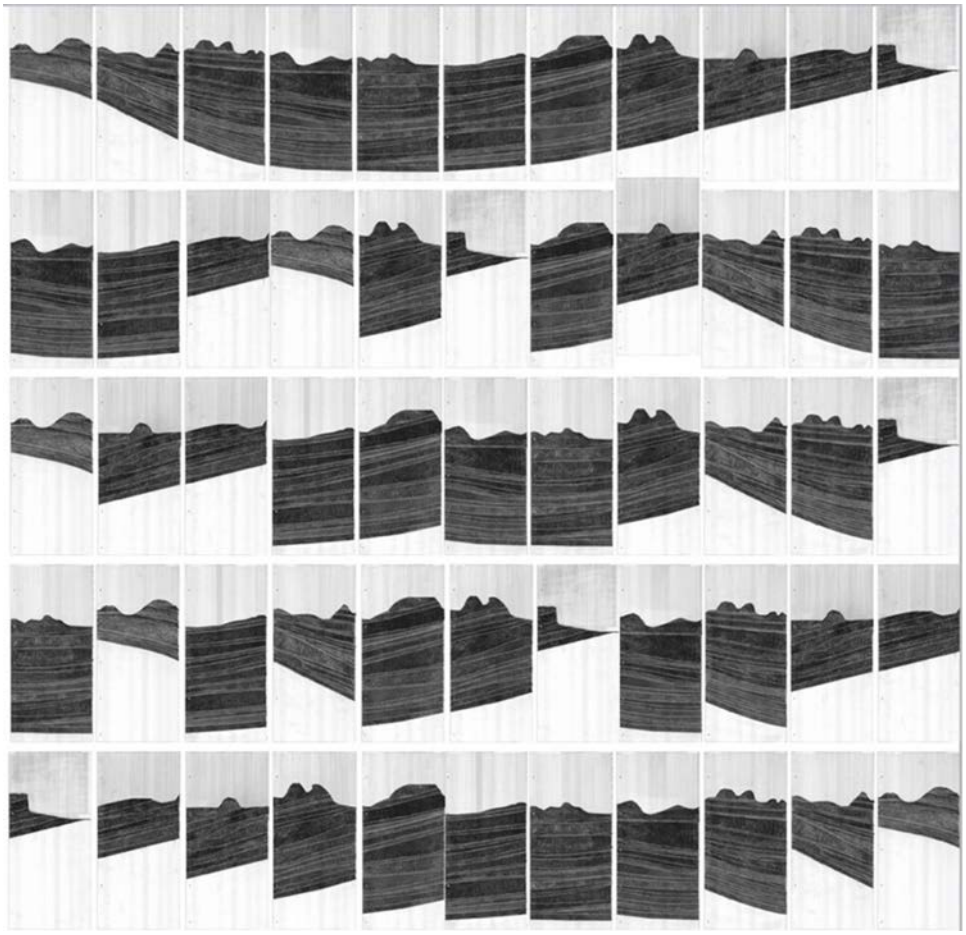


Fig. 2 Michael Chapman (2020). *Rockbottom*. [Section, Newcastle Coalfield. Courtesy: Author]

chimneys layered with space-age flourishes and details that belied their purely functional purpose (New South Wales Office for Environment and Heritage, 2018; C and M.J. Doring (Firm), 1990). The archival drawings show an obsessive and meticulous documentation of the power station machine, and its refinement into a sophisticated architecture, merging futuristic aesthetics and technical processes (Fig. 3).

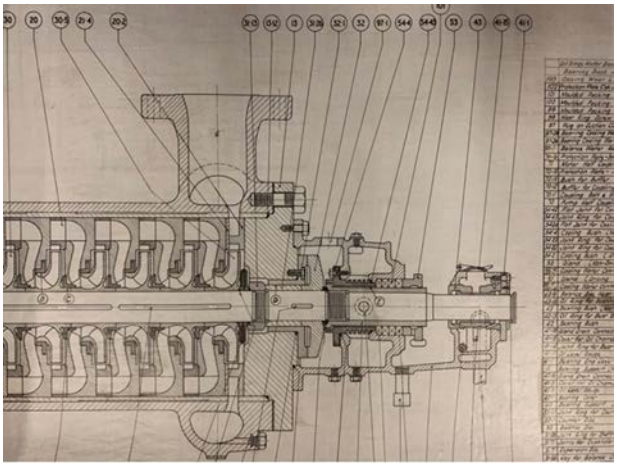


Fig. 3 Mechanical Section from the Wangi Archive. [Section, Wangi Power Station. Courtesy: University of Newcastle Cultural Collections]

Despite its transformative twentieth-century history, Wangi Power Station now provides a quite different historical vantage point. Decommissioned in the mid-1980s, as nearby Eraring Power Station came online, the vast complex was sold in the early 1990s and has been abandoned ever since. Arriving at the site, the visitor peels back layers of history, disuse, and vandalism in order to uncover the monolithic structure, now covered in weeds, graffiti and rust. Like the encounters with ruined ancient sites that mobilised the imagination of the French Enlightenment architects, the overrunning of the building by nature creates a distance with its functional past and the histories it embodies. The trajectories of modernism, industrialisation and energy production have all taken dramatically different paths, but the rusting edifice of Wangi has stayed where it is. In this sense, it provides

unique access to ideas around fixing, maintenance and care. Through the absence of these, through its abandoned degradation, the architecture of Wangi can be revisited to construct an alternative history of the twentieth century. The tools for this re-presentation of history are radically contemporary: the drone, the terrestrial scanner, the hybridised computer drawing, and the digital camera. These contemporary machines provide techniques to record the obsolescence of this distant and collapsing mid-century machine.

Optical entropy

Within the *Counternarratives* exhibition, the work titled *Entropy* deliberately set out to explore these contemporary technologies to record broader historical cycles bound up in the phenomenon of Wangi. The premise for the project was to look at the rusting power station through three separate but inter-related media: photography, drone photogrammetry, and hybridised drawing. Five triptychs framed different but simultaneous views of Wangi Power Station, firstly, from a camera, second as a drone photogrammetry mesh and then finally as a hybridised drawing (Fig. 4).

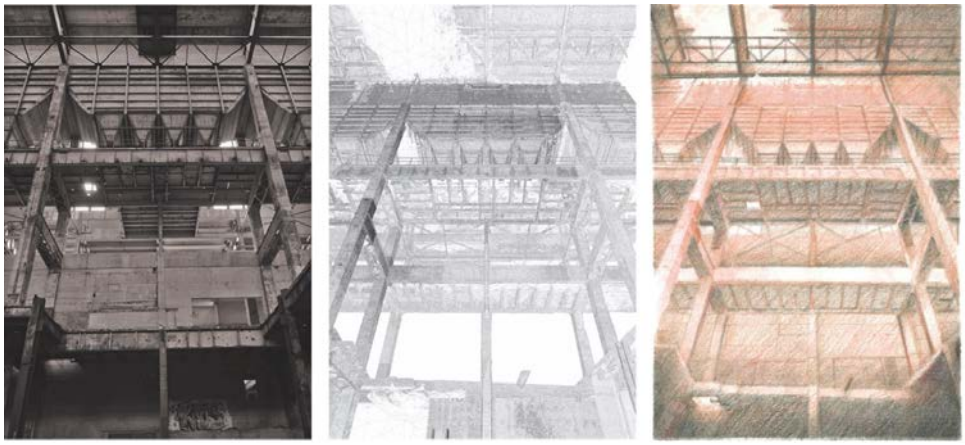
Fig. 4 (2021). *Counternarratives* exhibition). [Photograph, Watt Space Gallery, Newcastle Australia, author]

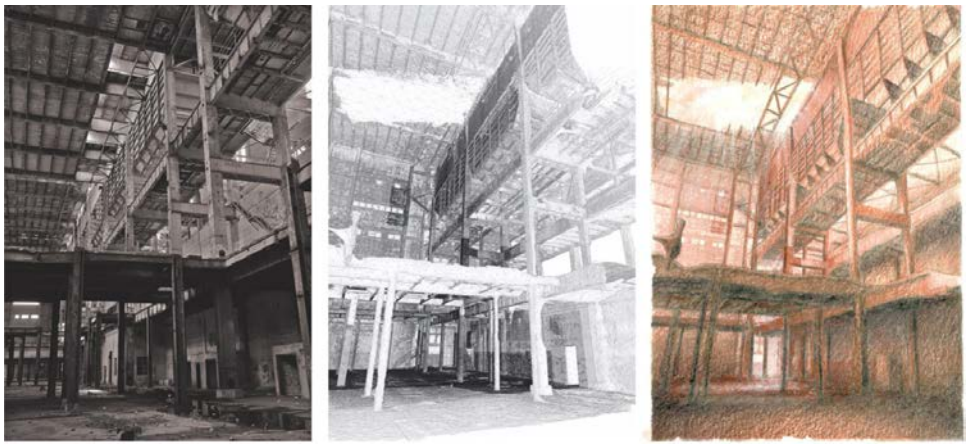
Each part of the triptych was distinguished by medium and by author. The first author used photography to capture and transmit the on-site experience of the space in first person perspective. The next author produced a photogrammetry mesh from several days of intricate drone scanning, capturing the site and machinery in as much detail as possible. Using the three-dimensional mesh, perspectives from the photographs were found within the digital model and replicated as two-dimensional images. The third medium used hybridised drawing that reintroduced atmosphere to the desensitised digital mesh through analogue drawing methods. These drawings were completed away from the site, combining the photography and drone photogrammetry to re-draw a reimagined state of the building by manipulating and repairing fragments and holes left behind in the digital process.

There were five drawing sequences which, as a set, started to reveal the intersection of these tri-partite representational modes, as well as their inherent incompleteness and symbiosis. This provided a process through which the decay

and ruination could be documented and drawn out through the three mediums. The *Entropy* drawings provide a unique record of the state of Wangi, torn between its presence as a highly functional machine of the future, and its ruin and obsolescence. They document, in this sense, a particular junction in the twentieth century, where values, architecture and technology shifted, in a way that the hulking rusting monolith could not (Figs. 5–9).

Site photography is used as the starting point to the *Entropy* work, not only as the first image of each triptych, but in the curation and framing of each vantage point of the series. The photograph provides the datum and index for the





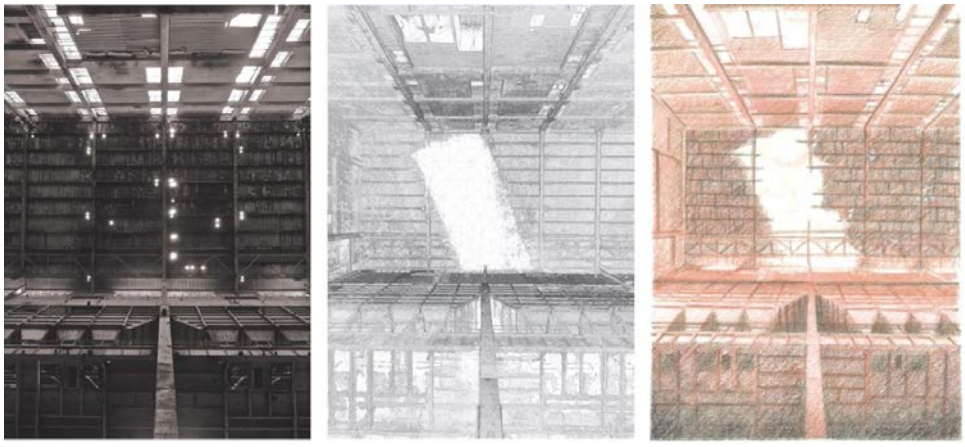


Fig. 5 Michael Chapman, Peter Fisher, and Timothy Burke (2021). *Entropy (Bins)*. [Photograph, digital print, drawing, authors]

Fig. 6 Michael Chapman, Peter Fisher, and Timothy Burke (2021). *Entropy (Hall)*. [Photograph, digital print, drawing, authors]

Fig. 7 Michael Chapman, Peter Fisher, and Timothy Burke (2021). *Entropy (Roof)*. [Photograph, digital print, drawing, authors]

Fig. 8 Michael Chapman, Peter Fisher, and Timothy Burke (2021). *Entropy (Stair)*. [Photograph, digital print, drawing, authors]

Fig. 9 Michael Chapman, Peter Fisher, and Timothy Burke (2021). *Entropy (Exterior)*. [Photograph, digital print, drawing, authors]

parallax modes of seeing in both the drone and the computer drawing techniques. Through the photographic gaze, qualities such as scale and volume, decaying surface qualities, the palimpsest of graffiti, and the play of light against the complex structures are captured. In sites such as Wangi, this encounter between the world, and moments in time, is particularly poignant. Carefully framed images of the plant after its opening in 1955, paired with highly evocative contemporary shots of its ruination and decay, exaggerate the atmosphere and presence of layers of neglect and vandalism. If the opening photograph was a *fixing* of social mores from the 1950s, framed against the glistening machine, the contemporary images capture the site in its current state, its unravelling and *unfixing*. Not only has the machine lost its lustre, but it expresses a vulnerability and fragility as the layers of its structure are first rusted or weathered, and then vandalised. In Wangi, the human experience of the handheld camera provides a direct and intimate encounter with the scale and scope of the power station, which is notably different to the objectivity and scrutiny of the mechanical drone. The camera provides a relationship to the human and its mortality, which appears paired with the mortality of the building. This emotional encounter between an individual and the building, where the camera is the only interface, records time and emotion in ways unique to the late capitalist condition, where a sense of frailty and inevitability has replaced the optimistic faith in the future and progress.

There is a resonance in this with the taxonomies of industrial archaeology in

the work of Bernd and Hilla Becher, who developed a systematic and objective photographic style to record the industrial structures of Europe and America throughout the 1960–1990s. In an attempt to document heavy industry during a time when abandoned and disused industrial structures were disappearing from the landscape, the Bechers developed a distinctive method of photographing elevations of structures such as gas tanks, winding towers and blast furnaces. Driven by a desire to protect the historical, cultural, and aesthetic value of the structures, the photographs can be read in the same way that Benjamin viewed photographic images of emerging industrial forms. He saw these as "fossils" or works that interpret the collective political values of society embodied within them (Buck-Morss, 1989: 56). Benjamin was interested in the political value of the photograph, as an emerging technology, particularly in his 1930s essays: *A Small History of Photography* (1931), *The Author as Producer* (1934), and *The Work of Art in the Age of Mechanical Reproduction* (1936). For Benjamin, photography "[...] can no longer depict a tenement block or a refuse heap without transfiguring it" (1978b: 230). This alludes to a dialectical relationship with the machine. For Reyner Banham too, the value of photographic documentation is akin to archaeology, where the Bechers' archival process creates, in effect, "a dusty *Corpus Machinorum* awaiting the attention of some dry scholar with his magnifying glass and box of file cards" (1993: 7). Banham was interested in how the Bechers' way of representing the machine not only uniquely cultivated the value of industry in the post-industrial age but also formed a language of post-modernism through the medium. As Banham writes:

> the industrial vision of the Bechers has become part of the way we see today; our shared experience of their dead-pan portraits of pit-head gear and water towers and blast furnaces has been an essential part of what one might properly term (paraphrasing le Corbusier), *la Formation de l'Optique Post-Moderne*. (1993: 7)

When taken out of their own local contexts, the ubiquity of these alienated industrial forms makes obvious the inevitable future of technology to eventually become obsolete and fall into ruin. This is true too for the *Entropy* photographs of Wangi Power Station. These photographs provide a visual reference point, capturing the machine not only in the present but also backward in time, as the layers of degradation are revealed on its skin.

Digital archaeologies

Central to understanding the relationship of Wangi to a broader history of the twentieth century is an appreciation of shifts in technology that dramatically influenced industrialisation in the period since World War II. When Wangi was constructed, extensive hand-drawn technical drawings obsessively documented every junction, machine, housing, and process that this architectural machine would deliver. An archive of more than 5,000 drawings recorded the relationship between the future plan and its execution through technology (Mbembe, 2002: 19; see also Kauffman, 2018). In the decades since, this relationship has been inverted. The ravages of time, decay and obsolescence have framed a new archive of historical material. Technology, specifically digitisation, has enabled a vast diversity of data to be collected and disseminated, providing unprecedented ways in which fragments of history can be recorded and reassembled. Where

the technical drawing was once a contractual relationship with the future, the digitised and hybridised drawing of the twenty-first century allows a new relationship to the past, allowing moments across this historical trajectory to become simultaneously available. The technical drawings that provided the basis for the construction of Wangi are not the endpoint, rather the starting point for this radical archaeology of obsolescence.

Drone photogrammetry is a technique that is naturally suited to sites such as Wangi, where there are layers of complexity, issues with safety and access, and an imposing scale. The premise with drone photogrammetry is that large amounts of photographic material are collected from a constantly moving source and software is then used to compile this data into a three-dimensional mesh, constructed from the multiple perspectives in the drone imagery. The ability of automated drones to fly in and out of narrow passages and between different components of complex machinery provides a large amount of detail not only of the three-dimensional form, but also of surface texture. In situations such as Wangi, where these surfaces have often been extensively corroded with rust, and layered with graffiti, this technique can record and map the surface in ways not available from other vantage points. This information can be then compared and mapped to technologies such as terrestrial scanning, which collects data from a fixed point, and then used to triangulate this data as the point is moved around the space.

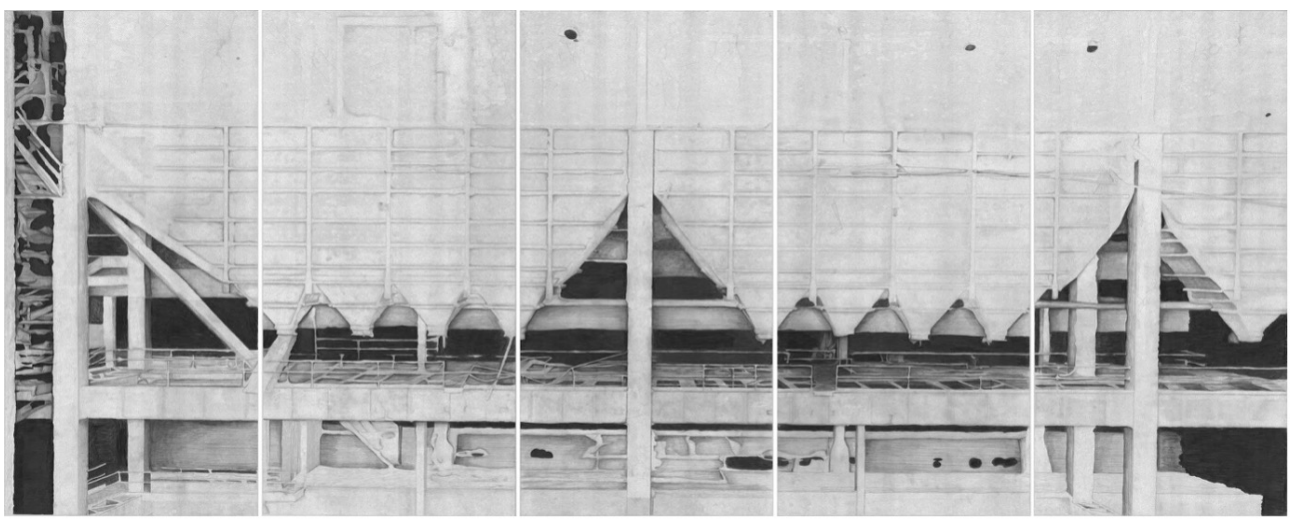


Fig. 10 Michael Chapman and Kati Ross (2021). *Section: Scar.* [Drawing, authors]

The large five panel drawing *Section: Scar* (Fig. 10) was undertaken as part of the *Counternarratives* exhibition. It was a large format hybrid drawing that used the imperfect mesh from the drone photogrammetry as a starting point. The drawing process wove graphite in and out of the triangulated mesh, building up detail and three-dimensionality over time, and a detailed tracery of hierarchical lines. The drawing was undertaken as a collaborative process, between drawer and digital media, where the pencil became a kind of stitching together of the holes left by imperfections in the photogrammetry mesh. Correlations and black holes between these were accentuated to resonate strongly in some parts and provide chasms of emptiness in others. Architectural drawing, as a process of observation and documentation, can be used to fill these technological chasms. This can be directly compared to the archival technical drawings describing the same machinery. This hybridised drawing technique documents the processes of decay,

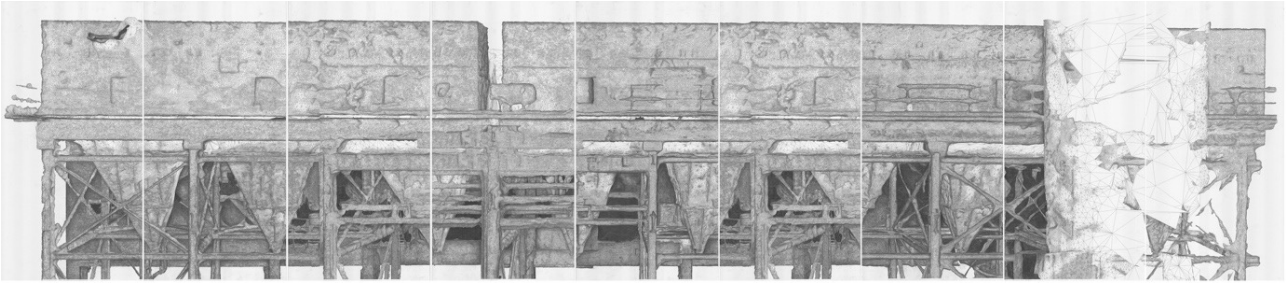


Fig. 11 Michael Chapman and Kati Ross (2021). *Section: Alchemy*. [Drawing, authors]

ruination, and entropy in a way that the technical drawing, in its contractual optimism, can't. *Section: Scar* constructs a narrative not only of the building, but of the role of technology across the landscape of the twentieth century.

The capacity of digitisation provides new modes of encounter with this industrial archaeology, bringing multiple forms of data and information into play and comparison. The hybridised drawing provides a framework for assembling data, but also enriching it and making it available to a broader history of architectural representation.

In another large format drawing entitled *Section: Alchemy* (2021; Fig. 11), the decaying machinery of Wangi is deliberately paired with drawing processes of medieval anatomy, placing the machine on the table like a medieval corpse. This stylistic rhyming with medieval drawing is intended to resituate the plant within a surgical context, where it is no longer a functioning and reliable machine, but one that is wounded and in pain. The drawing is instructive in understanding obsolescence, in the same way that medical data was collected and disseminated for the greater good of science. This forensic mode of recording the ruination of industrial infrastructure is only one of a number of representational devices that archaeological heritage can now engage with in reconstructing the dominant narratives of the Twentieth Century. In this sense, the historical archive and that given by contemporary techniques offer bookends to a process of industrialisation, with start and end repackaged within a new canon of architectural representation.

Drawing decay

In comparison to the opportunities for accurate documentation provided by photography and photogrammetry, traditional hand drawing remains significant in its capacity to *draw out* qualities that escape those technologies. As a point of departure, and the final stage of this process, the illustrations of the *Entropy* series speculate on an imagined future of continued decay and ruination. By drawing in pastels and coloured pencils, accurate representation is abandoned in favour of creating atmosphere through the looseness of how sepia tones are applied to the surface of the paper. The inaccuracies of the digital model from the photogrammetry process are amplified in these drawings, as a means of abstraction. The drawings maintain the distortions from the model which manifest as organic shapes, or missing sections of structure. This creates an artificial decay where the works receive their namesake: entropy, understood as the gradual decline into disorder or disarray. This incremental distortion from photography, three-dimensional mesh, to pastel drawing is central to this creative process, of distancing the actual matter of the building. The drawings are in deliberate

contrast to the accuracy and fidelity of the original photographs, to provoke the imagination of alternative narratives.

The *Entropy* drawings connect to a broad history of speculative architectural drawings, that use narrative to construct meaning. These are where the primary purpose of the drawing is as a communicating vessel, rather than to construct buildings. Works by Giovanni Battista Piranesi, Iakov Chernikhov, and Lebbeus Woods create narrative-rich drawings that use fantasy to explore expansive ideas of architecture. For example, accompanying the drawings of *Gothic Industrial Architectural Fantasy* (1932–36), Chernikhov writes, "Architectural fantasy stimulates the architect's activity, it arouses creative thought not only for the artist, but it also educates and arouses all those who come in contact with him; it produces new directions, new quests, and opens new horizons" (2019: 33). This is played out in *Cycle of Architectural Landscapes* (c. 1930), where Chernikhov's perspective drawings of expressive constructed landscapes are overlayed with complex space-frame structures and cranes.

These drawings share a visual similarity to Piranesi's *Carceri d'invenzione* (*Imaginary Prisons*, c. 1749–50), where dramatic subterranean interiors are composed to create a seemingly infinite interiority strewn with archaic machines, cranes, bridges, and torturing devices. Compared to the fineness of detail in Piranesi's etchings, Chernikhov is far more expressive, enabled by applications of gouache and ink on paper in harsh, scratchy strokes. Of far more significance, is the ideological shift in replacing the classical architectural forms in favour of industrial structures that simultaneously appear in a state of construction and ruin. Embedded within Chernikhov's atmospheric drawings is an aestheticisation of the ruin which bears provenance to Piranesi's interest in archaeology. His highly influential four-volume publication, *Le Antichitá Romane* (1756), which contains over 250 etchings of historical Roman ruins (Wilton-Ely, 2013), inevitably carries into his own imaginary architectures, but so too in works such as John Soane's *Architectural Ruins: A Vision* (1798). These drawings imagined London in ruins, the most iconic being Joseph Gandy's *Rotunda of the Bank of England* (1788). This provenance carries through to Lebbeus Wood's *Centricity* (1986–88). While the science and technology Woods draws from is more advanced than Chernikhov's, it shares the same indistinction between destruction and construction. Similarly, what distinguishes the *Entropy* series is its post-industrial context which, far from being an advancement of industrial technology, is one of valorising abandoned structures of the recent past. The narrative reorients the focus from drawing new forms of architecture to reimagining the fallout of a growing landscape of obsolete post-industrial ruins left in a state of decay.

In this way, the *Entropy* drawings are interested in capturing industrial fantasies more closely oriented towards Walter Benjamin's *phantasmagoria*, where a collection of "dream-images" or "wish-images" are dialectically urban and industrial, real and imaginary, past and future (Buck-Morss, 1989: 56). In one such example in the *Arcades Project*, Benjamin quotes the French journalist and economist Eugéne Buret who writes "[t]he most fantastic creations of fairyland are near to being realised before our very eyes... Each day our factories turn out wonders as great as those produced by Doctor Faustus with his book of magic" (Benjamin, 1999: 462). This phrase captures the optimism and wonder at the beginning of the industrial revolution where the difference between magic and technology was indistinct. This childish reverie can similarly be seen in the

cartoons and works of fiction of William Heath Robinson, and Hayao Miyazaki. The *Entropy* drawings directly draw precedence from Japanese artist Minoru Nomata's coloured pencil studies of imaginary structures in his book *Elements* (2013), and Sydney-based children's author and illustrator Shaun Tan's *The Lost Thing* (2000). The Wangi drawings reference both technical and narrative elements of these precedents, in the graphic possibilities of coloured pencil drawings, and how this drawing style is used for storytelling. In those illustrated works the difference between what is real and what is imaged is of no consequence. The narrative is still capable of evoking imagination, empathy, humour, morality, and delight. These illustrations are a proposition, a conversation, an invention where something is brought into being through the act of drawing, and where meaning is actively embedded. Drawing Wangi involves a similar bringing into being. Rather than simply capturing matter, the Wangi drawings allow the spirit of the building to be captured, they create interest and intrigue to invite audiences into the story of Wangi and reframe its perception.

Conclusion

The *Counternarratives* projects provide a glimpse into the twentieth century through technologies twisted and contorted into the twenty-first. In this process, the very notion of perspective and representation has been shifted and modified and is now situated directly between binaries of new and old, natural, and mechanical. Where the mid-century mobilisation of the machine, as an agent of industrialisation, initiated widespread and long-lasting transformations to the natural environment, the late modernist machine provides a lens through which these failures can be documented and reconstructed, as well as the social and technological shifts that orchestrated the modernist machine's obsolescence. Through all of this, Wangi provides an effective and faithful backdrop as both the machine of industrialisation and the lens through which it can be viewed. It repositions industrial architecture in an expanded canon of architectural drawing and representation and resituates decay as an agent of innovation, rather than collapse. This shifting of narratives, and the techniques for documenting it, provide a lens through which to reconstruct the history of the modernist project, its optimism, its pessimism, and its ultimate incompleteness.

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LOUISA KING AND TAMSIN SALEHIAN

Cartographies of care—ecologic thinking-with the bio-geo-microscopic life of the West Antarctic

The paper responds to the geographies and ecologies of the distant polar south, West Antarctica, separated from the populated continents by a thick noisy zone of wind, wave and current. Deep-time reading and ecologic care practices are proposed as cartographic tools to trouble the fixity of claim-making. Antarctica is not a mute imaginary; the icy continent speaks loudly, calibrating the speed of Anthropogenic change, providing a planetary pulse, measuring accelerations in human extraction and excretion. To understand the voice of the Dry Valleys of West Antarctica demands new and critical approaches that extend techniques of physical and perceptual inquiry. How might we encounter the microworlds there, apprehend the small cries of tiny creatures muted by the noise of Western progress and howling winds, register the air-catching tentacles of soft vegetative organisms? This project imagines a renewed relationship with the ecologies of the Antarctic through speculative cartography that enacts strategies of care from-afar.

Mapping Antarctica

Maps are troubling objects, entrenched in imperial logic. The history of cartography in Antarctica follows a Western legacy of knowledge production for the expansion of empire, and consolidation of the authority of the north (Glasberg, 2012). Aristotle first suggested that an unknown expanse of land must exist in the far south, if for no reason other than as a counterweight to the land masses of the enlightened north (Aristotle and Webster, 2001). *Polus Antarcticus Terra 1639* (Fig. 1), by Dutch mapmaker Henricus Hondius, imaginatively proposed the southern half of the globe as swathed in unknown terrains. In the Enlightenment imagination, Australia, the fifth continent, and Antarctica, the sixth, were immense yet incomplete propositions: Cingulus Australis (The Southern Zone); Terra Australis Ignota; Terra Australis Incognita (The Unknown Land of the South); or Terra Australis Nondum Cognita (The Southern Land not yet Known) (Ross, 2003: 2). Drawn on a piece of gazelle skin in 1513, an Ottoman Era map credited to cartographer Piri Reis, (Fig. 2) depicts the rocky coastline of the Antarctic from beneath the ice, the oldest surviving map of the continent (Wilson, 1964: 15). These Western cartographic imaginaries attempted to determine the

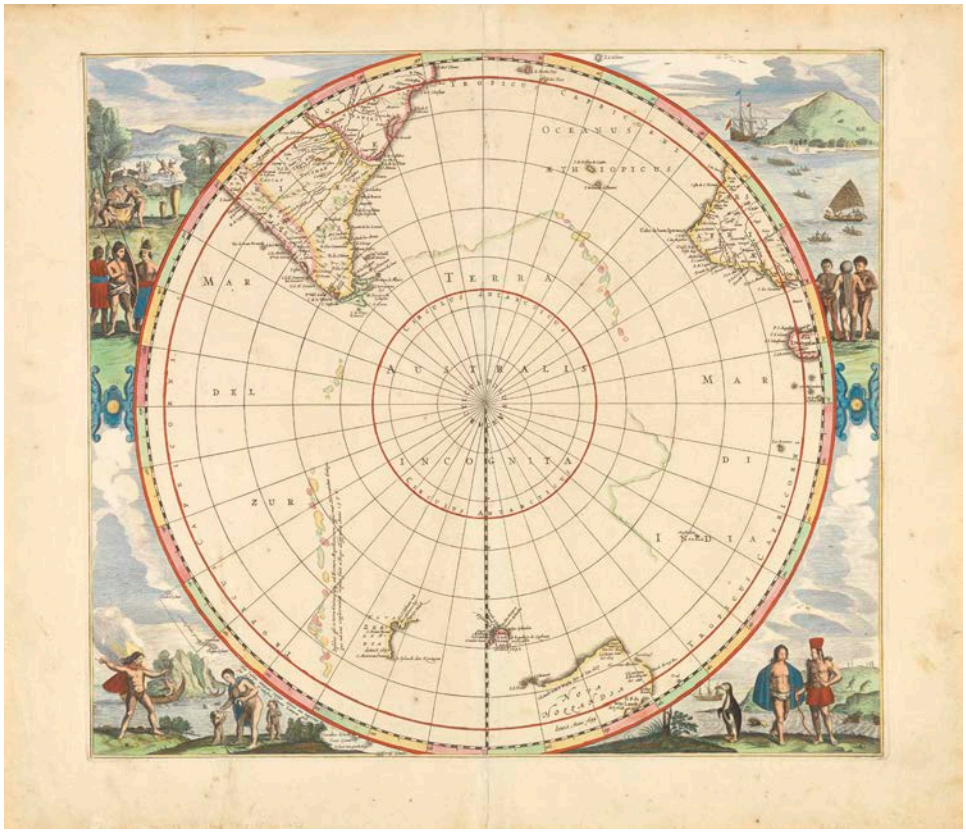


Fig. 1. Henricus Hondius (1639). Polus Antarcticus Terra Australis Incognita. [Cartography, Allport Library and Museum of Fine Arts, Tasmanian Archive and Heritage Office]

unknown polar south, but in doing so rendered it mute, as an inaudible terrain.

Antarctic cartography expanded during the first half of the twentieth century, was consolidated with the 1932–33 International Polar Year Antarctic expeditions, and realised in the territorial claims of the Antarctic Treaty System of 1959. Geopolitical and technocratic interests drove new forms of global claim-making (Glasberg, 2012: 6), informed by geographic positioning, geographic information systems (GIS), and remote sensing technologies. Mapping techniques were developed alongside this cultural backdrop of claim-making. The central role of traditional cartography is to determine the terrain, through setting the agenda for mapping its traits. Physical objects, mountains and glacial masses are associated with abstract traits: place names, borders, and political boundaries eclipse the presence of physical entities. The map's capacity to locate and name establishes relational dynamics between the mapper and the mapped whilst upholding the authority of the cartographer's gaze. Cartography is a universalising and normalising instrument of empirical objectivity, deploying exclusions and inclusions, establishing hierarchies and overlaying values on subject sites.

Worlding

Cartography assumes the map is a bodiless, unequivocal form of knowledge. Within this, and recognising that all knowledge production is situated somewhere, the politics of the cartographer's location comes into focus. The distanced and data-driven characteristics of GIS define it as a tool

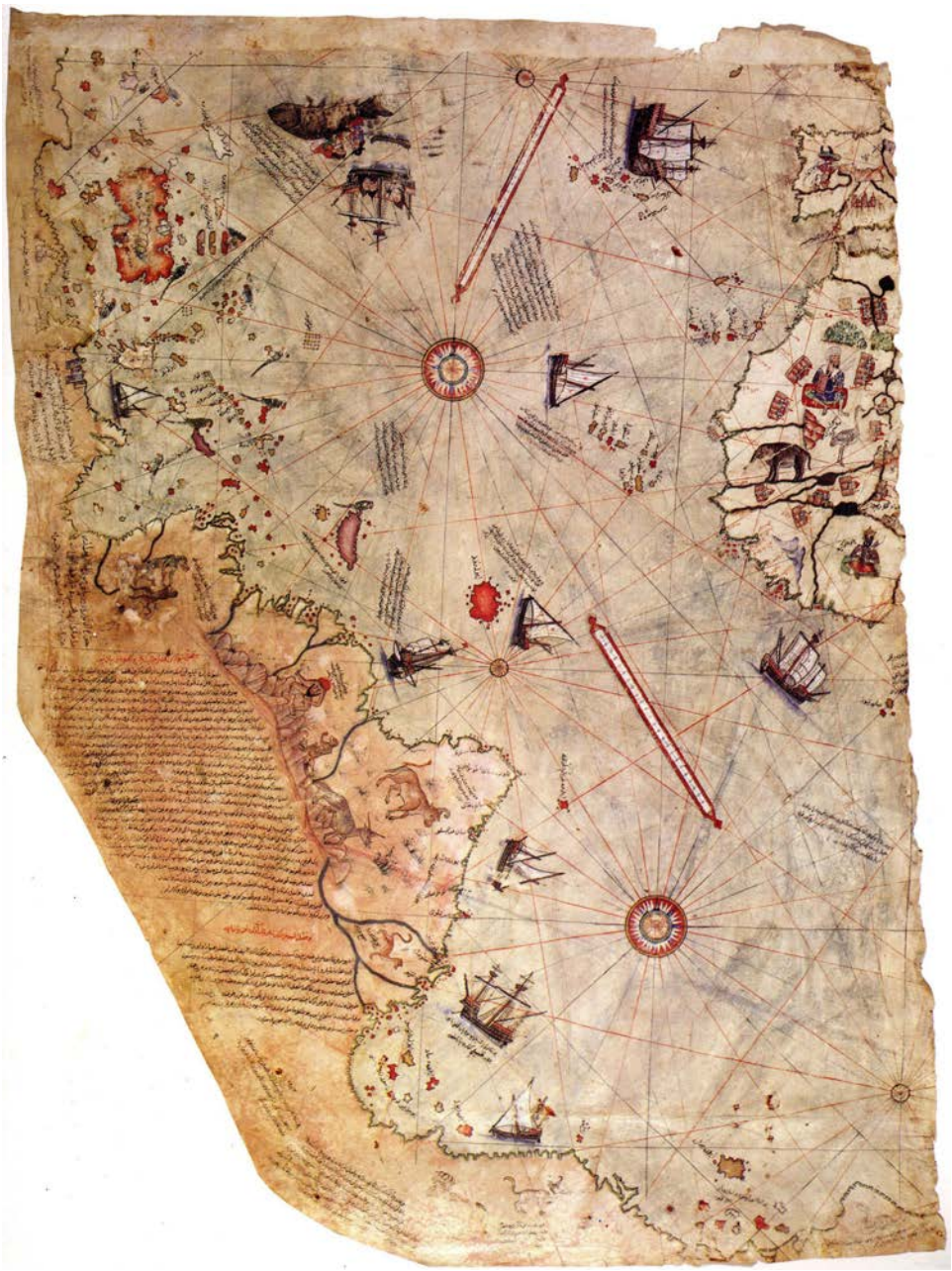


Fig. 2 Piri Reis (1513). Map fragment. [Cartography, Library of Topkapi Palace Museum]

for objective and empirical description, that assumes a subject as always able to be defined and located (Crampton & Krygier, 2006). Geographer Mei-Po Kwan interrogates the positivist observational epistemology of GIS, proposing that feminist geographies are ideally placed to reimagine the possibilities inherent in GIS technologies through feminist critical theory and practice (Kwan, 2002). Feminist geographies question assumptions of legitimacy, in forms of knowledge production, and propose embodiment and affect as productive challenges to the prevailing "removed observer". (Pirani, Ricker & Kraak, 2020).

Research observation and monitoring typically happens far from Antarctica's fragile and extreme landscapes—remotely sensed data and satellite imagery is transmitted to research institutes situated across the globe.

In a phenomenological framework, where physical touch and first-hand experience are given superiority over the virtual, this distance would signal an ethical dilemma (Braidotti, 2014, 327). A material ontological framing questions the authority of technological recording mechanisms and the individuated subject (as something "in the field" and "all-knowing") and, instead, points to a collective approach where data is communal and material vibrancies connect across sites and sources. Interlacing feminist methodologies with Antarctic data unsettles the stability of conventional cartography and includes the ethical and political narratives of more-than-human others.

Critiques of mapping, along with the precarity of the quiet places suffering ecological collapse, suggest a need to rethink concepts of territory, including reimagining the tool with which it is observed: cartography. The creative mapping project described in this paper involved such reimagining. Life forms of the West Antarctic dry valleys were mapped, through a cartographic locating and representing that was also a process of material translation, a *thinking-with* ecologies (systems) and their geographies (locations). This concept of "thinking-with" is informed by feminist philosopher of science Donna Haraway's approach to situated knowledge production, in which relational processes can express conditions for mutual flourishing and affective mattering (2016: 35). Thinking-with the other is an ontological condition of becoming-with. Thinking-with Antarctic ecologies is an encounter framed by *ecologic listening* to the other. Listening as an embodied practice is a type of situated knowledge, an approach to thinking-with prioritising small ecological interactions, an intimate performance of mutual "ongoingness".

Ecologic listening requires an active, attentive openness to voices of the other, to tempos and volumes, miniature sounds and movements. When used as a tool to "think-with" ecologies and data, ecologic listening suggests open ways to tune in to other domains, allowing the act of listening to be informed by "outside inflections". Listening in this case does not necessitate nor does it exclude the sonic—as hearing and listening are not mutually exclusive concepts. It is a call to attend to the quiet connections between things, to pay attention to the qualities of activity that form relationships, to recognise geologic intricacies and microscopic temporalities. "Listening, like speaking, is not neutral. Listening with care is an active process of intervening in the count of whom and what is ratified as concerned; it affects the representation of things, adding mediation to mediations" (Puig, 2017: 58). Ecologic listening draws from critical cartography, which deploys synthesis and speculation, to develop a radical practice that intensifies affectual imaginaries. It reorientates the navigational potential of mapping to an ontological direction of thinking-with and an ecologic listening-with as modes of creative worlding.

Worlding is the collective attempt to reimagine and express the spaces of dwelling of both human and more-than-human worlds, a way of thinking together or thinking-with (the other). Worlding, in this sense, seeks to include the other or those left out of dominant narratives, to re-establish identity and places with a new form of claim-making. Åsberg, Thiele and Van Der Tuin recognise worlding as a "situated and materialising speculation" which "implies both the envisioning of a different world and a challenge to taken-for-granted pieces of knowledge by situating them in specific historical, sociocultural, material and bodily contexts." (2015: 9) Worlding is an

ontological practice that recognises matter and relationships as heterogenous, contextual, embodied, and embedded (Puig, 2012: 198), it is an act of care, grounded in feminist discourses of accountability (Puig, 2011). Donna Haraway's call to actively reimagine a non-anthropocentric world through a multi-species, material-semiotic becoming-with, hinges on a stance emphasising intimacy without proximity (Haraway, 2007: 4). A speculative approach to care connects to this intimate yet not proximal worlding, via the multi-species patterns and intra-actions across distances (Haraway 2016: 2). Haraway reminds us that as we inhabit the world and the world inhabits us, we tell situated stories; "it matters what stories we tell to tell other stories with; it matters what knots knot knots" (Haraway, 2016: 12). The stories matter, as they speculate upon the politics and social dimensions of future worlds. An ethos of listening with care, to enable "speaking for subaltern epistemic things" (Watson, 2014: 935), underpins our disrupted mapping methods as tools of design that navigate novel forms of worlding.

Reworlding Antartica: Stony worldings

Taking in a prospect of Antarctica's McMurdo drylands, a viewer might be perplexed. Their eye is met with exposed rocky landscapes, extensive glacial stone wash plains, brown, black, grey but not much white, not much ice. The absence of snow does not signal a less harsh environment than Antarctica's frigid interior however. Rather, the exposed coastal terrain results from 300 kph katabatic winds exhaled down into the valleys, heating as they hammer down and dissipating almost all moisture in their passage. Still, the freezing, arid and depleted permafrost affords some species a favourable environment for growth. In this frozen desert, these creatures have developed through time an "earth/body" collaboration with Antarctica. Endolithic bacteria and extremophile mosses have been found living in the Dry Valley, sheltered from the dry air in the relatively moist interior and crevices of rocks.

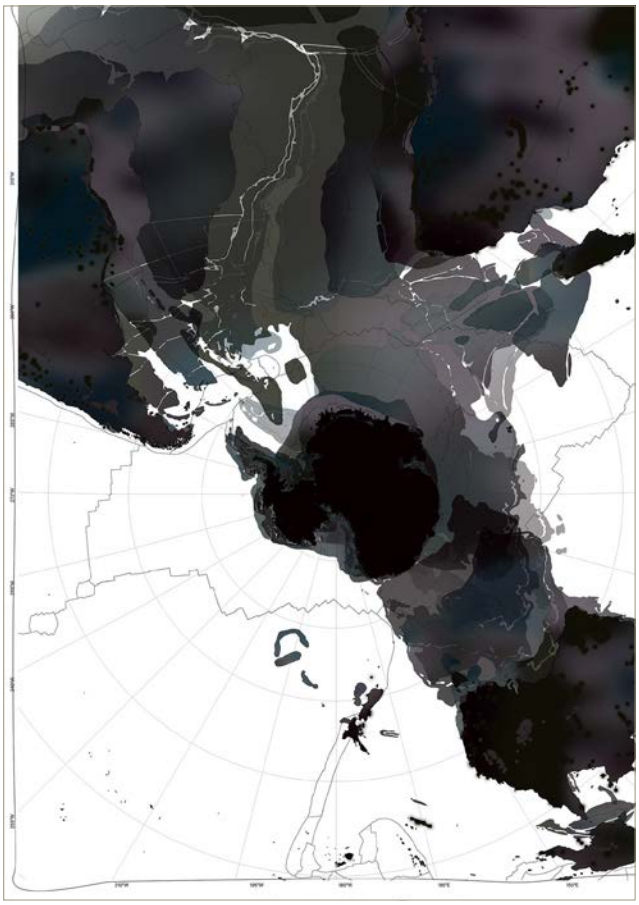


Fig. 3 Patrick Fitz-Hayes & Georgia Gamieson (2020). Geologic intricacies. [Cartography, UTS]

The label endolithic refers to organisms living in or penetrating stone (rock); "endo" internal of lithos "stone" worlds. They colonise fissures and cracks in geologic material, forming tunnels as they move. Within stone, the endolithic are stationed to wait for opportune conditions to flourish. As autotrophic digesters, endoliths make their food by exploiting gas or dissolved nutrients from water moving through the fractured rock around them. The microorganisms bore into the rock, excavate the material substrate and create pore spaces for their growth. (Wierzchos, 2006: 790) With the stone, the endoliths make spectacular unions as the rocks themselves conform to their body shapes–they consume and construct in collaboration with geologic processes.

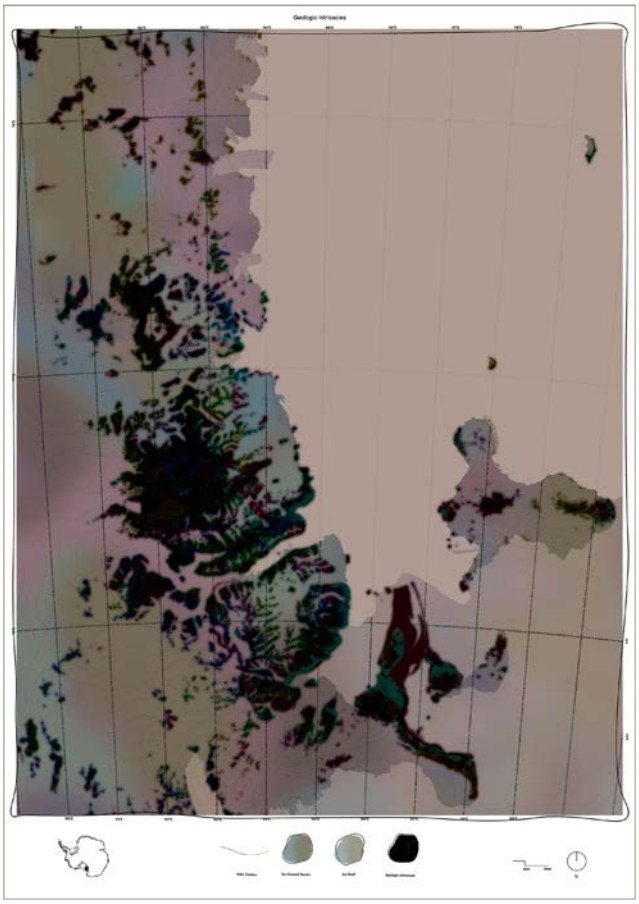


Fig. 4 Patrick Fitz-Hayes & Georgia Gamieson (2020). Tectonic shift and the extractive environment. [Cartography, UTS]

The map, *Geologic Intricacies* (Fig. 3), begins to chart the story of the endolith. These seemingly insignificant creatures have followed mineral-rich flows of matter since the Archaean Eon, 4,000 million years ago (ma), the time following the Big Bang when the Earth's crust had cooled sufficiently for continents to form, and the earliest known life to appear. These ancient life forms and geologies have witnessed deep pasts, and may signal unknown futures. To narrate these extreme communities in McMurdo, the mapping surveys the granitic and dolerite intricacies of the place, which resulted from tectonic collisions, long erosions and inhabitation by delicate organisms.

During the Mesozoic Era (200ma), Antarctica was the centre of Gondwana, the supercontinent that comprised the current-day South America, Africa, Antarctica, Australia, the Indian Subcontinent, Zealandia, and Arabia. The drawing, *Tectonic shift and the extractive environment*, (Fig. 4) calls forth the tectonic journey of Gondwana, as it fragmented in a clockwise process that propagated from the interior of Antarctica into the satellite archipelagos, now known as the Indo-Pacific region. Following the narrative of Gondwana through shifting climate and geology we see the flourishing and collapse of distinct life forms. The Antarctic has brought with it, through those tectonic drifts, the endolith, an ancient primordial subject. Speculating on overlaps in tectonic plates, the map traces the endolith journeys in the McMurdo. The maps (Figs. 3 and 4) narrate the pervasiveness of microbial habitation within the gnarled apertures of rock, their extraction, excretion, and embodying behaviours that co-form the soils and rocks themselves.

Gondwana's breakup began with the rifting of Africa and Antarctica, with lands crashing and tearing apart. The high cliffs of McMurdo, where the cold winds rush down, are the crumpled edge of that rifting event 220 million years ago. Nestled within the Jurassic dolerite rock of the rifted land is the current habitat of the endolith. Within those weathered folds of the rock, soft vectors in the drawings stage the habitat as a dark entity. Darkness in this map dampens the multiple layers of geologic deposits, allowing the intersection of biotic and abiotic worlds to become illuminated. Thin patching vectors undo the fixed precision of "the breakup" to make legible the habitat of extremophile communities.

As one of the extremely cold and dry earthly edges of existence, (O'Reilly, 2017), Antarctic micro-life still flourishes in the rugged escarpments of McMurdo. Mapping their flourishing followed lines of movement–creeping, exploding, crystallising, spitting, leeching, burrowing and breeding. Surviving on minute traces of iron, potassium, sulphur and carbon, the endolith remains dormant for most of the year. The interactions of the tiny and gigantic multi-species network entangle rock and organism in an ecologic commons. The drawing, *Predicting endolithic flourishing* (Fig. 5) records the relationship between rocks, substances

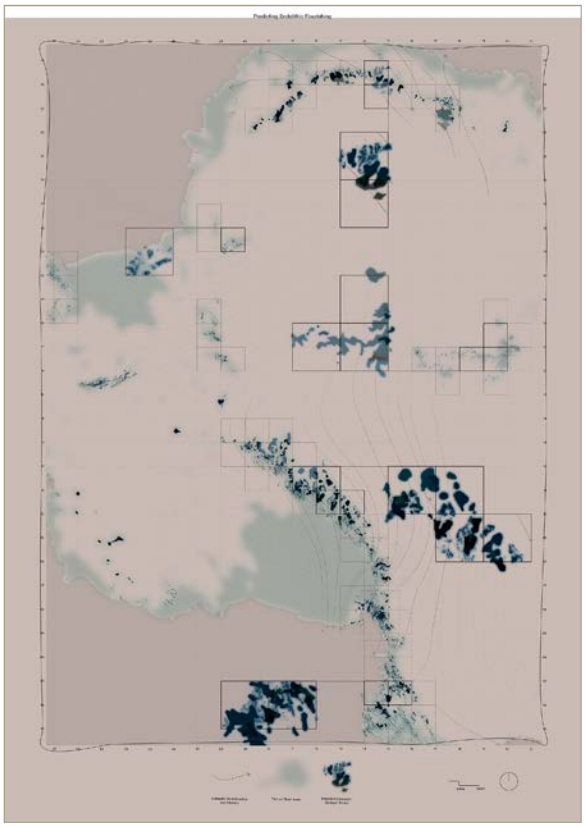


Fig. 5 Patrick Fitz-Hayes & Georgia Gamieson (2020). Predicting endolithic flourishing. [Cartography, UTS]

Fig. 6 Patrick Fitz-Hayes & Georgia Gamieson (2020). McMurdo Dry Valleys habitation study. [Cartography, UTS]

embodying deep time, and gales that sweep down the mountains, carrying nutrients that fall into the bodies of the extremophile. Encounters with wind and rock allow the endolith to flourish: a deep time sleeper, dormant in some cases for 10,000 years, slumbering long beyond human temporalities, awaiting suitable conditions, awakening in interglacial periods, living through Snowball Earth conditions and surviving greenhouse effects and ice ages.

Cartographic reworlding suspends conventional temporalities, yet reveals how the habitats of quiet places might divulge a new temporal awareness of an unstable climate. Intensifying the agency of drawing to map the endolith, the lines of the drawings hover between time past and uncertain futures, in a thickened present, a temporal state outside western narratives of progress that underlie much of conventional cartography's perceived use-value.

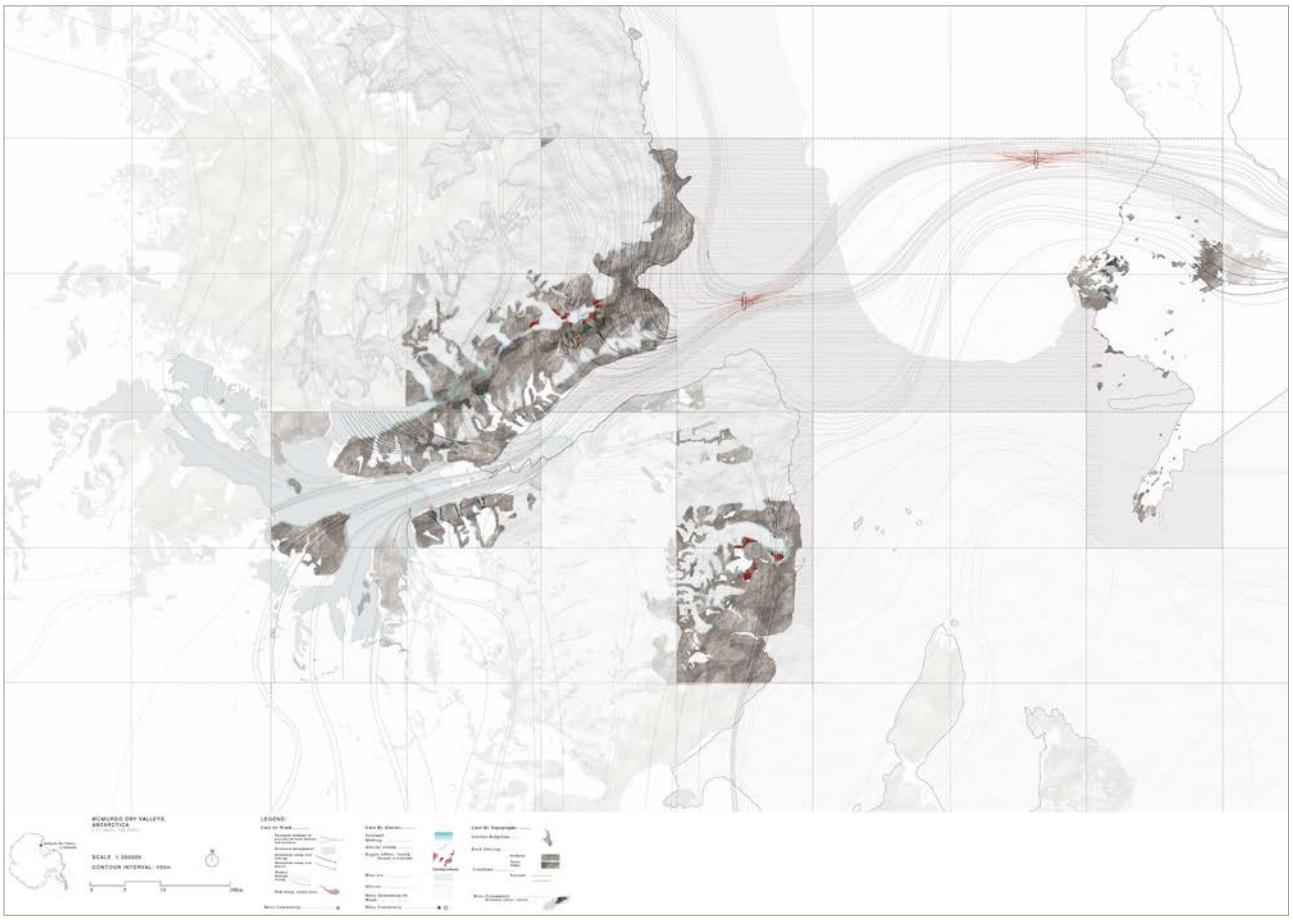
To map worlds is to reveal a context or background (Anderson & Harrison, 2010: 8). Re-mapping endolithic communities in McMurdo Dry Valleys, reframes their temporal and spatial scales which prompts questions as to climate oscillations and their impact on the uncertain future of the human. The maps' scale is intentionally large, mapping territories at 1:1,000,000 and greater. *McMurdo Dry Valleys habitation study* (Fig. 6) called for geology, the cryosphere, and territorial delineation to inform the mapping of this context. As a territorial claim delineates geography, cartographic borders define the fixed extents of governance. As we begin to understand the ubiquity of microbial habitation, this definition buckles. A new collection of maps blurs numerous unstable boundaries. In mapping the 'endolithic commons' a place of multispecies negotiation, integration

and confrontation emerges. Typically, maps in Antarctica fall into three categories; geology, cryosphere and territory; to map the habitat of the endolith, *Dry Valleys habitation study* mapped all three at once: rock, ice and space together.

Re worlding Antarctica: Ecologic listening

Cartographic fixing organises place, distance and spatial relationships into alliances (Vazquez, 2017). Mapping in terms of care calls for speculative methods that trouble the privileging of hierarchy and make an appeal for cartographic fixing to undo, rather than redo stratifying power structures. In Antarctic geographies, the distanced view is unavoidable. To remake hierarchies of fixing or to "unfix" Antarctic cartographies, thinking-with the microscopic worlds of moss through a considered ecologic listening, a method for recognising, interrogating, and working with this distance. Mapping the moss *Hennediella heimii* placed the subject of cartography within a set of relations which included the mapmaker as affected by the subject being mapped. Loraine Code defines an embodied approach as "revisioned modes of engagement with knowledge, subjectivity, politics, ethics, science, citizenship, and agency, which pervade and reconfigure theory and practice alike". (Code, 2006: 24) With these concerns the "listening" cartographer operated through an embodied sense of listening-out-for as a tool to notice interactions between elements in the geography, paying attention to the complex relationships formed between the biotic and abiotic materials of landscapes.

Fig. 7 Alexandra Duff & Olivia Monteleone (2020). Threads of receptivity. [Cartography, UTS]



To think with moss is to get to know the world of moss, recognising the need for the researcher to become open to the physicality of the other. Moss grows through cellular layering, a slow expansion of the body. Cells don't exchange material in a traditional process of plant formation, rather each cell is discrete, absorbing and transpiring, drying and desiccating, a pulse of fast growth and equally fast decline in long, dormant winters. This process holds difference within the individual organism while simultaneously paralleling the totality of geographic interactions and the attendant affect each material enacts upon the other. In this time of vast anthropogenic reach, this practice of cartography is proposed to recognise the agencies of others and their precarity by making visible interactions that form ecologies of care.

The drawing, *Threads of receptivity* (Fig. 7) located the pulse points between moss colony distribution, katabatic winds and water. The map reorganises physical geographies into material conditions of care. Entangled interaction of katabatic winds and the hydrology of the valleys suggest care by topography, care by coastline, care by glacier, care by crevasse. This restructuring of territory performatively charts the liveliness of the abiotic worlds in the valley. In mapping these ecological processes, through a reimagined cartographic method incorporating their affect, they are given agency to disrupt the conventions of geographical species distribution mapping.

GIS data and scientific research are the main methods for getting to know the icy world. GIS is a tool that has been critiqued for its positivist and "god's eye" view

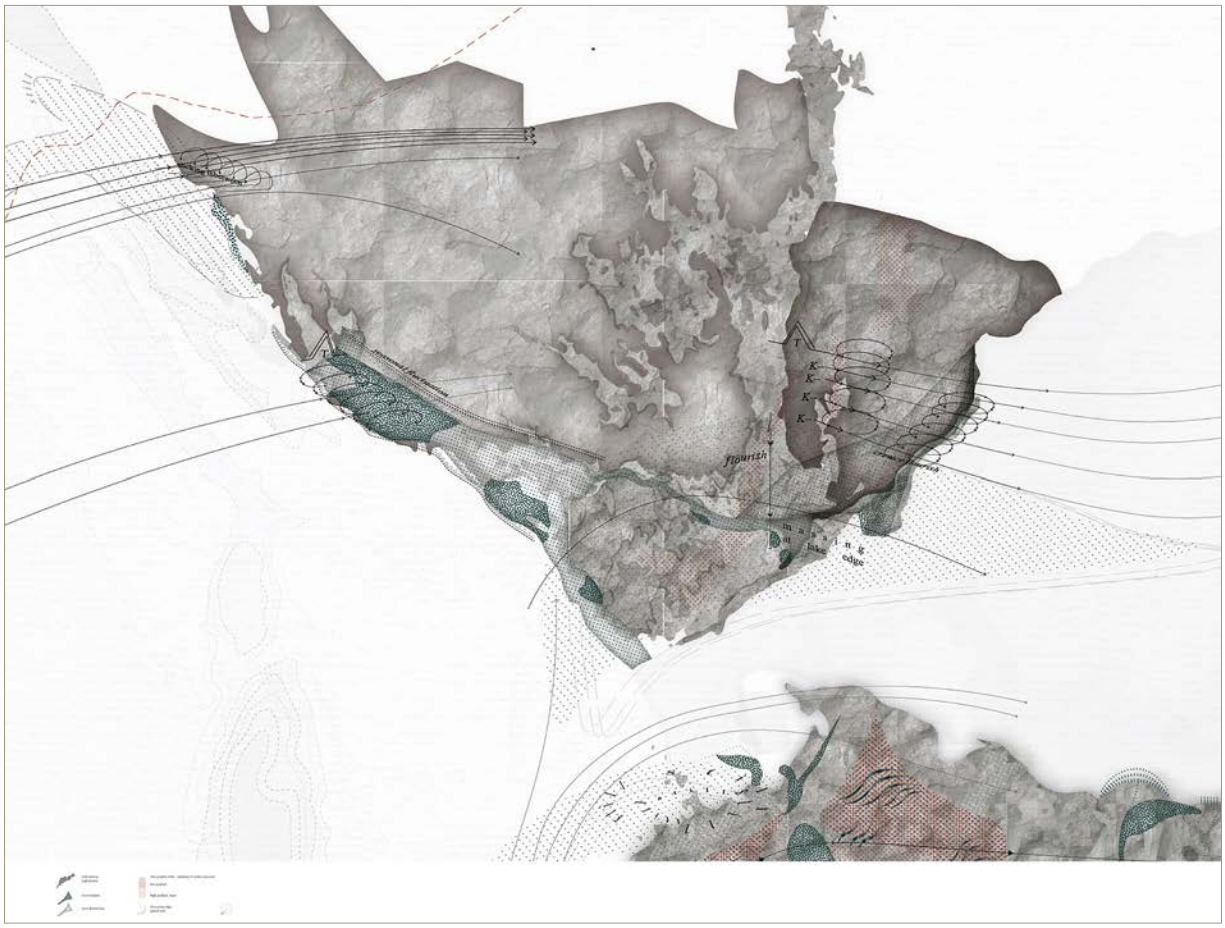


Fig. 8 Alexandra Duff & Olivia Monteleone (2020). Knotted motion, behaviour map of *Hennediella heimii*, Canada Glacier, Taylor Valley (detail). [Cartography, UTS]

of landscape (Kwan, 2002: 650). The hyper-separation of the subject encouraged by GIS technologies is reflected on in the *Threads of receptivity* mapping through a stance of empathy as a care strategy. This requires the researcher to notice the multiple interactions that occur within moss ecologies. The drawing was used to attend to the points of interaction, informed by the biologic processes of moss, and bridges the gap between cartographers, data and site. Empathy to data requires a hyper-awareness of the material world of the moss, to embrace otherness and synthesise a sympoietic ontology.

The speculative mapping in *Threads of receptivity* aims to show the precarity of moss. Cartographic care practice must come, or extend, to domains other-than-human. The process of mapping *Hennediella heimii* attempts to rediscover the agency of moss as a mediator within the arid, polar desert (Fig. 8). Care is revealed as intra-action, a process of enhancement through material relationships. Karen Barad states intra-action is the reciprocal nature of agency, where all "things" are exchanging, diffracting, and working inseparably, recognising the impossibility of classically understood objectivity (2007: 141). Expanding mapping to include a range of nature-culture assemblages, which are generally not aligned, poses an alternative to the more familiar expression of datasets. *Knotted motion* (Fig. 8) draws the knotty relationships of moss as a form of claim-making, to reinstate the political situatedness of the non-human. Encapsulated in knotted motion (Haraway 2003: 6) surface conditions and materials absorb, shift and change as the community of plants becomes a material register.

The slow-growing body of Antarctic moss charts up to 500 years of wet and dry seasons, cataloguing atmospheric carbon levels absorbed by the plant's cells and documenting particulates that travel through Antarctic atmospheres. The intricate surface structure can capture and hold material, creating conditions for microbial cascades of life as it performs a micro-geoengineering role within Antarctic landscapes (Ball, 2014: 652). This is not a benign record. The moss is intimately connected to international industrial processes and is a particularly sensitive bioindicator and climate register (Gabrys, 2018: 356). Organochlorides, DDT, and other toxins that move through the global food chain are all found in Antarctica's moss. (Bhardwaj, 2018). This record expresses the slow violence of distant pollution and global politics. *Hennediella heimii* knots microscopic registrations of the climate history of the Dry Valleys in a cellular archive. Ice time—Antarctic time—disrupts the modernist project of Anthropos time and becomes a multispecies call to arms and action.

Care by moss: threads of receptivity (Fig. 9) charts material registers that catch, hold and extend the mossy bodies. Isabelle Stengers writes that ecologies are entangled modes of coexistence, strategies of co-becoming that can be expressed as a form of reciprocal capture—a dual process of identity construction that co-invents and is simultaneously identified by risk (2010: 36). These risks emerge through additive encounters and transformation. The wind that knots with moss is a harsh desiccating force, instantly drying outgrowing cells, yet this initiates a dormant period before freezing, enabling the moss to persist. Thinking with moss challenges human understandings of time and temporal scales; it also challenges the perception of bodily boundaries.

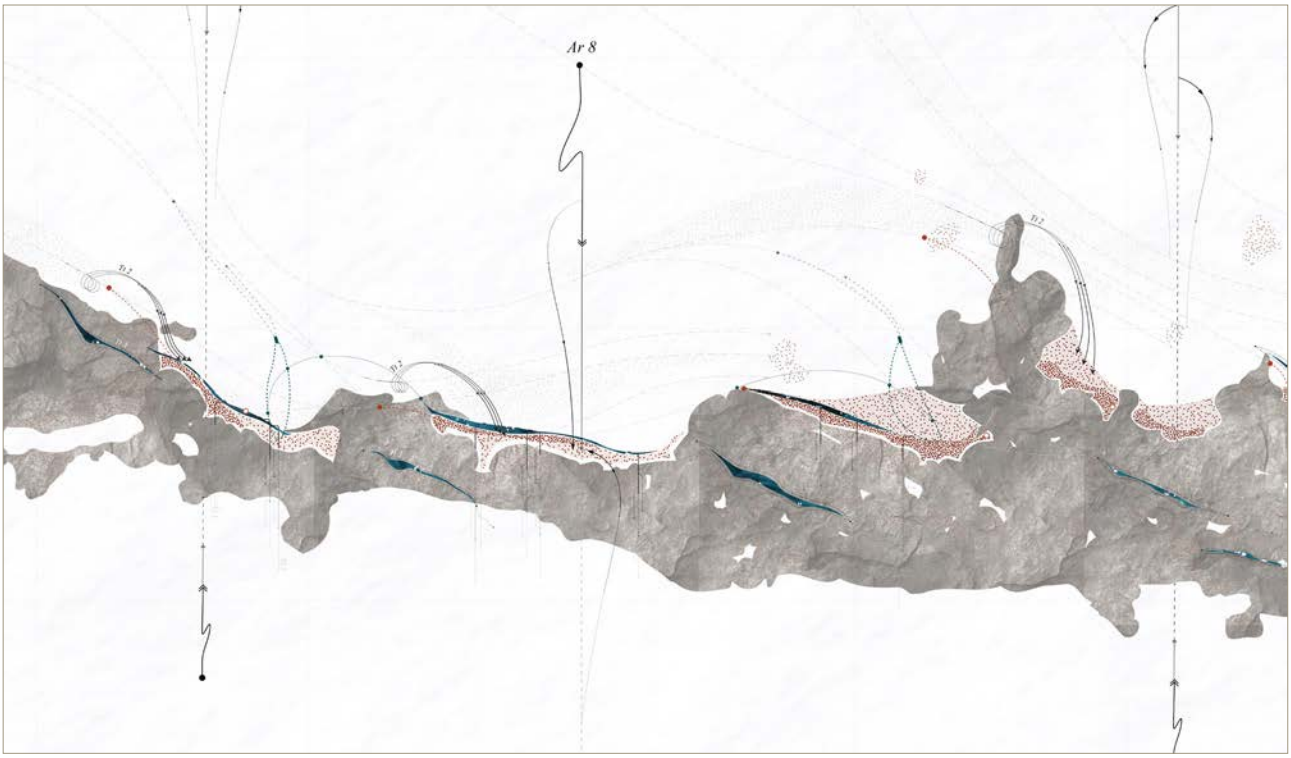


Fig. 9 Alexandra Duff & Olivia Monteleone, (2020). *Care by moss: Threads of receptivity* (detail). [Cartography, UTS]

Conclusion

Speculative cartographic practice has the potential to explore the ethical and political narratives of non-human entities and requires the mapmaker to consider the ontology of the other. As a decolonising practice, this constitutes a practice of care. Feminist thought reveals that knowledge practices are political: partial perspectives are present in all knowledge projects (Haraway, 1988), and thinking and doing are relational acts of material semiotic co-composition (Haraway 2007).

Deborah Bird Rose recognises reciprocal capture as stemming from alternate knowledge forms, a shift in thinking from linear discussions to alternative ways of comprehending time, space, and species interactions—a form of seeing "their realities" (2017: 52). This calls for an imaginative repositioning of the mapmaker within the polar environment, an ecologic listening for such things as moss, hearing its intimacy and cellular otherness. This qualitative and interpretive approach uses affect to gain knowledge hidden within the logic of datasets. This drawing of experiential knowledge is overlaid on the scientific data.

Thinking with mosses and distant Antarctic deserts engages with imaginaries of landscapes intimately connected to contemporary change. While ecologies in Antarctica appear remote, they express the physical reception of global material flows, a far from benign indictment of the reach of human worlds. In the highly consumptive space of the west, the noticing of traces and affects in a distant geography speaks to the quiet, persisting co-creative acts of landscapes. Looking to these quiet places proposes generative relationships for living in the Anthropocene.

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CHRIS FRENCH AND MARIA MITSOULA

(Un)Fixing Aloula: Maps, images and paradigms of The Attic (Marble) Landscape

What follows is a narration (textual and visual) of an encounter with the Open Air Museum of Quarrying Arts in Aloula, Dionysos, on Mount Pentelicon. Aloula is a "repair-scape", site of a former marble quarry that was "fixed" in 1997 following decades of abandonment. Our narration, through Aloula, aims to un-fix historic (sentimental) representations of Mount Pentelicon, the most celebrated marble mountain in Attica. It explores drawn and written accounts of the mountain, and offers a critique of these accounts as representational instruments. Through Vilém Flusser's acute observation in Natural:Mind that the relationship between the landscape and map has inverted—where the landscape once guided the map, now the map guides landscape—we posit that this inversion of map (image) and landscape is challenged when seeing Aloula, both as a "concrete" site in the world, and through a collection of panoramic representations of Aloula exhibited at the Fondation Hellenique, Paris. As an example of a particular type of repair, Aloula offers new ways to conceive of the "repair-scape" (Lepawsky, Liboiron, Keeling and Mather) as a site of un-fixing and subsequently re-making our understandings of city-landscape relations. Aloula becomes a reciprocal landscape (Hutton, 2019) in dialogue with the city of Athens.

Throughout we refer to an interview conducted in July 2021 with the designers of Aloula, urban landscape sculptor Nella Golanda and architect Aspasia Kouzoupi, to offer their recollections and reflections on making Aloula, almost 25 years after completion. Their voices and views, that of the sculptor (once an engraver), and that of the architect (having also studied Fine Arts), are sometimes different, sometimes complementary. They developed the project together, mother and daughter. Our parallel narration, through text, image and conversation, seeks to present this specific repair-scape as a paradigm of sympoēsis, a paradigm that embodies a complex making-with—a making-with people, with material and matter, and with the earth—that approaches the question of "fixing" through specific, situated eyes.

Seeing Aloula. An encounter, June 2018

At the end of Leoforos Pentelis, winding through northern Athens, Mount Pentelicon rises slowly into view from behind ever-expanding suburban

developments. Pentelicon (or Vrilisos in classic literature), Parnitha, Hymettos and Aigaleo frame the triangular peninsula of Attica: the rocky (limestone) Mount Aigaleo to the west; the densely forested Mount Parnitha to the north (the tallest of the four mountains); Mount Pentelicon to the northeast; and Mount Hymettos to the east. To the south, Attica stretches towards the Saronic Gulf. The mountains embrace Athens, spreading southwest to the port of Piraeus, and separate the city from the plains and valleys to the north. Creeping through the traffic leaving the dense *polykatoikies* of Chalandri for the offices and hospitals of Marousi, and passing through the low-rise villas of Vrilissia, we move toward the mountain, eventually leaving the sprawling city to continue its own inexorable climb up the foothills of Melissia and Nea Penteli. We rise up Dionisou. Turning east toward Nea Makri and Marathon, we follow the dusty road twisting over the dry, south-facing slopes of the mountain before turning west—a sharp turn marked by the aptly named Panorama Coffee—into valleys hidden from Athens' view by the mountain, and descend toward the suburb of Dionysos, nestled in a valley on the north slope of Mount Pentelicon. It is early June 2018, and already hot. We park an exhausted Fiat 500 ("Urban White", now sporting a distinctly non-urban "Dust Brown" coat) on a street of villas, and set off south, on foot, up a loosely compacted stone road into the hills. The forest of pine, spruce and fir trees provides some shade, for a time, before we emerge into a clearing in a stone cutting: the entrance to Aloula, the Open Air Museum of Quarrying Arts set within an abandoned marble quarry. A large chunk of white marble stands in front of a fixed-up ruin in greeting.

Fig. 1 Nella Golanda and Aspasia Kouzoupi (1997). Open Air Museum of Quarry Arts, Aloula, Mount Pentelicon. Restored Houses for Seasonal Workers. [Photo: Maria Mitsoula, 2018]

Fig. 2 Golanda and Kouzoupi (1997). Aloula, Mount Pentelicon. Scree Slopes and Stone "Turtles". [Photo: Maria Mitsoula, 2018]

Fig. 3 Golanda and Kouzoupi (1997). Aloula, Mount Pentelicon. Sculpted Faces, New Walls and Staircases. [Photo: Maria Mitsoula, 2018]

Fig. 4 Golanda and Kouzoupi (1997). Aloula, Mount Pentelicon. The "Inverted Turtle". [Photo: Maria Mitsoula, 2018]

Making Aloula

Accounts of modern quarrying operations in Aloula vary. Some sources state that most of the quarrying operations were conducted by an English company, who continued to extract marble until 1948 when the rights to quarry were purchased by the Greek company Marmor Ltd (who became Dionyssomarble S.A.). This company continued to quarry marble here until 1986. Others describe the quarry closing in 1940 following Greece's entry into World War II. In either case, the quarry, which was named after a contractor who worked in the area, provided stone slabs for pavements in the streets of Athens and dressing squares in London, and smaller blocks of marble for forming the sinks and other everyday objects which adorned the Neoclassical houses of Athens. In 1994, the company Dionyssomarble S.A., which still operates quarries on the northeast slopes of Mount Pentelicon, commissioned sculptor Nella Golanda and architect Aspasia Kouzoupi to turn the marble rubble left behind from the quarrying operations into an Open Air Museum of Quarrying Arts. The project to re-occupy Aloula was completed in 1997, covering an area of 33 acres.

Fig. 5 Golanda and Kouzoupi, with Johanna Weber (2007). Panoramas of *Dionyssos Quarries: Open Air Museum of Ancient Quarrying Arts*. [Courtesy of the archive of Sculpted Architectural Landscapes: N. Golanda + A. Kouzoupi and Johanna Weber]

Amongst the maze of ruined buildings and marble debris left on the site, Golanda and Kouzoupi exposed the remains of a long chute (used to move cubes of quarried stone from the hillside to the railway station in Dionysos below, for transportation to Athens), inserted new pathways, and added stairs climbing the mountain, culminating in a "belvedere" looking to Marathon. The project, in its simplest form, could be described as an invitation to walk. Through walking, one finds the successive levels and networks of trails which extend to a raised plateau, and connect with a pilgrimage route to the Monastery and Church of Saint Panteleimon at the summit. But on the ground, nothing is so clear. The project follows the natural contouring of the mountain as much as the paths of the quarrymen, abandoned and subsequently uncovered, and disappears into both the

undergrowth and the exposed stone surface of the abandoned quarry. Curated collections of stones merge with scree, the constructed augmenting the "natural" landscape. In the abandoned quarry Golanda and Kouzoupi describe, the "natural and artificial [...] harmoniously composed a kind of code that we chose to read and reinforce [...].part of the becoming-landscape" of Aloula (N. Golanda and A. Kouzoupi, personal communication, July 21, 2021). Through sketches, they sought to decode the mountain itself, in its entirety, the sculpted faces (exposed by traditional methods of quarrying based on careful readings of the fissures in the material), and those *"damaged areas"* where the brute force of the machine (introduced in the last decade before the permanent closure of the quarries) left a different kind of mark on the landscape, less respectful of the complex structures of marble. Shaped by the lines of geological faults and exploited by the quarrymen, the sculpted faces became "the boundary between the mountain and the sky" (N. Golanda and A. Kouzoupi, personal communication July 21, 2021). Against the order of these cut faces "the hills that were formed from fragmented material [created], with their presence, a sense of disorder in the landscape". (Belogianni-Argyropoulou, 2004: 40). Golanda and Kouzoupi set about rearranging marble stones to support both, the found order and manufactured disorder of this landscape, adding another interpretative layer to that of geology and production in the reading of the landscape.

In the entrance "square" on arrival, low retaining walls establish open enclosures, securing the loose scree slopes above and protecting visitors from falling stone. More loose stone is gathered within and around the fixed-up ruins and at the base of the "scree" slopes further up the mountainside. Large boulders, unearthed by quarrying, have been relocated using traditional means to form keystones in new walls and staircases. The sculptor and architect emphasise that no machinery was involved in turning this unorganised waste marble into organised scattered matter; the project was realised "entirely by hand" (Golanda and Kouzoupi, 2003: 92). They envisaged the project as one of labour, a working-with landscape in which "the sheer effort of quarrying by traditional methods was apparent" (Golanda, 1997: 60). They worked with the stone themselves, and with five experienced quarrymen—Niko Gemeriali, Thoma Tsantoli, Emmanouil Louki, Antonio Panorio and Yiorgo Kritiko—who had worked in the area when the quarries were active and had a special relationship with, and deep understanding of, this landscape. Kouzoupi stresses the collaborative aspect of the project and the importance of following "the limitations, perceptions and abilities of others" (N.Golanda and A. Kouzoupi, personal communication, July 21, 2021). The quarrymen knew how to handle and make-with the material, and the project became a *"learning process"* for Kouzoupi and Golanda, discovering what the quarrymen could do, the techniques they used (which, significantly, differed from those of stonemasons), and for the quarrymen, shifting their attention from the extraction of material to its reconfiguration. Together, the quarrymen, Golanda and Kouzoupi spent three years on site, slowly developing a verbal and gestural code for communicating their careful makings on Aloula. Construction was slow. Golanda and Kouzoupi would visit every few months to review stone hills and slopes specified previously. They describe these slopes—constructed by turning over individual stones to find the smoothest surface for walking on—as *chelónes,* "turtles", a shorthand developed to delegate agency to the quarrymen. "From here to here, a big turtle," was an atypical architect's instruction (N.Golanda and A. Kouzoupi, personal communication, July 21,

2021). The ruined buildings in the upper part of the site—houses hosting eight to 15 migratory workers from the Greek archipelago for up to nine months of the year—were fixed using the same techniques as the traditional constructions on the Aegean islands on which the quarrymen lived: dry stone structures, no mud or mortar. The project involved both a making-with material and a making-with others, other people and other places.

In this making-with the project recognises its own artificiality, its artifice, and the tension between construction and the seemingly natural: visitors "move around by means of artificial hills, created during the excavation of the marble [...] which echo the surrounding landscape" (Golanda, 1997: 60). The combination of earthly, manufactured and arranged matter imbues visitors "with the spirit of construction that inhabits the site" (1997: 60). Aloula does not conform to recognised museological strategies, whereby material is curated and presented with accompanying explanations, set in time and in place by virtue of its exclusion, or in which the museum itself becomes the object of display. Rather, Kouzoupi describes the project as "an adventure in time," in which "the magnitude of geological time and human processes come together in a manner akin to hide-and-seek; it is not a museum where everything is clearly labelled" (N.Golanda and A. Kouzoupi, personal communication, July 21, 2021). Material is curated and displayed, but in such a way that we must enter this museum-landscape with a view to finding ways in which to discern its orderings, its histories. Aloula does not immediately disclose itself. The experience of encountering Aloula is akin to the encounter with the mountain as Golanda found it. She narrates her first visit to Aloula, being "taken in a van and left on the mountain, surrounded by stone," finding her way across the slopes, an embodied experience central to her approach to design that recognises "an unconscious force that comes as one spends a lot of time in a place" (N.Golanda and A. Kouzoupi, personal communication, July 21, 2021). Twenty-five years later, finding ways to discern our relationship with the landscape in time, is still both the subject and structure of the museum.

Imaging Athens. Fixed maps and images of The Attic (Marble) Landscape

This landscape is well-trodden. In the mid-seventeenth century, with the advent of the Grand Tour, the ancient marble quarries of Mount Pentelicon became some of the most visited places in Attica, second only perhaps to the Parthenon. Numerous pictorial and written representations of the mountain (*Marble quarry on Mount Penteli* by William Haygarth, 1810–11, *Latomies du Penteli*que by Otto Magnus von Stackelberg, 1854, *Quarries of Pentelicus* by Christopher Wordsworth, 1882, among others) are found in travel journals, paintings and archaeological essays from this time. Mount Pentelicon became as much a symbol of classical ideals as the marble monuments of the metropolis. By the end of the nineteenth century, the first official topographic depiction of the quarried landscape of the mountain was realised as part of a broader mapping project conducted by the geographer Johannes Kaupert and archaeologist Ernst Curtius. Originally conceived as a historical project, this survey developed into a national mapping project, and became the basis of several re-drawings of modern Athens. In these drawings, published as *Karten von Attika* (1895–1903), the ancient quarries are depicted in the same manner as the ancient monuments; both are coloured with the maroon ink that was used to indicate elements of archaeological importance.

This map, along with representations of the mountain in art and poetry, evidences changing perceptions of the city and its landscape driven by new forms of vision which had been emerging since the eighteenth century (Mitsoula, 2018). From the sketches of the Grand Tourists to Kaupert and Curtius' maps, Mount Pentelicon shifts from a working landscape visited as a touristic attraction to an imaged landscape, represented alongside sites of archaeology as a thing of the past, despite the fact these quarries were not only still in operation at that time but expanding. This change, which exemplifies the emergence of what sociologist John Urry (1990) has termed the "tourist gaze", accompanies a shift from dwelling in and working land to perceiving landscape, from land conceived as in dialogue with our modes of dwelling to a visual ordering of *land* in the creation of *landscape*. As Herman Melville, who visited Athens in the mid-nineteenth century, suggests in his poem *The Attic Landscape*, the mountains had become an essential visual backdrop against which the city ought to be perceived. Describing the slopes of the mountains facing Athens, Melville (1891: 57) writes:

> The clear-cut hills carved temples face,
>
> Respond, and share their sculptural grace.
>
> 'Tis Art and Nature lodged together,
>
> Sister by sister, cheek to cheek.

And in a second poem, *Greek Architecture* (1891: 60), describing the architecture of the city, he writes:

> Not magnitude, not lavishness,
>
> But Form—the Site;
>
> Not innovating wilfulness,
>
> But reverence for the Archetype.

Architecture and the city become inseparable from an image of landscape. "Form", the "carved temples", literally look to ("face") landscape, to the "clear-cut hills" as their "Archetype". This synthesis profoundly affects the city: firstly, Mount Pentelicon, following Urry, is transformed from land into landscape, from a site of work to one of appearance; second, an imagined, mythical interpretation of Athens emerges, the "White City" of polished white marble. Somewhat ironically, satisfying this myth of the "White City" would entail further "work" on and in the mountains, leading to the disruption of the ideal image of the hills portrayed by Melville. Active quarrying operations spread from the southwest to the northeast side of Mount Pentelicon in response to an increased demand for Pentelic marble to clad the Neoclassical architectural schemes central to the re-construction of Athens, the capital of the newly independent Greek State. As forester Elias Apostolidis notes (1997: 194), until the formation of modern Greece, most marble quarries around Athens were restricted to the south side of the mountain, facing the city. The myth of the White City triggered an exploitation and disruption of the landscape which gave rise to the myth.

To stand in Aloula today, on the north of Mount Pentelicon, is to occupy the modern quarries that are the reciprocal landscape (Hutton, 2019) to the city of Athens. Aloula, as a repair-scape, a fixed-up former quarry, however re-imagines

Mount Pentelicon, challenging both the imaging of the tourist gaze and the mythologies of the "White City" by blurring the distinctions between manmade activities and the natural environment (or the worked and unworked landscape). Aloula works to undermine the romantic sentiments exemplified by Melville. The ruined stone buildings, which are fixed but not re-occupied, are "built of the self-same rock" as the mountain, "almost camouflaged while remaining obviously the work of man" (Golanda and Kouzoupi, 2001: 24). Construction and geological processes merge. The re-occupation of the landscape by the museum reveals the "succession of strata in which man's active participation is noticed," but in such a manner that "Form" is open, uncertain (Golanda, 1997: 60, 62), neither "Art" nor "Nature", but certainly "lodged together". The intertwining of the natural and the artificial generates a "plasticity", a sense that the mountain becomes both sculpted and intrinsically sculptural (Golanda & Kouzoupi, 2001: 27). Imposing the idealising readings on this landscape that have perpetuated since Melville becomes impossible.

Re-imaging Aloula. Panoramas that unfix.

Ten years after the completion of work at Aloula, the project (along with others by Golanda and Kouzoupi) was exhibited at the Fondation Hellènique in Paris (January to March, 2007). "Hybrid Landscapes" (hybridity being a recurrent theme in Golanda and Kouzoupi's work) highlighted the collapse of distinctions between the manmade and the natural, and artistic and industrial labour. To image Aloula within the exhibition, curator Christophe Catsaros proposed the idea of a panorama. In response, Kouzoupi arranged a series of stitched photographs of Aloula, taken by Johanna Weber, to envelop the viewer in a curtained drum elevated above the floor, recalling the sections of the early panorama buildings in which viewers would ascend from below to see an image presented on the inside of the drum. Images covering the exterior of the panorama communicated a notional taxonomy of the stone discerned in the project works, presenting multiple images mapping different structures and textures, orders and scales. Kouzoupi travelled to Aloula with Weber, a photographer of theatre, to "see the project and the landscape through the eyes of someone else" (N.Golanda and A. Kouzoupi, personal communication, July 21, 2021). In seeing otherwise Kouzoupi observed that in order to find one's sense of scale it was necessary to see different elements in relation: the steps in the lower part of the project offer a sense of measure, where the stone slopes higher up the hill allow a slippage, a loss of scale.

On reflection, Kouzoupi describes how Weber's photographs encourage such distortions and disturbances and enable such a seeing. They allow the stones depicted within to "slip into different relationships, bringing time and geology into the space of the body" (N.Golanda and A. Kouzoupi, personal communication, July 21, 2021). The images and this installation therefore presented an uncertain image of the project, suggesting perhaps the intrinsic difficulty of imaging Aloula at all and the challenge that this work poses to idealising imagings. The viewer might be centred, but the thing that they view uncentres. The panorama might privilege a singular vantage point, but the combination of multiple view points within the panoramic image and the centring of the viewer in the belvedere depicted in the photograph in the floor (taken by Dimitris Kapalodas) challenges particular visual histories associated with the image type. If the panorama, as

Fig. 6 Nella Golanda and Aspasia Kouzoupi (2007). *Paysages Hybrides/ Sculpted Architectural Landscapes*. Exhibition at the Fondation Hellénique, Paris, 2007, curated by Christophe Catsaros. [Photo: Agnès Janin, © Agnès Janin Photographe, reproduced with permission]

Hyde (1988: 45) has observed, replicated the "God's-eye view of creation as modified by man," the installation in the static setting of the gallery, instead invited the movement that was critical to the scheme on the ground and the principal challenge taken up by the scheme for the museum. "The main problem," Golanda describes, "was the steep slopes and rough ground [...] which made it difficult to move around other than by some kind of fixed itinerary." The solution was to construct paths and rehabilitate structures to offer an "inducement to those who decide to begin the ascent" (1997: 60). In contrast to those visions of Athens presented by Melville, Haygarth, Magnus von Stackelberg and Wordsworth, which subjugate the mountain to particular views and enshrine it within particular myths, the open movement instigated by Aloula and its imagings "transforms us into simultaneous actors and spectators" (Golanda, 1997: 64). We are made present within landscape and asked to look critically at our looking. The landscape created in the exhibition asks similar questions. It is itself hybrid. It constructs an image of the mountain that is activated by the disengagement of that image from the concrete reality and immaterial imaginings of Athens and its formative matter and myths. Leaving the spaces of the museum and installation open to specific navigation makes it possible for the viewer to deconstruct, and reconstruct that landscape, and to reconceive the landscape (the quarry, the stone, the mountain) and its relation to the city.

Re-fixing Aloula. Map, image and landscape.

Through Golanda and Kouzoupi's intervention, and the representation of Aloula as an unsettling imaging of landscape, Aloula emerges from the mountain as a very specific site of repair. Following Lepawsky, Liboiron, Keeling and Mather's (2017) terminology, the landscape of Aloula exemplifies what they describe as a repair-scape, a "fully worked-over" site that is a "composition" of "various and variable natures" (Braun, 2016, cited in Lepawsky et al., 2017: 58), where the natural and the anthropogeographic are indiscernible. To repair, as Lepawsky et al. (2017: 56) suggest, is to make something ready (-*parare*, make ready) again. A repair-scape is therefore a site that is in a constant state of re-production, "maintaining some kind of continuity with the past in the face of breaks or ruptures to that continuity" (Spelman, 2003, cited in Lepawsky et al., 2017: 56). This sense of a continuity is the reason for the tension between the imaging and affectivity of Aloula; or, put another way, of the fixity of the image and Aloula's capacity for un-fixing. A repair-scape operates not just at the level of concrete

things (the repair of stones or paths) but to instigate a continual re-production of our understanding of and relationship with history and site.

This understanding of the repair-scape, in which how we experience, image and work in a landscape, as an active participant in the formation of that landscape, offers a new way of conceiving of repair, and projects of repair. As Vilém Flusser (2013: 11) posits in the essay "Valleys", over time the relationship between the map, as an image of landscape, and the landscape itself has inverted:

The map no longer serves as an instrument so that we may orient ourselves in the landscape, but now it is the landscape that serves as an instrument so that we may orient ourselves in the map. The truth stops being a function of the map's adjustment to the landscape, and becomes a function of the landscape's adjustment to the map.

> Where once the map recorded a landscape as a means of positioning humankind within that landscape, the map has become a means by which we project human paradigms onto landscapes (2013: 19, 16).

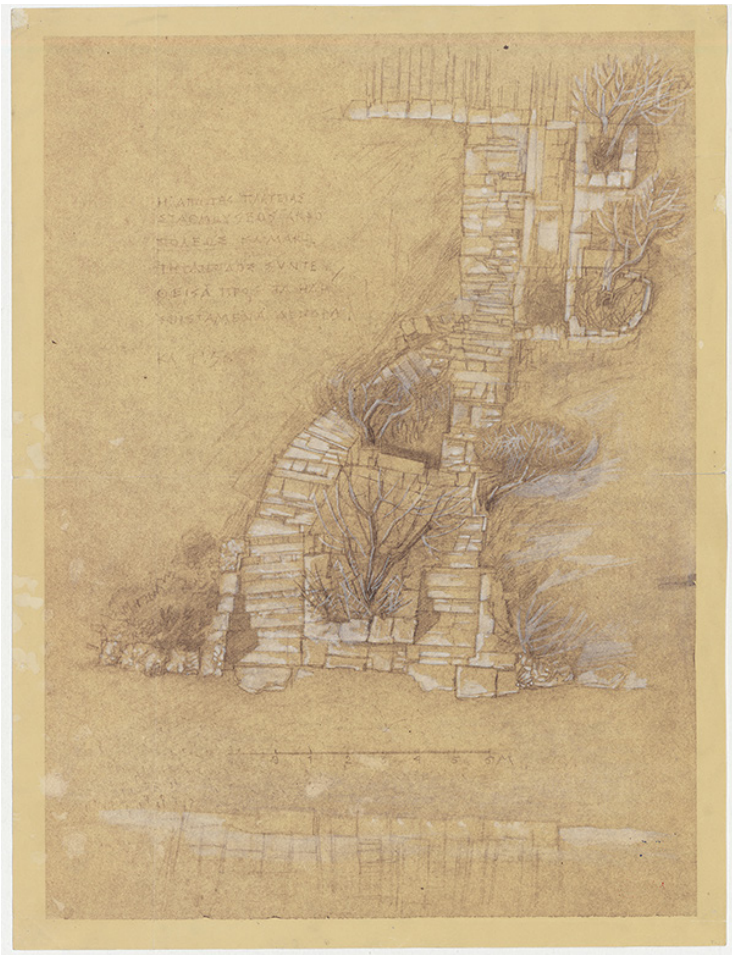
Flusser describes two such conceptual maps in "Valleys". The engineer who sees a watercourse as a source of generative power, paths for passage, for crossing, maps the valley according to this view. The engineer's map becomes a map of dams and bridges, framing the landscape primarily as an object for exploitation and the propagation of human systems. The humanist, likewise, sees the landscape as a site of human activity, of migrations, mobilities, and cultural practices. The landscape becomes a site of paths, of gatherings (2013: 19). These two maps, both based on particular imagings of the valley, come to dominate readings and images of the valley: as pre-conceived paradigms they impose themselves on landscape, and thus the landscape is subsequently arranged to conform to this map. By degrees, Flusser argues, the landscape of the specific valley becomes emblematic of a general type of "valley", and all valleys are subsequently brought into relation as typical "valleys" through these maps. Flusser writes: "My concrete valley could here be generalised into an empty form: 'a class of valleys' [...] It may serve as a concrete example of the abstract class 'valleys,' therefore, as epistemological inversion" (2013: 14–15). The "concrete" valley, the valley as a physical place or site, becomes a paradigmatic valley, a conceptual place formed of an assemblage of overlapping valley-paradigms informed by representational traits and conventions.

In Athens, the image of the landscape of Mount Pentelicon perpetuated by the myth of the "White City"—what we might call the Attic-paradigm—is so entrenched as to render Aloula, as an active repair-scape, irreconcilable with the contemporary city. This is its significance: it invites a perpetual reconstruction of our conceptual maps. Aloula offers a different means of conceiving our relationship with landscape. This specific repair-scape is sympoetic, not necessarily in the complete sense of sympoesis-as-worlding offered by Donna Haraway (2016), but nevertheless a site that embodies a complex making-with. It is a landscape that was not planned, but rather formed through a making-with people and with the earth, together, as human labour and matter in enduring reciprocity, which in turn involves a re-making with Athens.

Discussing Aloula. July, 2021.

It is July 2021, in the middle of a record-breaking heatwave and a pandemic, and we are climbing the southern tip of Hymettos, looking onto the Saronic Gulf. The Fiat, less dusty now, is parked on the street below. We are sitting (socially distanced, grapes, peaches and notebooks distributed across three tables) in Golanda's garden discussing Aloula. Cicadas, *tzitzikia*, in the fir trees overhead chirp as the heat of the day gives way to sunset. Paths formed of a tight mosaic of fragments of stone, sometimes formed into patterns, sometimes following unseen logics within the stones themselves, wind up the steep slope, connected occasionally by stone steps. We wonder how much of this stone has come from Aloula, directly or indirectly. In conversation we note the similarity of this garden-landscape and Golanda and Kouzoupi's work at Aloula with Dimitris Pikionis' interventions on the Acropolis, but in contrast to the lush, living garden around us Golanda describes Pikionis' work as "a site of sorrow, sadness," a site that serves as a reminder of a lost Neoclassical Athens. "One can feel that the material there came from an accumulation of destroyed things," she observes, and yet Pikionis' work "is a reminder that when something gets destroyed, people build again: a reason to live" (N. Golanda and A. Kouzoupi, personal communication, July 21, 2021).

Fig. 7 Dimitris Pikionis (1954-57). Plan of a stepped ascent to the Acropolis. [© 2021 by Benaki Museum Athens]



In Pikionis' landscaping of the area surrounding the Acropolis, the material used in the paving comes directly from the marble sinks, steps, etc., stripped from the Athenian Neoclassical houses demolished and replaced during the rapid urbanisation of Athens in the 1950s. As Dimitris Antonakakis (1989: 15) notes, these remnants form "an open dialogue with the monuments, the landscape and time." We contend that this dialogue extends to encompass the specific spaces of Aloula in which some of the stone, from which these artefacts were made, most likely originated. Together, the slopes of Aloula and the surfaces of the Acropolis form a more recognisable version of what Jane Hutton describes as a "reciprocal landscape" of material and labour, in the sense that practices in one site entail a simultaneous and proportionate alteration in the other. As Hutton declares, "circulating back and forth between the two sites, it becomes difficult to see either in isolation" (2019: 3). Aloula therefore serves as a reminder of the significance and recurrence of material through time in the making of Athens.

Pikionis (1989: 68), in a passage in "The Sentimental Topography" reminiscent of Melville, writes:

> Stone, you compose the lineaments of this landscape. You are the landscape. You are the Temple that is to crown the precipitous rocks of your own Acropolis.

The Parthenon, in Melville's telling of *The Attic Landscape* finds its "response" and "grace" in its "sister" mountain, Pentelicon. While Pikionis' description might suggest a similarly romantic, or in Pikionis' words sentimental, response to landscape, we might see, indirectly, an earthier counterpart to the Acropolis pathways in Aloula. Pikionis, like Golanda and Kouzoupi, insisted on work being undertaken by hand, and resisted the use of mechanical equipment (Papandreou, 2016: 72). As Antonakakis recalls, for Pikionis construction provided "the logic by which the characteristics of the materials were revealed" (1989: 11). Unlike Golanda and Kouzoupi, Pikionis' project generated drawings, many drawings, forming both a record of decisions and an exploration of formal arrangements. These drawings fix: they make fast the landscape in place. In contrast Aloula, as a site where "relation-making practices work to sustain the very possibility of spatial *and* temporal continuity," is a site "always under construction" (Lepawsky et al., 2017: 59). It moves and is refigured. The dry-stone construction over which we walk, scramble, and climb invites slippages, challenges the "fixed, motionless geometry of the earth" described by Pikionis (1989: 68). The few fragmented sketches and drawings of Aloula, a handful made during the works as part of the decoding process, some produced retrospectively, recognise this mobility. They provide an image of a landscape in motion which expresses "the different states

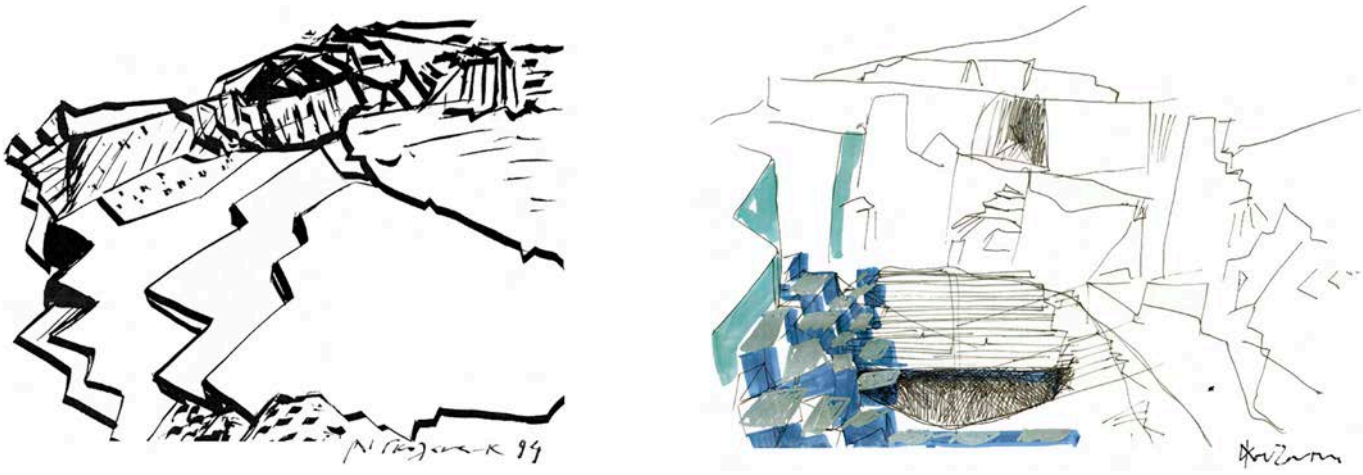


Fig. 8 Sketches by Nella Golanda and Aspasia Kouzoupi produced during the making of the Open Air Museum of Ancient Quarrying Arts, Dionysos. [Courtesy of the archive of Sculpted Architectural Landscapes: N. Golanda + A. Kouzoupi]

of stone," (N. Golanda and A. Kouzoupi, personal communication, July 21, 2021) a map in Flusser's original sense, recording landscape rather than a projection of a desire for order onto landscape. One drawing, a fragment of Aloula made with a thick, black, continuous outline drawn by Golanda (the engraver's sketch, perhaps, deliberate, heavy) describes shadow, weight, fissures. A second drawing, of another fragment of Aloula, describes the finer, broken lines of marble veins, chisel marks, tooling (the architect's sketch, Kouzoupi's sketch). Together both record the landscape and describe a way of making a landscape. Rather than projecting a desire for order onto landscape they instigate a thinking-with landscape. Their sketches embody the sensibility and sensitivity required of meaningful repair.

As an exemplary repair-scape, therefore, Aloula offers more than just the rehabilitation of an abandoned site. Aloula un-fixes us; like the dry stones on the slopes of Pentelicon we become untethered, unsettled in time through the contestation of abstract images of landscape. Aloula, as a "concrete" or physical place to invoke Flusser, is today a place of "deciphering and not of resolving" (2013: 20). It

does not necessitate the formulation of a particular form for material, rather it describes the agency of material in its different stages of being. The landscape of Aloula as a site of repair is a site of ongoing engagement with matter in time. Aloula allows us to conceive new means to engage with and describe landscape which resist the desire to fix.

Fig. 9 Golanda and Kouzoupi (1997). Aloula, Mount Pentelicon. View from the Open Air Museum in Aloula, Mount Pentelicon to Marathon. [Photo: Maria Mitsoula, 2018]

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SIMON TWOSE, JULES MOLONEY, ANASTASIA GLOBA, LAWRENCE HARVEY

Drawing the unfixed

Fig. 1 Simon Twose (2020). Bushfire sketch, cast wax, burnt eucalypt, latex. [photo, Simon Twose]

Introduction

This article reflects on creative practice employing multi-modal architectural drawing to sketch natural phenomena: *Expanded Drawing*. The work explores unfixed, intangible conditions within phenomena, conditions at the cusp of awareness, spatially felt as much as known by other means. Through multi-sensory drawing installations, phenomena such as oceanic immensity, seismic latency and shapeshifting bushfires are sketched. The installations immerse participants within virtual, sculptural, and sonic sketches, intensifying natural phenomena's abstract presence in a sympoiēsis of human and more-than-human dynamics. The work is beginning to coalesce a strange spatiality—the complex terrain flowing between drawing's matter, its subject matter, and human gesture and imagination is gradually emerging as a sketch-like hybrid space. *Expanded Drawing* attempts to capture the atmospheres of this hybrid space, treading a fine line between its (incomplete) fixing, and its capacity to actively, continually, unfix relations. The work in Expanded Drawing is done out of curiosity: to

expand architectural drawing, to explore its limits and problematise intricate relations within it. In pursuit of this, the project observes space that continually remains just out of reach—ungraspable architectures of phenomena—through intensifying drawing's "nuanced misalignments, approximate thoughts and imperfect moments [...] (that) resist fixing normative figuration [...]" (Chard, Kulper, 2013: 63). This article is a rapid traverse through a series of sketch-like, unfixed works-in-progress.

Phenomena

There is a strange sense to an approaching earthquake. First a low rushing, rumbling sound arrives that can't be mistaken for the wind or a passing vehicle, and then a sudden, physical jolt. Following this there is a brief moment of waiting, looking into the middle distance for any violent continuation. It either arrives dramatically and you are shaken into action—drop, cover, hold—or everything just gently shudders, and your focus shifts back to the immediate space around you. This seismic performance is a strange spatio-temporal phenomenon that not only physically jolts space, it also shifts our understanding of space; how we occupy it, how we understand its scale, materiality, stability, boundedness. In the short pause before the arrival of seismic surface-waves, we imaginatively inhabit space at grand scale; the room suddenly becomes coloured by the vastness and powerful latency of planetary matter. A similar estrangement is present when imagining almost any dynamic natural phenomena.

When in a small boat on the ocean near the Kaikōura coast, off the eastern shores of New Zealand's South Island, you sense the power of the submarine landscape below the water surface. Despite not being visible beneath the swell, the depth and scale of the abyssal submarine canyon somehow makes it presence felt, as does its potential for sublime seismic rupture. The space of the canyon is unbounded, with its bathymetry plunging kilometres deep, down undersea cliffs close to the shoreline, then flowing out, progressively deeper, to the Hikurangi trench, which marks the edge of the hidden Zealandia continent (Mortimer, 2017: 28). In this dark space the water pressure is intense, there are complex bio-ecologies, turbid flows of mud and rock, gas eruptions, and an ever-present threat of sudden earthquakes. The Kaikōura earthquake of 2016 caused the landscape—mountains, seabed and reef—to jolt upwards by as much as six metres in an instant. When walking on the reef, a visitor is conscious of this strange and immense potential, despite the apparent calmness of the seabed landscape. The miniature scale of rock fissures and textures cross with imagined dynamics at vast scale, of tectonic plates in intense collision.

Phenomena such as this—seismic dynamics, meteorological dynamics; weather, bush fires—make space an odd sum of material performances and human affective and imaginative registers. Natural phenomena like these cannot be "seen", or inhabited in the usual sense, but an architectural section sketched through them can allude to, yet not fix, what these spaces are like: architectural sketches can record irresolute, fleeting and unfixed qualities of space "made together" by phenomena and drawer.

Drawing

Our recent work explores the atmosphere of these hybrid spaces. We are attempting to sketch phenomena through a form of imaginative projection and make the resultant sketch-space "bodily appreciable", through it being able to be inhabited virtually and physically. These sketches are designed as immersive art installations combining VR, AR, material space and spatialised sound. The work is an interdisciplinary collaboration between Simon Twose, Jules Moloney, Lawrence Harvey and Anastasia Globa, bringing together expertise in architectural drawing, digital virtual environments, spatial sound composition and algorithmic design.

The Expanded Drawing explorations are based on key facets of traditional drawing. The first is drawing's inherent openness, or its capacity for irresolute capture, what Jean Luc Nancy describes as "an essential incompleteness, a non-closure or non-totalizing of form" (2013: 1). This ever-emergent quality contributes to drawing as an open tool for thinking, a way of researching unfixed conditions through "knowing-thinking-feeling" (Gansterer et al, 2017: 9). The second is a distinguishing characteristic of *architectural* drawing: its capacity to be a portal to worlds beyond the drawing, allowing it to be projective, "something *thrown forward* [...] towards some artefact other than itself" (Jenner, 2013: 210). And the third, is the capacity of the sketch to inform architectural sense-making, a way of exploring, yet not fixing, projected space through rapidly performed gestures in concert with the "obdurate" feedback of the sketch media (Elkins, 1998: 1).

Openness

Openness, and drawing as a thinking tool, are closely intertwined in art practice explorations. Artist Nikolaus Gansterer's work is an example of ongoing research into drawing, particularly the diagram, as an open tool for thinking. His work explores performative and material nuances in drawing that enable it to "access a different kind of knowledge than that gained from perception", through drawings that "elucidate without wanting to elucidate" (Cocker, 2011). Gansterer's drawings involve live performances, video capture, sculptural installations, even the use of live snails in mark making. These are free experiments in drawing with drawing as the subject matter. They are observational devices where "drawing is performed as an infinite loop of observing itself observing" (Cocker, 2011). The influence we take from this work is the sophistication of drawing as an activity involving intricate alliances between thought and matter, gesture and time, in pursuit of things that remain at the level of suggestion. In discussing work by Gansterer, and Emma Cocker and Maria Greil, his collaborators, Alex Arteaga describes a rich, open practice informed by "barely perceptible micro-movements at the cusp of awareness [...]" where the figure "always remains at the edge of its own explicitness" (Artega, 2017: 259). Our work engages with the freedom of art practice to pursue ungraspable characteristics. Such drawing affords thought, as in Gansterer's artistic research, where drawing is "thinking in action", involving "translational processes of constructing meaning by means of all senses" (Gansterer, 2019: 1). In Expanded Drawing, open artistic sense-making merges with an architectural spatial acuity, directed to space beyond the drawing; the intense art practice focus, of "drawing observing itself observing", is extended to "drawing observing itself observing phenomena".

Portal

Architectural drawing has traditionally been a portal to space beyond it, projecting the author to imagined arrays of material, form and events, dynamic spaces that exist or are yet to happen. As Ross Jenner articulates, "what distinguishes representations in design and architecture from those in other arts is that they are *projective*, they have an intention or purpose" (2013: 210). Drawing an architectural sketch of a space of some kind, such as a building, landscape, or the abstract space of phenomena, is subtly different to an artist's sketch by say, Nikolaus Gansterer, despite sharing many similarities in how it is made, its gestural trajectory, its blurred graphite over paper. Whereas the marks in Gansterer's sketch record thoughts in their making, marks in an architectural drawing also allude to dimensions and qualities of space at large scale beyond the drawing. They are marks recording an imaginative projection, each a deliberate portal to thought beyond the page. Architectural drawings in this sense are poiētic, they are fields of marks made to bring something into being, marks belonging "to bringing-forth, to poiēsis" (Heidegger 1977: 5).

The poiētic power of drawing, as a portal, leads to questions of what qualities are translated from drawing to projected space, and what qualities observed in the space transfer back to drawing. In architectural drawing there is an assumed measurable correlation between lines in the drawing and space at large scale beyond it. Lines define the dimensions of a wall, or rooms, but what of a series of lines drawn one over the other in the same place? What of the smudges between them, what space do this graphite residue allude to? Marks have an aesthetic force, which exceeds instrumental description, which creates an active dialogue between mark and space. In an architectural drawing the dragging and dark burnishings of graphite on paper transfer to atmospheres in imagined space, and as such drawings have the potential to be open, poiētic portals, projecting not just instrumental understandings, but those at the edge of representational capture. These evocative qualities push back on the drawing, causing intimate deflections in the drawer's control of the line, and also in trajectories of thought and discovery that unfold as a drawing is drawn. In a sense the space brings the mark into being as much as the mark brings forth the space, causing the portal to be two-way, to be sympoiētic.

Architectural sense-making

The architectural sketch is where this sympoiētic projective power is intensified and where art practice notions of drawing and those of architecture most closely coalesce. The architectural sketch, or design sketch, is a way of exploring, yet not fixing, space and projecting an irresolute architectural sense to domains beyond it. The sketch accepts possibilities, blurred approximations, *pentimenti* and mistakes. Intentionally ambiguous, the "fundamental complexity" of the sketched mark creates "obstacles for interpretation [...] marking itself is obdurate or incoherent" (Elkins, 1998: 1). Irresolute feedback from drawing media is a creative collusion between drawer and other-than-human domains, where the spatial acuity of the architect is augmented by material possibilities in the medium, be they physical or digital, and the subject matter. Architectural sketches are where this combination of thought and drawing material is most pronounced, where "thought is understood as a practice, as acting with materials, in materials, or

through materials [...] or with media, in media or through media" (Mersch 2015: 170). Thought emerges through these mechanisms *within* the sketch, and projectively *beyond* it, through the imagined materiality of the space being drawn. An architectural sketch is thus a complex mix of gestural and material performances that supports unfixed architectural sense-making. The sketch, unlike instrumental descriptions of space in instrumental, descriptive architectural drawing, allows for aspects at the periphery of vision, characteristics "at the cusp of awareness" to be intuited. The irresolute architectural sketch, then, is a way to project architectural sense-making to other worlds, it alludes to ways to intuit what Henri Bergson calls "absolute knowledge" through "entering into the thing that is other" (1992, 1946: 187).

The installations in Expanded Drawing leverage the traditional openness, projective capacities and thought-provoking sketchiness of drawing. They expand and intensify the architectural sketch as an irresolute thinking tool to imaginatively project to worlds that are similarly irresolute, to sketch a speculative hybrid space charged with the aesthetic agencies of drawer, design media and subject matter.

Open practice

To date we have developed this research in two projects. The first was *Canyon* which explored presences within the Kaikōura submarine canyon (Twose et al., 2018). *Canyon* attempted to imaginatively inhabit the vast bathymetry and liquid mass of the canyon, along with its ominous seismic latency, through immersive spatial sketches. *Reef* followed this project, and explored the spatiality of the canyon landscape thrust from the sea by the Kaikōura earthquake in 2016 (Twose et al., 2020). *Reef* was an attempt to capture the strangeness of this multi-scalar, anthropo-natural phenomena. *Bushfire* is the third project in the Expanded

Fig. 2 Simon Twose (2020). Reef sketch casting, latex, rock, graphite. [photo, Simon Twose]

Drawing series and looks into aleatory architectures of fire, through sketches of the "Black Summer" bush fires in South Gippsland, Australia. This work is in progress and is an adjunct to the previous work on seismic latency, attempting to capture architectures of fire phenomena. Sketches observe fire's movement, sublime scale and unpredictability, and its melancholy aftermath. The three projects in the Expanded Drawing series, *Canyon*, *Reef* and *Bushfire* are developing ways in which the sketch can explore intangible, unfixed atmospheres within natural phenomena. The sketch installations use three different sketch media: sculpted matter, virtual space, and sound.

Matter-sketch

The physical components to the Expanded Drawing installations involve arrays of sculptural sketch objects. These extend the sketch from two dimensions to three, engaging gestural action in response to physical materials. The gestures in traditional drawing, "in the sense of a beginning, departure, origin, despatch, impetus, or sketching out" (Nancy, 2013: 1) are transferred to acts of making in three dimensions. The sculpted objects that result are considered observational sketches, similar to rapid design sketches that might be made to aid the imagination of spatial subject matter. These have had several manifestations over recent installation projects, from charcoal sketches that have been three-dimensionalised, to the hand-forming of large-scale paper terrains, to iterative moulding and casting. The matter-sketching in the *Reef* installation, for example, progressed from direct latex casts of rock surfaces, to hand manipulation of moulds cast in various materials, to casts using graphite sketches on paper, buckled into crevices in rocks and used as formwork for castings; the semi-liquid wet concrete finding form by flowing over terrains of rock and crumpled paper sketches.

The series of sculptural sketches in *Reef* observed the Kaikōura reef's scalar ambiguity and strange presence through more than 450 individually made objects, in concrete, wax, latex, graphite, black oxide and paper. This was a necessarily irresolute capture, which involved many individual rapidly authored decisions, in response to the material of the objects, the materiality of the literal reef landscape, and intangible, affective spatial qualities observed in the reef. The resultant sketch objects were created in several iterative series, involving specific tests of reef forms at different scales, from the scale of rock textures to large topographies, and with different degrees of hand manipulation and abstraction. The three-dimensional sketches engaged with varying degrees of material agency, of mould, concrete and molten wax, to create forms which were effectively co-authored, between drawer, sketch media and subject matter. The results of this process were suspended in the *Reef* installation as a cloud, flowing through the gallery.

The matter-sketches are architectural observational devices, engaging drawing's capacities for "thinking in action". They involve a series of gestures, afforded or resisted by matter, which record a *pentimenti* of architectural sense-making, of the phenomena being sketched. The results of this process are multiple but accrete to a terrain of understandings that hover just out of reach. As Gansterer notes, work like this involves:

> 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 (Gansterer et al., 2017: 70)

These evasive characteristics, which lie just beneath the readable gestures of practice, involve complex shuttling between human intentionality and the agency of matter. Sketches like these engage matter's performative capacities, "enabling matter to become expressive [...] to intensify—to resonate and become more than itself" (Grosz, 2008: 11). We are developing this technique, which aims to extend gestural aspects of the sketch in response to the agency of matter, as a way of capturing unfixed, intangible presences between drawer, sketch medium and imagined space. These matter-sketches are intended to be "read" through being experienced, in installations, as materially rich sculptural objects, which opens them further to aspects that evade representation. This collapses together architectural drawing's notational, projective purpose with affective registers of space and material, as a way of alluding to a "drawing-space" charged with discursive and non-discursive characteristics in ambiguous relation to one another.

Fig. 3 Authors (2020). AR portals in Reef installation. [photo, Tin Sheds Gallery Sydney, Maja Baska]

Sketching within digital virtual environments

The capacity of the architectural sketch to evoke a speculative hybrid space would appear to be closely linked to the analogue fluidity and subtlety of drawing and making by hand. How might digital virtual environments, including spatial sound, be deployed to create irresolute worlds, which provide alternate insight into natural phenomena such as seismic forces and extreme bush fire events? As discussed earlier, architectural sketches are projective portals to

spatial conditions. For analogue sketches these are composed of marks, typically graphite on paper, and open to interpretation through imaginative projection beyond the scale and context of the mark. For our research the agency and speculative capacity of graphite sketching has informed material experimentation in the form of bituminous wraps, rubber casts and concrete moulds. However, the transfer of sketch techniques from analogue to digital media is typically fraught. Yes, it is increasingly possible to sketch within design software through stylus and tablet, or gesture to produce lines three dimensionally in virtual reality. Our view is that this adoption of sketching by hand is an impoverished version of the subtle interplay between hand/tool and material/texture that occurs with analogue drawing. Rather than attempt to replicate analogue techniques, we are exploring the complex "matter" of virtual environments and how these can be deployed in a way that amplifies or extends tacit spatial conditions present in hand drawn sketches. The virtual "matter" for this exploration that have the most potential are light, visual texture, motion, and sound. The strategy for creative deployment that we consider the most appropriate is found within theories and practice of the ambient.

Ambient tactics

The ambient in relation to creative practice research has been most significant in the fields of music, sound studies and the sonic arts. Acknowledged as a pioneer in establishing ambient music as a genre, Brian Eno is one of the first to posit its definition and compositional techniques. The liner notes for Ambient 1: Music for Airports (Eno, 1978) suggested the intent was locate the listener in a contemplative space akin to an idealised airport. Field recordings were manipulated electronically to produce sparse minimalist textures, timbral and harmonic shifts—enveloped with echo and reverb to suggest the spatial ambience of airport architecture. By the fourth work in the series On Land (1982), Eno had developed a non-place specific approach to "evoke a sense of geographical space that hovers between the literally representational and the figurative" (Hodkinson, 2017: 321). We discern parallels in the ambient experiments of Eno with architectural sketching, albeit the medium is sound, in the capacity to conjure distinct but unfixed spatial conditions. The concept and practice of the ambient, potentially provides a strategy to develop virtual worlds of light, texture, movement and sound that evoke sketch-like spatial conditions. In the visual domain, ambient displays are intended to display abstracted, non-critical information on the periphery of the user's attention (Mankoff et al, 2003). Such ambient displays are deliberately non-obtrusive and rely on the human capacity to complement focused perception with "peripheral scanning" on the edge of consciousness. The ambient, both visually and sonically, suggests tactics for triggering peripheric perception: tactics that have potential for sketching in a digital virtual environment in which visual, kinaesthetic and sound fields coalesce to suggest unfixed spatial qualities that hover sketch-like at the boundary of representation and imagination.

We have explored this potential through experimentation with the affordance of virtual environment authoring software. The "ambient tactics" we have developed include: obscuring foreground and background divisions in favour of a middle ground of overlapping perspectival depth; multiple, diffuse light sources that oscillate between illumination, reflection, and chiaroscuro modelling; fluid,

Fig. 4 Authors (2018). VR environment, *Canyon* installation. [video still, Palazzo Bembo, Venice, authors]

slow camera movement set to a wide field of view; multiple spatial sound emitters, activated through human proximity, which deliver a mix of singular sounds and/or combine to produce chorus like passages; a colour palette with minimal, typically pale, hues; and the use of fleeting counterpoints of colour sound, light and movement intensity.

Procedural worlds

Alongside the ambient tactics developed through experiment, one overarching affordance of virtual environment authoring software is the capacity to generate content procedurally. Rather than conceive discrete instances, the parameters for geometry, light, and texture can be set, from which multiple iterations can be explored. Such "parametric design" is well established within architecture, and other more generative approaches that use genetic algorithms, cellular automata and other multi-agent techniques have been adopted. A generic term for the various approaches is to describe these as procedural; digital content is generated through a range of procedures that can be controlled, to varying degrees, by the virtual sketcher.

As illustrated in Figure 4, we have leveraged the affordance of virtual environment authoring software to experiment with procedural ways to sketch ambient experiences, which continue the trajectory of the graphite and material drawings. The process began with analogue sketches being scanned and imported into the software as image textures. These are applied to the surface of geometry and/or used as filters for lighting systems and set in motion using the animation capacity of the software. The various parameters for geometry, textures, lighting, and animation were procedurally manipulated using the ambient tactics identified above. These studies were undertaken in real-time where, in effect, a mode of drawing through procedural manipulation was developed. Atmospheric qualities

in analogue sketches are intensified through procedural manipulation that causes marks to spawn, shift in scale and form, and become bodily inhabitable within immersive virtual reality (VR) displays.

In a parallel approach, sound recorded on site (Canyon, Reef, Bushfire) was imported into sound editing software and digitally manipulated to hover close to musical-like moments. These discrete sound samples are imported into the virtual environment and procedurally placed and associated with geometric surfaces. As the sketching author traverses the environment the sounds become choral or chorus-like presences, or sometimes an environmental percussion ensemble of small-pitched instruments. These come about by short sequences running through the virtual space, by adding metallic resonances to individual or groups of sounds, call-response type moments and sudden cloud bursts of sound. This strange "vocalising" of the world acts in play with the continually shifting middle ground of manipulated textures and surfaces, diffuse light sources and dream-like camera movement. Without clear points of focus or explicit cognitive references, peripheric perception is triggered to generate an ambient, unfixed spatiality composed from visual and aural digital matter.

Fig. 5 Authors (2020). *Reef* installation [photo, Tin Sheds Gallery, Sydney, Maja Baska].

Gallery

The experiments with analogue sketching and casting, virtual environments, and spatialised sound come together in the form of installations within gallery spaces. The Reef installation is the most recent example testing this multi-modal sketch-space. In Reef, matter-sketches were arrayed as pixels in a spatial sketch

that spread through the gallery. Viewers moved through this sketch, re-tracing various lines of iterative sketching of the Kaikōura reef phenomenon. Sequences of castings recorded gradual shifts in form, material and surface detail in the hand-made sketches, composed in the space as lines or clustered in bays as "smudges", where the sketching process had become blurred through repeated tests. The false starts, blind alleys and sequential developments in the sketch objects were recreated within the array, leading the viewer along lines of development, or trapping them in ideational eddies.

The reading of these matter-sketches was inflected by overlapping, three-dimensional soundscapes. These shifted in scale and degree of abstraction as the viewer moved through the space. Delicate sounds generated from field recordings of the reef, such as the popping of dry seaweed, morphed to abstract sonic interpretations of the reef landscape. This auditory field overlayed the cloud of physical objects in the installation, to subtly shift their reading. The immersive sonic sketch environment also played in the VR environment, which connected the two different spatial experiences: the real space of the installation and virtual space. The virtual and real sketch environments were augmented by AR portals to algorithmic interpretations of the matter-sketches and sonic sketches, available through tablets or personal devices.

The installations extend the spatial acuity inherent in architectural drawing to material performances in drawing's subject matter, through physical and digital media combined with sensory, immersive experience. The intention behind the installations is to prompt a spatiality that hovers between representation, phenomenal subject matter, and embodied space, by coalescing physical, aural, and virtual influences. This makes for a machine of many parts, but we see its complexity as a unique way to explore a shared, hybrid space between human and phenomena, capturing characteristics that evade representation, yet are curiously linked to affective and sensory dimensions of knowledge.

The purpose of these drawing experiments is not to clarify, inform, or teach. In these works, drawing is pursued as something hovering at the edge of clarity—remaining open. This is closer to art practice and its comfort in problematising, rather than architecture's preoccupation with problem solving (Rendell, 2006: 6), its conceit of fixing problems: accurately fixing imagined space, documenting, legally describing, pinning down—then communicating, disseminating, teaching, conveying—fixing interpretation. We are concerned with how architectural drawing can be an agent to unfix, to open architecture to space that jolts known preoccupations, to shift the representational stability of drawing and explore the architecture that might result. With the phenomena series of Expanded Drawing, we are engaging a hybrid aesthetic agency, which is a mix between nonhuman and human: powerful seismic activity, fire dynamics, vast oceanic mass, merged with imagination. The question we have is, what is the architecture of this hypothetical territory, that lies just out of reach of representation? How can it be inhabited, experienced yet not fully elucidated, as a powerful, hybrid, unfixed architecture?

Unfixed sketching

The work to date has established a "research through creative practice" methodology that enables experimentation across a range of media. These engage

multiple senses simultaneously, with the foregrounding of peripheric perception, the intuition of characteristics at the cusp of awareness. These sketch experiments will continue to be developed, expanded, and refined through speculative practice and disseminated through gallery installation.

The experiments provide moments that can inform discourse on drawing in the expanded field. The intensification of a sketch's capacity to be blurred, to incompletely fix or capture a figure, is one such moment. Our work hinges on correlating blurred conditions within the sketch with the imagination of ungraspable, peripheral characteristics. This is somewhat of a truism in drawing, in both art and architecture practice, highlighted by art historian James Elkins in his distinction between semiotic marks, those that can be read, and non-semiotic marks, the "recalcitrant, 'meaningless' smears and blotches" that evade interpretation (1995: 860). Our work attempts to intensify the blurred capacity of non-semiotic marks in the sketch, through multiple media. The result of this is to extend the non-semiotic characteristics of the sketch, its incomplete fixity, to become physical objects and atmospheres. The sketch installations in Expanded Drawing are intended as "habitable drawings", to use artist Fred Sandback's term (Bois, 2005: 25), to present the blurred sketch as architectural space, so people can experience unfixed, hybrid, sketch-like atmospheres.

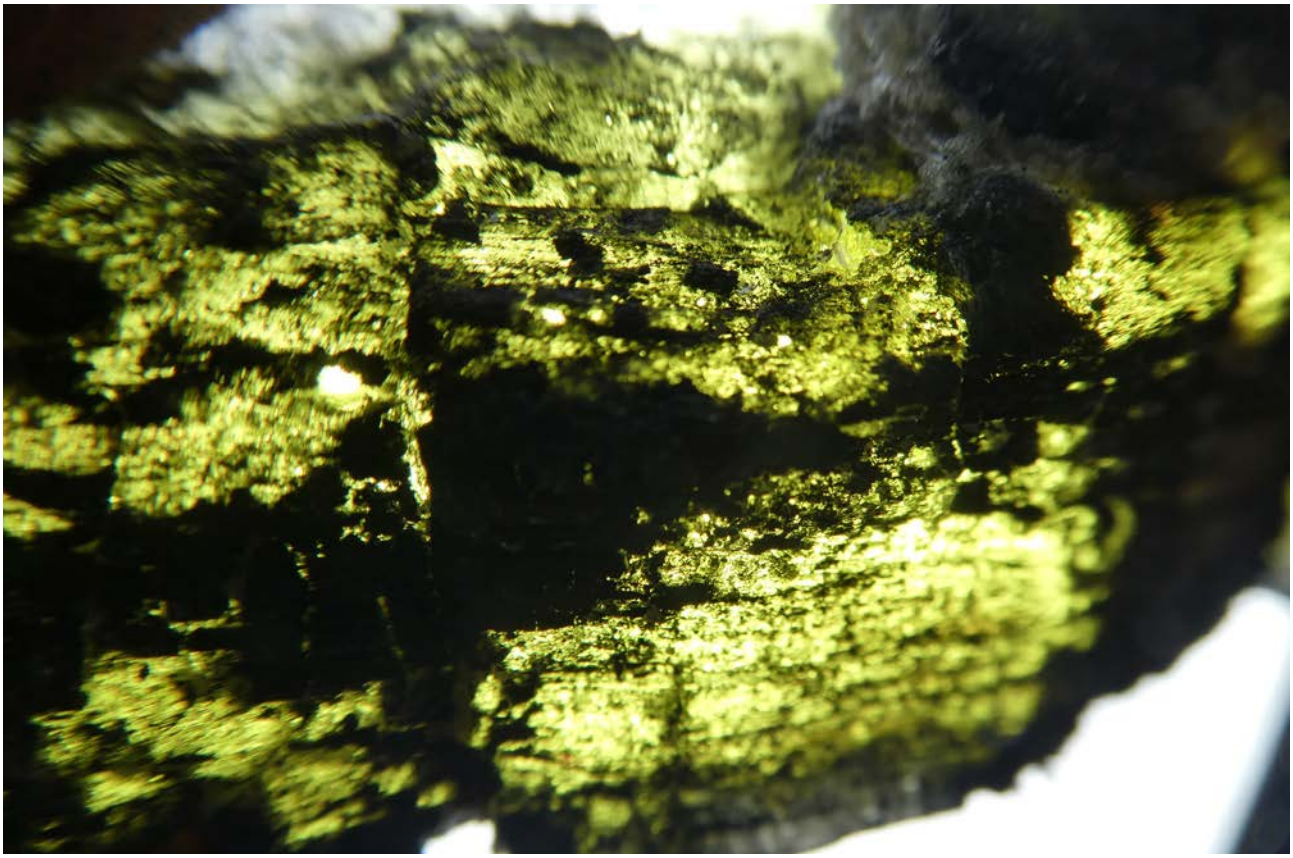
Another moment is in the conflation of drawing space and subject matter. In the installations, the architectural sketch becomes a performative space where surveyor and phenomena co-exist. This is a deliberate short circuiting of architectural drawing's traditional projective separation, collapsing the mark and the space the mark represents together. The result of this is that the "habitable drawing" becomes a way to also inhabit the subject matter of the drawing, which in the case of our installations is a particular condition of phenomena, itself a conflation of human and non-human dynamics. The traditional vector of projection, from drawing to building, something *thrown forward,* "to space awaiting existence" (Jenner, 2013: 210) is reversed. In the sketch installations, phenomena projects back to make the space of the drawing; phenomena are thrown to human space, commuting from real to a drawn abstraction of real, figuring the habitable drawing with unfixed atmospheres that become viscerally experienced.

Another moment of inflection of drawing's traditions is in the making of marks, or the agency of matter. By focusing on the sketch, we are deliberately choosing a representational mode where "matter matters". The sketch gives us a way of merging artistic research practices, where the agency of matter—material and digital—ties to thought, with architectural practices where the sketch is an irresolute tool for thinking about space beyond it. It gives us a way of focussing on the making and materiality of the sketched mark as poiētic. Gestural action and the affordances and resistances of matter combine in the sketch in a poiētic "bringing forth". Poiēsis is linked to technē—the art of making—bringing something into being that did not exist before. It is also the etymological origin of poetry. Poiēsis has a strong history in the making of creative works, particularly drawings, through connections between technē, making, and poetics. Donna Haraway makes a further distinction to poiēsis, which is relevant to our work and the agency of the phenomenal subject matter. She uses the term *sympoiēsis* to trigger ideas of "making together", as a way to rethink our entangled relations with other-than-human domains (2016: 4). In our work, we are interested in how matter pushes back, how sketches can be sympoiētic, "made together" by human

thought and action in concert with other-than human forces.

The architectural sketch, in this scenario, becomes a site of poetic unfixed relations, where human drawer, drawing matter, and phenomena "make space together". The Expanded Drawing work explores the limits of this hybrid space, and its unfixed atmospheres.

Fig. 6 Simon Twose (2020). Bushfire sketch, cast resin, burnt eucalypt, latex. [photo, Simon Twose]



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KARL HOFFMANN WITH MARK SOUTHCOMBE

Translating a Post-Industrial Landscape: The Rebirth of Pukewā

Introduction

Space is beheld by the people who occupy and experience it. They translate this into an environment that holds meaning, enriched by the traces of memories arising with everyday life occurring there. Environments for this reason are ever-changing, providing settings inseparable from the moments we retain as memory. Not simply a point locatable on a map, a place is created mostly by and through time. Its power resides in memory. Whether through the ephemerality of memory or through an inevitable accumulation of traces, place arises as an experience of its persistence through time.

Geographic layers of history build up over time, each existing as a transformation of the previous. Restored sites can be thought of as chronotopes, the chronotope being a literary notion originally developed by Mikhail Bakhtin (2000) who thought of it as a 'time-space' amalgam commonly deployed in the novel. Extended to place-restoration, the notion can be thought of as a narrative representation of the events and time that have accrued there. Restoration in this project begins by retelling the histories of a still operational industrial place—a maunga or mountain named Pukewā near the township of Waihi. Parallel Māori and European histories constitute this place, although the former have been overwritten, and in large part, forgotten by the latter. The design research presented here has sought a communication between these two histories, a dialogue in fact that aims to revitalise the once sacred nature of this place.

The maunga named Pukewā is today more commonly known as Martha Mine. In 1878, gold was discovered deep within her body—this gendered designation follows Māori understandings of the ground itself as being the domain of Papatūānuku, the earth mother. In a quest to extract the koha or gift of Papatūānuku, Pukewā was firstly mutilated, through deep shafts and cuts in her surface. Later she was decapitated, excavating her body to a flat surface. Finally, the ground on which she had stood was excavated transforming her into the deep void we see today. The ongoing excavation of Pukewā will continue until around 2030, when her diminution will reach a final ecological state, becoming a vast lake. The memory of Pukewā and the whenua or land that she was—and which she rested on—will be all but forgotten. It is such an ignominious fate that this

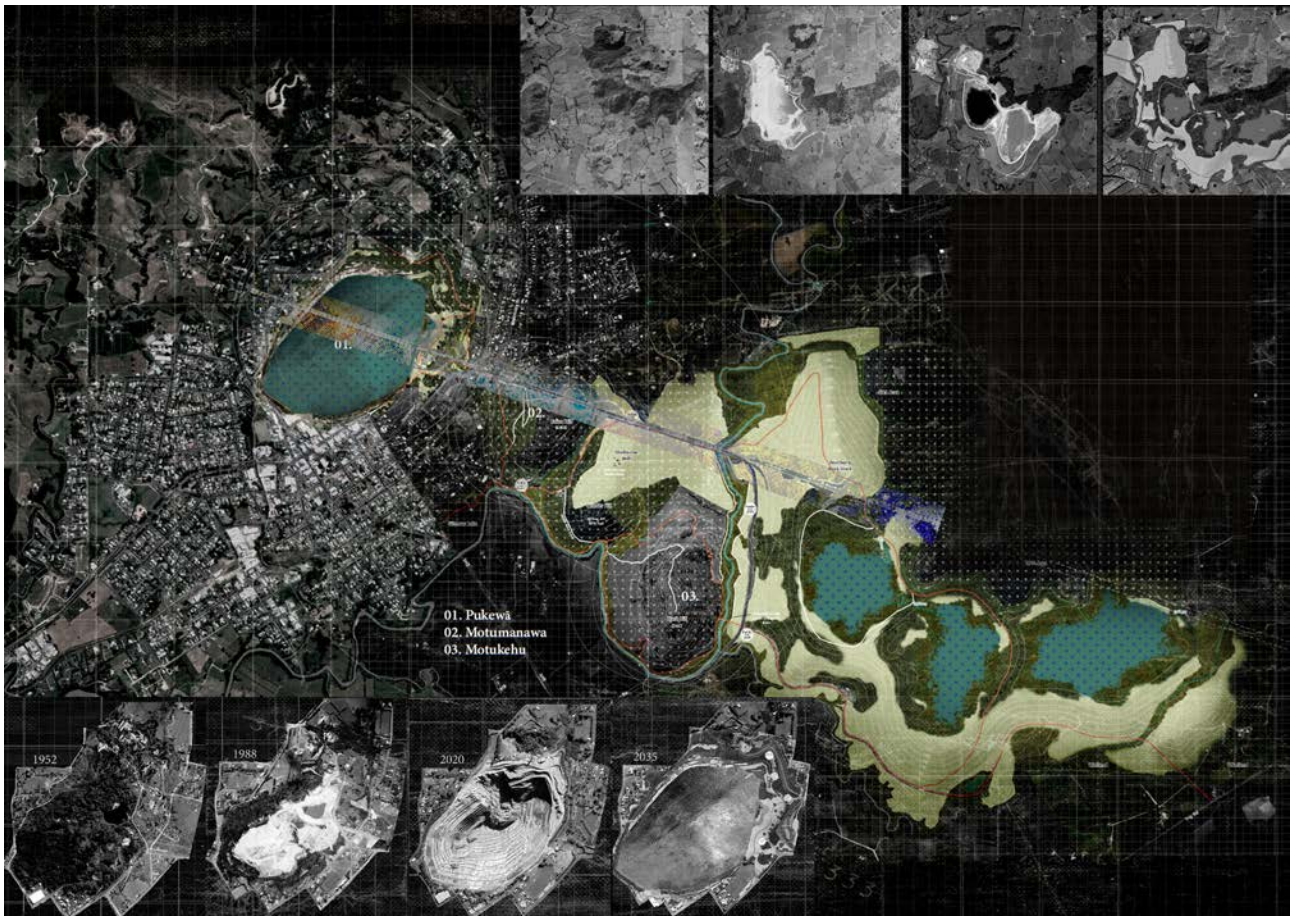


Fig. 1 Author. Site plan of the rehabilitated Waihi in 2035. Stages-of-degradation of Pukewa and the surrounding landscape (top right). [Digital drawing]

design research addresses, asking what manner of architectural intervention may redress these cultural, environmental and landscape loses?

In response I have understood this industrial wasteland a palimpsest itself resting on deeper layers of significance and on which future layers may be accreted (Potteiger, 1998: 225). Drawing on translation theory and local memories, a range of counter-narratives are offered, narratives for which architecture may play a part in remediating post-industrial landscapes (Scott, 1923: 133).

The desecration of a landmark

Histories emerge and fade over time dependent as they are on memories to sustain them. Histories are rewritten as places are reinhabited with each generation. Since European colonisation of Aotearoa commenced in the 1800's, the desire for precious metals and minerals has created an array of industrial sites whose exhaustion of extractive value has left desecrated landscapes. Many of these abandoned sites have slowly been regenerating with the return of adjacent natural ecologies. Yet as the technological ability to more radically reshape landscapes advances, many of these scarred places have become too altered to ever fully heal, leaving economic and social dereliction in addition to ecological loses. Gold mining in Aotearoa, with its associated despoilation and wastelands, has been severe and its effects on Pukewā and its associated town of Waihi are particularly marked, as this project has addressed (see Figs. 1 & 2).

Fig. 2 Author (2021). Waihi with Martha Mine (shown in the midground) as viewed from atop Motukehu (Black Hill). [Digital photograph]

The task of the translator

How then to translate places of despoilation into locales of healing and future value? In responding to this question I have turned to Walter Benjamin's 1923 essay, "The Task of the Translator". In this writing Benjamin proposes an understanding of translation as a form of perpetuation or 'afterlife' emerging from an original, one which ensures the survival of that original work (254). Benjamin is concerned in the essay not just with translations of the word, but a broader understanding of an original 'other', whether that be a person, text, or cultural phenomena. This approach is useful in the dialogue I intend between histories and the future narratives that may build on and translate them. Also useful in Benjamin's essay is his assertion that translation entails a formal layering from which understanding is built according to accretion. As Christian Kohlross argues in relation to "The Task of the Translator", both understanding and this formal layering together create a translation that works hand in hand (2009: 98–99).

What then of the task of the architect acting as the translator in post-colonial contexts where a diversity of cultural elements are joined antagonistically? One solution is to produce constructive spaces satisfying the needs of specific cultural groups. Translation would then entail an engagement with cultural material, both Māori and European, to be conceptualised and configured as a means to create a new discursive assemblage. This dialectic methodology would fuse visualisation and thinking thereby integrating alternative narratives that shaped the site's heritage. Like translation which inherently forms discrepancies in its operations, architecture and built landscapes have the capacity to preserve multiple versions of the past. They are a multivalent past incarnate layering memories thereby enabling us to complexly remember who we are. The designer as the translator therefore, much as Juhani Pallasmaa has argued, has a significant existential and mental task: domesticating space for human occupation by turning anonymous, uniform and limitless space into distinct places of awareness (2012: 189).

Re-establishing lost memories through translation

Informed by translation theory, cultural and landscape narratives founded within the site were linked with traces of the built environment as a means to create a deeper dialogue between different understandings of place within human settlement. The proposition was that through these links visitors and residents could be equipped to better discover new understandings of, and engagements with, this uniquely complex context (Potteiger, 1998: 225).

A design process commenced with various conceptual 'design excavations', themselves conceived of as translations of initial site research and fieldwork. After this, a series of preliminary drawings were created that intended to rethink history and context via a new repertoire of speculative images. What I termed "dreamscape extraction drawings" were then developed by utilising key points and axes to better suggest architectural/formal responses. The resulting drawings became a library of thought that subsequently solidified into propositions for habitable buildings (see Figs. 3–6).

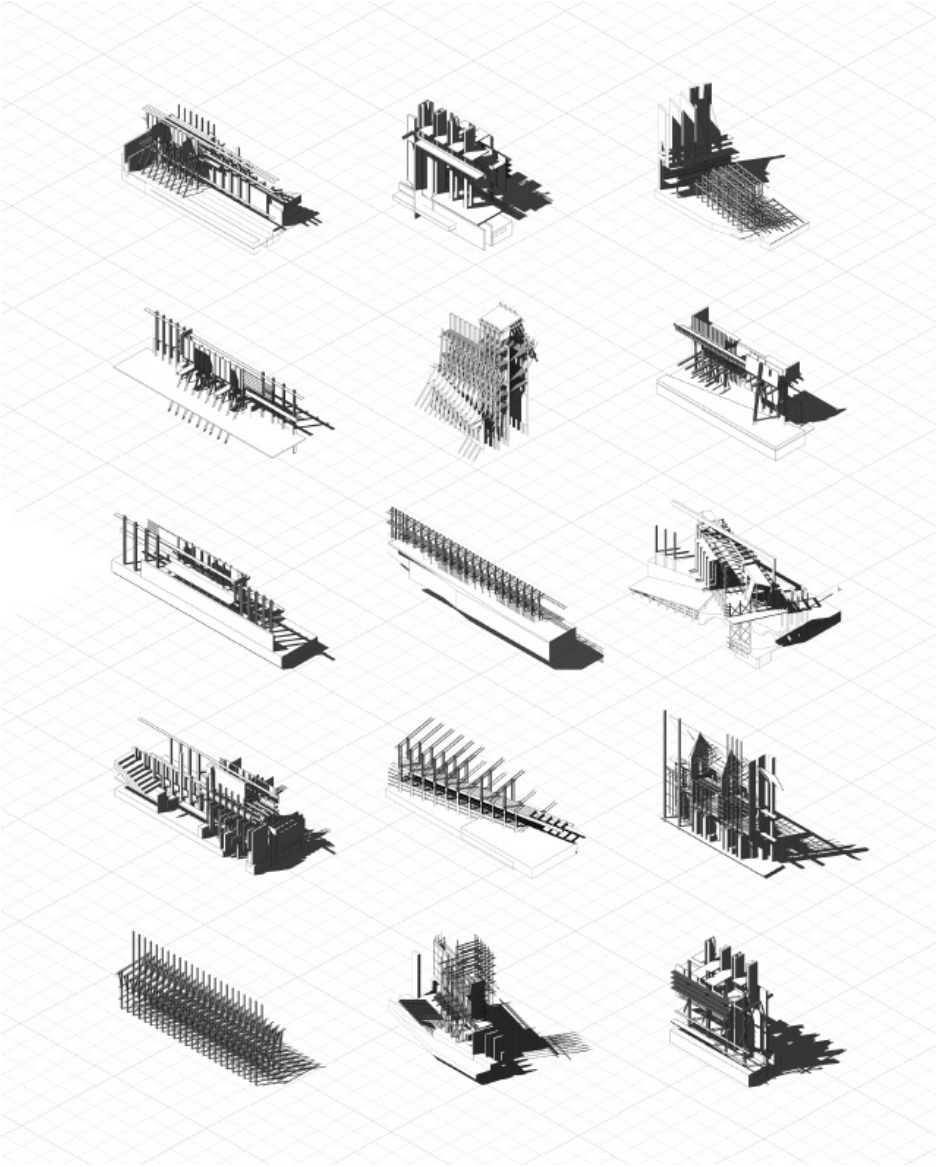
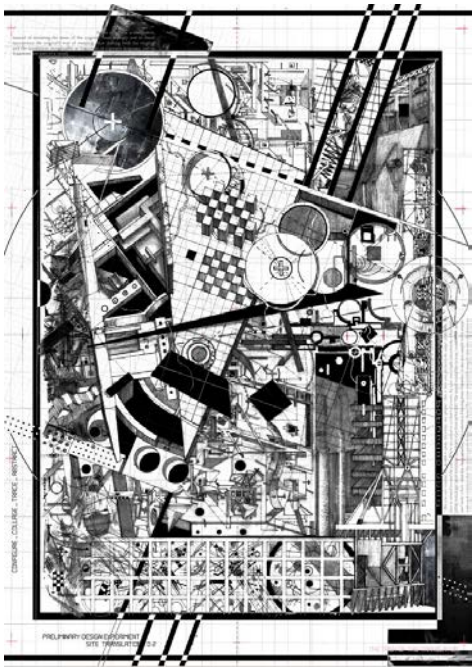


Fig. 3 Author (2021). Archive of process: design excavations. [Digital drawing]



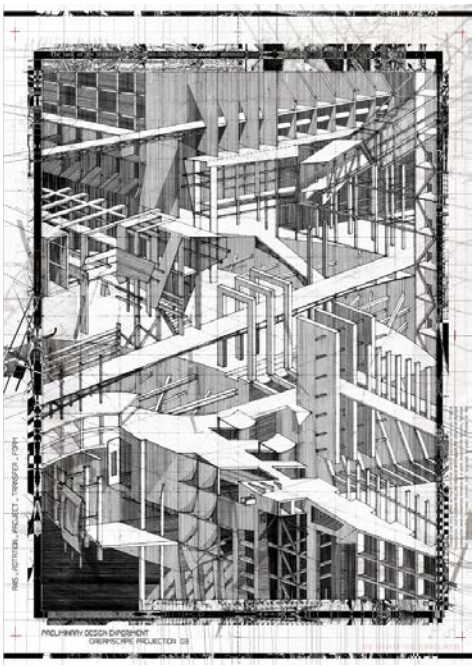
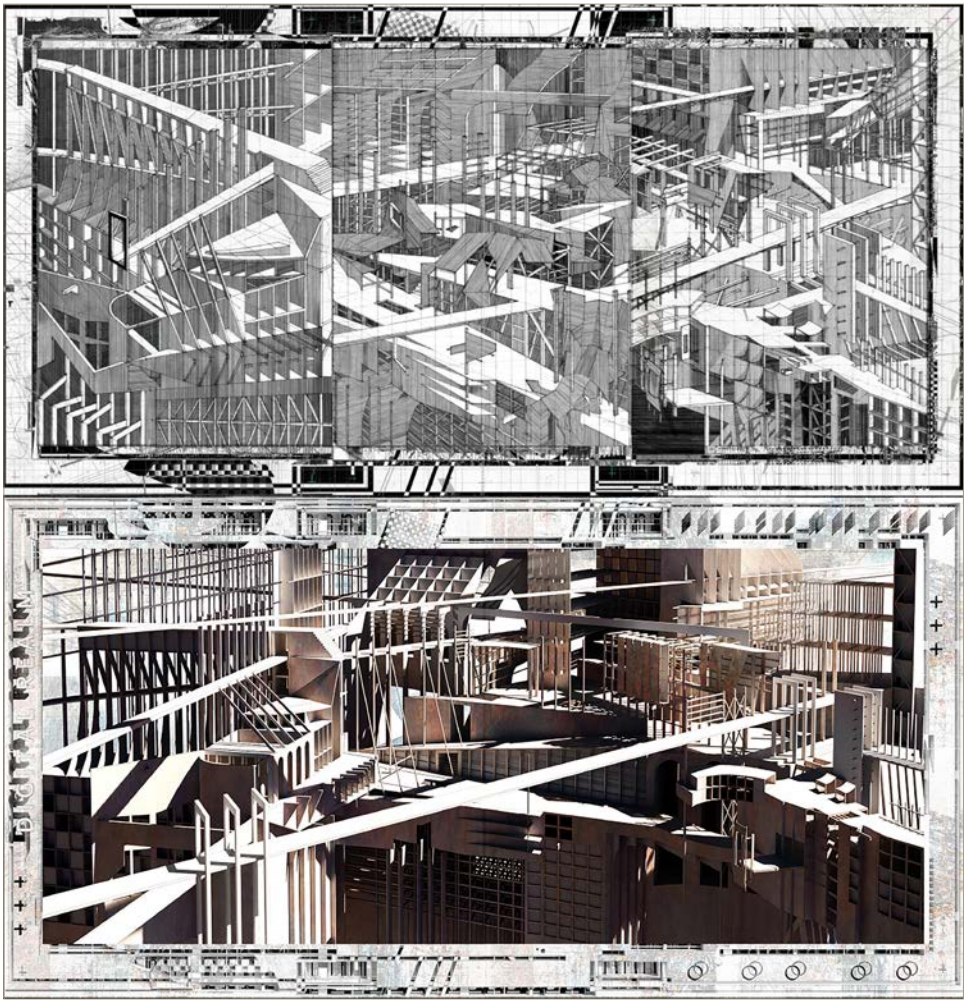


Fig. 4 Author (2021). Site translation 02. [Hybrid drawing]

Fig. 5 Author (2021). Dreamscape projection 03'. [Hybrid drawing]

Fig. 6 Author (2021). Dreamscape realm analogue-digital. [Hybrid drawing]



The final version of the project proposes a series of axial structures that work together to analyse and re-conceptualise historic memories of Waihi. Areas of the site affected by the mining industry are connected along a facsimile of the conveyor axis that is currently used to transplant gold-bearing ore from the open-cast mine to the extraction plant and then on to the tailings facility and waste water dams. The re-formed axis intends a physical passage across the site that is also a contextualising, interpretative structure intended to be an inhabitation of time in disjunctive, truncated senses (see Fig. 7).

Fig. 7 Author (2021). View of Contemplation: the site representing the past. The bridge-like structure protrudes out from the lake edge and is directed towards Motukehu. [Digital Render]

Hence the axial structure representing the past sits alone on the northwestern side of the newly formed lake. Severed from the present, this intervention employs a series of interlinked passages, each designed to evoke a different emotion. As such, this axial structure acts as a memorial of sorts with pathways cutting through, allowing visitors to explore intersecting passages of time (see Fig. 8–9).

Fig. 8 Author (2021). Contemplation: Site plan. Two axis are created, one directed towards the 'present' and 'future' sites and the other directed toward Motukehu. [Digital drawing]

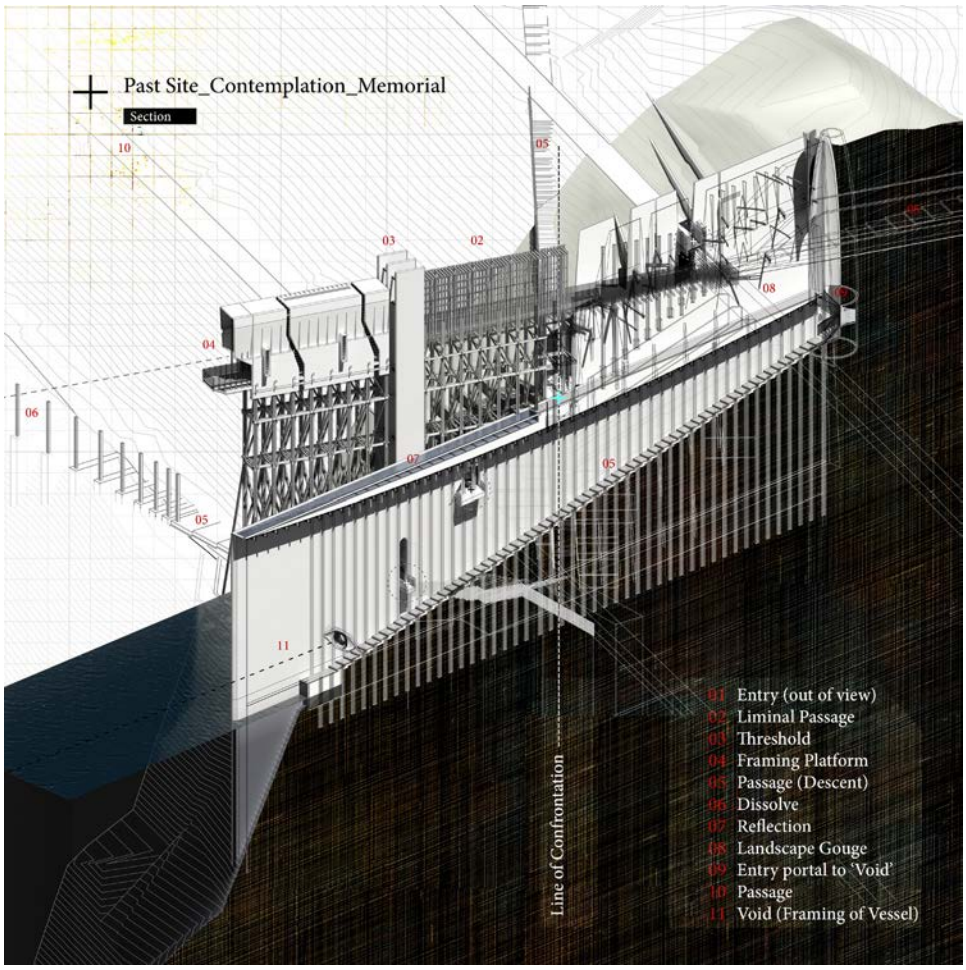


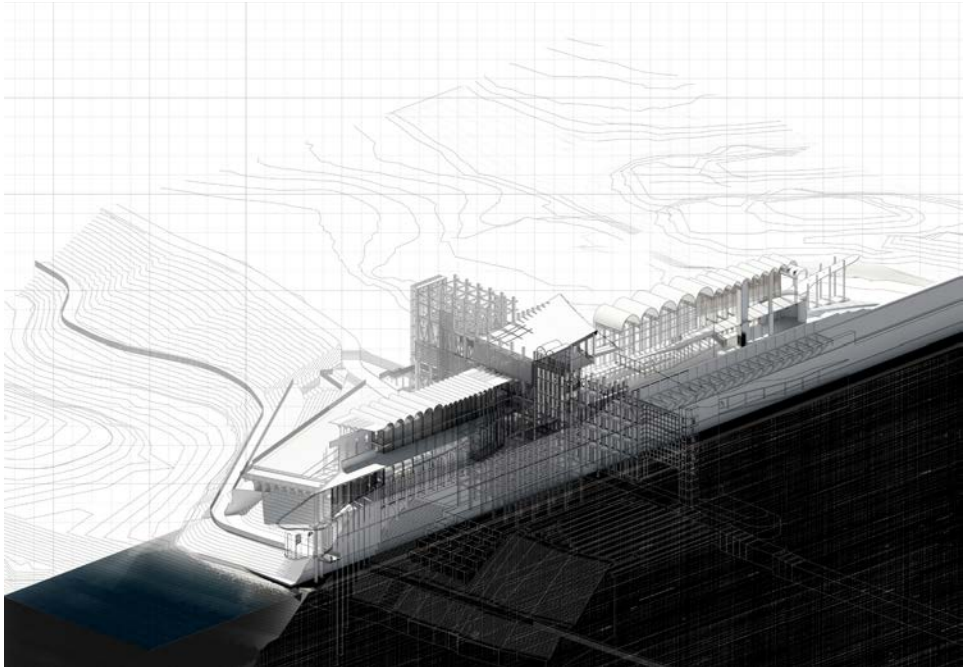
Fig. 9 Author (2021). Contemplation: Section. This section cuts through the passage that leads down to the lake edge with the view directed toward 'The Vessel', itself located on the opposite side of the lake. [Digital drawing]

Across the lake is a territory where two timelines meet thereby creating a link between the past and future. In its current use, this site is the start of Pukewā's journey along the conveyor line which transplants her body to the processing plant. Proposed instead is a new axis allowing passage of fresh water into the lake. This intervention also facilitates a central community hub for Waihi (referred to as The Vessel), one that offers a view back (in time) across the lake to its extractive past (see Fig. 10–12).

Fig. 10 Author (2021). View of The Vessel, itself a location representing the present for it serves the community of Waihi in its present state by offering places for learning and socialising. [Digital render]

Fig. 11 Author (2021). The Vessel: Site plan. The water enters the lake through the newly formed passage which flows beneath the building. [Digital drawing]

Fig. 12 Author (2021). The Vessel: Section. Shown through the conveyor axis. The passage of water passes beneath the building before entering the lake. [Digital drawing]



A final intervention proposed by the project sits on the outskirts of Waihi at the culminating end of the mnemonic axis stretching from the past to the future. It entails a transformed landscape recognising the truncation of Pukewā's body. Arriving at the end of the linear pathway an immense void is cut into the landscape, one that is abruptly contrasted by vertical monolithic pillars reaching skyward. A single concrete block invites the visitor to sit and reflect across a shallow body of water. Large boulders—directly extracted from Pukewā's body—are reflected in the flowing water thereby suggesting in its journey downstream both a cleansing and recharging of the water's mauri or life force.

A bridge-like structure of timber and steel slices the monolithic pillars, turning

against the axis as if to break away from the destructive nature of the site's past. This structure is designed to gradually break down over generations, and with its obsoletion, enact a return to Papatūānuku. Assisting this return is a newly planted forest whose maturation will engulf and eventually tear the structure apart. Left behind is a culmination of the narrative pathway—Motukehu, or what I have imagined as Waihi's landscape chronotope, a maunga untouched by the mining industry due to its non-gold bearing, andesite core. It's persistence stands as a place of safe habitation and defence for the original peoples of the land (see Fig. 13–14).

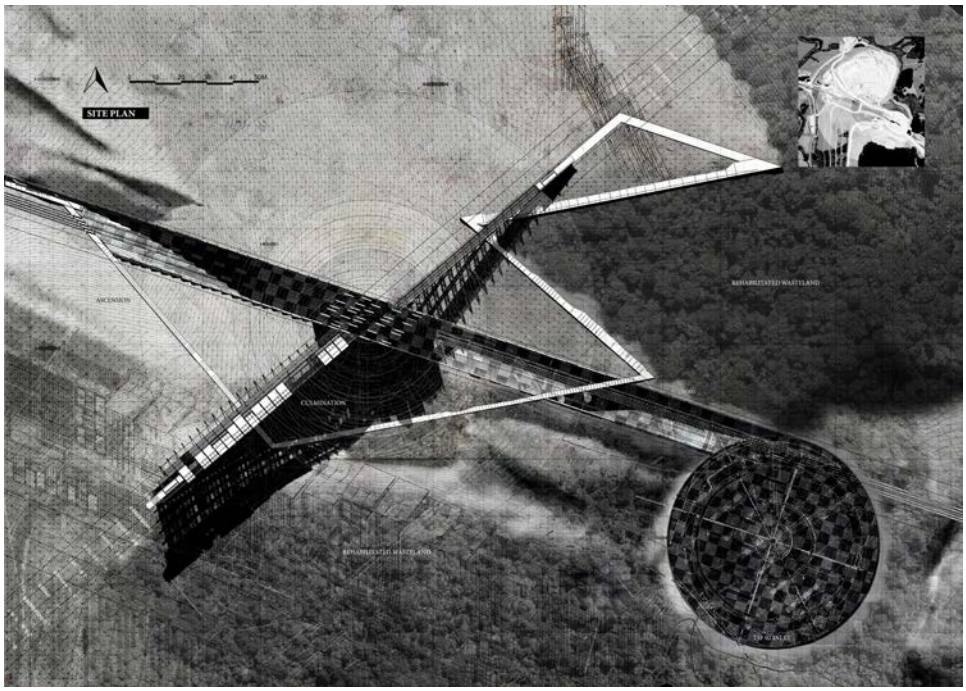


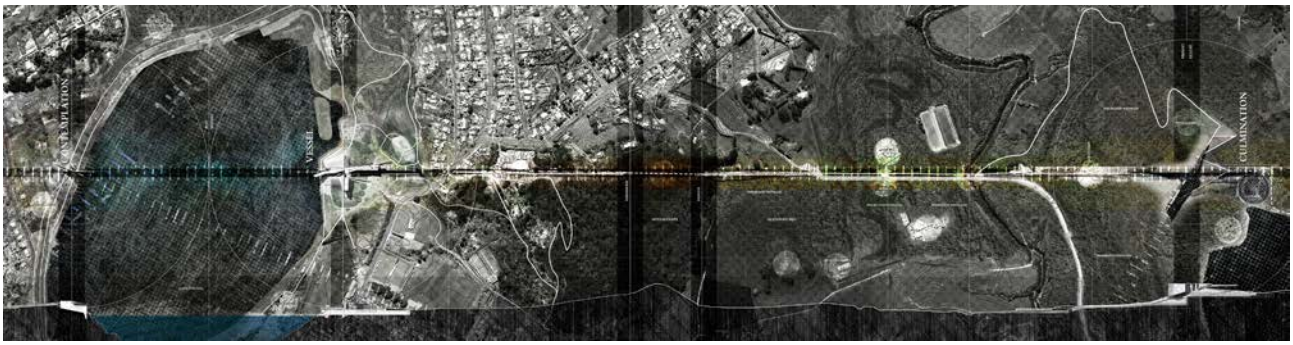
Fig. 13 Author (2021). View of the Culmination, a site representing the future. Image is taken from a rehabilitated landscape and shows maturing trees beginning to engulf the structure. [Digital render]

Fig. 14 Author (2021). Culmination: Site Plan. With the axis broken over time, a remaining pathway veers off course crossing over the axis. [Digital drawing]

A path to the future

Motivating this project was a quest to make imaginable the rehabilitation of a once sacred landscape now permanently scarred. Not just a memorial to loss, I have intended a witness and translator of history, one whose ongoing presence serves to enrich the community of Waihi and Ngāti Ranginui, the iwi or tribal people who are descendants of the various tribes affiliated with the area—a presence in fact that may extend the timeline of these communities. The design process draws attention to the changing histories and contexts of sites such as Waihi, and also to architecture's potentials to respond to the issues of these sites. As such, it has sought to demonstrate a working method capable of synthesising narrative histories and their translation in the service of speculative futures.

Fig. 15 Author (2021). Rebirth of Pukewā: complete site plan. [Digital drawing]



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Interview / JULIA GATLEY

In conversation with Mark Wigley, Professor and Dean Emeritus of the Graduate School of Architecture, Planning and Preservation at Columbia University, New York

A VIRTUAL Q&A CONDUCTED IN "ALUMNI ABROAD", *FAST FORWARD SPRING LECTURE SERIES*, SCHOOL OF ARCHITECTURE AND PLANNING, UNIVERSITY OF AUCKLAND, AUGUST 3, 2021

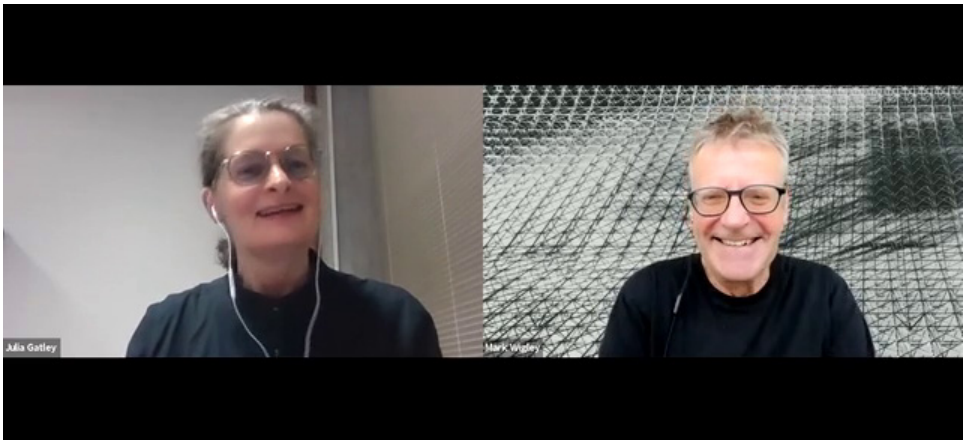

Fig. 1: Julia Gatley in conversation with Mark Wigley, August 3, 2021. [Zoom still]

Julia Gatley: A very warm welcome, Professor Mark Wigley. Congratulations on your incredible career, and thank you so much for joining us tonight.

Mark Wigley: You're welcome.

JG: You're in Spain at the moment. What takes you there and are you there for a short time or a long time?

MW: I think anytime in Spain is a short time, so I try to make it as long as possible. I'm here a lot because my partner Beatriz, her family is from this region and this place, so we have a place here on the water. It's just obsessively wonderful. It's basically a beach, so it's my New Zealand thing in the Mediterranean.

JG: Perfect.

MW: It's borderline criminal, so I really shouldn't tell you more about it. It's ridiculously good.

JG: All the better from Auckland where we've just had a big storm last night. I understand you grew up in Palmerston North. I'm interested to know what influenced your decision to study architecture, and if you recall any particular formative experiences?

MW: Actually, I was hoping you could tell me. I have no idea. Since the age of nine, I would answer the question, "What are you going to do?", I would say, "I'm going to be an architect," and it's probably, you know, I'm very stubborn, so maybe that's just what happened. It was a sort of an error and I just kept repeating it in my stubborn way. There's no explanation. I was not brilliant at building with blocks, and there wasn't, as far as I know, any architecture in Palmerston North, as defined, like as high art. Of course, there was architecture in every sense, everywhere. My only guess is that my parents were great travellers and always would show these wonderful slides of everywhere they had been. I remember very vividly a lot of the mosques in Isfahan and so on. I have a little bit of a feeling that maybe, but this is just sort of romantic fantasy, that maybe I looked at the real thing and then thought I should somehow participate, but I think the truth is probably more kind of crazy, like it's just a mistake. But mistakes are good.

JG: And you completed your BArch here at the University of Auckland from 1975 to 1979, when different staff in the School were running the three sub-schools of Brick, Timber and Steel. In our School centenary book, we categorised the 1970s as "the loose years", so I'm interested to know what your take on the School was back then, if it was loose, and if that was good for you?

MW: Yes, and yes. It definitely was loose, but loose with a kind of purpose, I would say, because I think what was brilliant in that moment was the uncertainty, because there were the three different sort of mini-schools, and the new building was on its way, towards the end of my time there. So, you felt like you were at the end of an experimental period, which was about to be followed by formality, as represented by this big glossy building. So all this sort of anti-architecture, all these sheds, connected to the great tradition of the shed and the mythology of the School, was about to give way to what, relative to that, was not a very interesting building, a new building. It was like the last years. And in that moment, it seemed to me not even ideologically strict. For example, as students, we could move around between these schools. They were not like religions that you had to follow.

Fig. 2 From the late 1940s, the Auckland School of Architecture occupied old army huts that in the 1970s became the Steel sub-school. [Photographer not known, Architecture Archive, Special Collections, University of Auckland Library and Learning Services, Acc no. 03/10]

For whatever reason, I think I started off over in Steel or something and ended up towards the more experimental end [Brick], because I was attracted to the vertical teaching, the fact that the younger students and the older students were side by side. More than that, the teachers were also acting more like children than

Fig. 3 The burnt remains of the Timber Building, with the new School of Architecture Building, designed by KTRA, behind. [Photographer not known, University of Auckland Library and Learning Services, Record Number 397340]

Fig. 4 Staff and students on the balcony of the new building in March 1980. [Photograph by Denise Moore, Architecture Archive, Special Collections, University of Auckland Libraries and Learning Services, APPFA Photographs Collection]

adults. So, I think it was a great time in which the School didn't know what it was, and it seems to me, it's always great when people don't know what they're doing. "Loose" implies you do know what you're doing, you could do, and you're not doing it. I think it was more uncertain than that, and really fantastic and even the fact that the Timber Building burnt down somehow conveyed this last dance feeling. Dancing, I think it really was. I remember [lecturer] Dave Mitchell really danced amazingly well. He was quite a large guy, but somehow when dancing, he seemed to be doing some sort of Olympic routine down on the floor. This was very inspiring for students, that the teachers were, to use an old word, very cool. As a result, I think there was a great camaraderie. I saw you published that picture where all of us are gathered on the edge of the new building. It was very emotional for me to see it and to see myself there and to realise how many people were in that picture who were such wonderful companions at that time.

JG: The actual Experimental Building that had multiple floors and multiple staircases and platforms, was that the particular scene of the dancing?

MW: Yeah, of course, because it was the only way you could move around in the building, it insisted on that. I suppose it was a bit like every child's fantasy, like a playhouse, where it's irregular, and all the levels. In a way, it really captured, to use your word, the loosening of the screws and so on. I think it was wonderful. Of course, I suppose, and you're the expert on this, but I think somehow all the experiments of the 60s were nesting there at the end of the 70s, so it was last dance, not just for the School, but also for the discipline.

Fig. 5 and 6 The Experimental Building in 1970, its radical form in contrast to its cottage neighbours, and its interior, a maze of posts, bracing and platforms. [Photographs and montage by Tet Shin Choong, reproduced from "The School of Architecture, University of Auckland", BArch building report, University of Auckland, 1970, Plate A (exterior) and Plate E (interior)]

The other thing is that I thought at the time, and I think more now, that there were so many wonderful teachers. Really that's what made the School. It doesn't really matter what the building was and all that. There were amazing teachers. They might've even liked each other quite a lot. Not totally, but quite a lot, and that's impressive for a School.

JG: It does sound like a great time to have been there.

MW: Yeah, one more thing, there was also a generational thing. Doc Toy was still a kind of cosmic guru, implying that somehow whatever you did, even in New Zealand—and "even in New Zealand" was the way of thinking of it—even in New Zealand, one could connect to the great traditions, not just of architecture, but of culture. I think John Dickson continued that, and then Mike Austin, Dave Mitchell, Nick Stanish, and John Goldwater. All of these teachers were somehow your intermediaries between the local situation and this deep history. My strongest memory of that time is how kind and open and, to use your word again, loose, the teachers were. It was actually a wonderful time. By the way, this is all sounding very romantic, and therefore not to be trusted. As Mike Austin would tell you, all I ever did was complain when I was there.

JG: Oh no, you were one of those students [laughing]!

MW: Oh yeah, and he said to me once, "You complain a lot, but there'll be a time that you look back and say these were your golden years", in the sense that you had time to complain, and time to think, and time to reflect. This is one of the many things that Mike told me, that I carried with me and actually try to pass on to my own students.

JG: Well, I believe that Mike is with us in the audience this evening, so we might get a comment.

MW: One of the victims of this conversation [laughing]. I owe everything to Mike because he had this generosity to what hadn't happened yet. He would trust somebody, if he just let them do what they wanted to do, to go to a place that hadn't been defined yet. That seems to be the essence of teaching. So I owe everything to Mike, in the sense that he really was my advisor. Some people do PhDs and advisors don't really advise. He really was the advisor, like a counsellor in a way.

JG: That's a good time to move to this document.

MW: Oh that thing, okay, but just to say that teaching is the thing that matters the most. Oh this, so it exists.

JG: This is your BArch thesis titled, "A Case for Chance", supervised by Mike Austin. It is about "the random interactions of independent phenomena". What really struck me in looking at it was the extent to which it signals all of your subsequent interests in architecture, art, philosophy, culture, and technology. They're all in there. There's even a poem called "The legend of the white wall", suggesting a fascination with white walls long before your book, *White walls, designer dresses*. I'm wondering if you remember this document in particular, and if it was an important piece of work for you at the time? It has beautiful photos right through, too.

MW: Well, firstly, Julia, I didn't know it still existed. I haven't seen it since the day I submitted it, and that's the only copy that you're holding.

JG: They should never have let me take it out of the library, but they did.

MW: Yeah, but I really had thought that it didn't exist anymore, and I've often wondered. I've often wanted to see it, like trying to look at yourself as a baby and the fruitless effort to see if you could see yourself in formation. My feeling is, of course, for me, I know that this is an important document, because it's where at the end of it, Mike said to me, "You're good at that", the writing/thinking sort of stuff. So really, it was the beginning of this trajectory into scholarship, but it's also, you have to think, it's not just Mike, but the School, because there was this amazing thing that at the end of your training as a professional architect, you had to write something for three months. It is faithful to the old idea that the architect is an intellectual, that every professional is a thinker. In that moment, I went down that path.

Whether the content of it relates to my current work, it would be better for you to say than me. It's funny that you've spotted the white wall obsession is already there, but for me, it was more like a coming of age, or self-discovery, whatever. The photographs were exactly that, just photographs I was taking. I've often wanted to see that document, so I'm really almost shocked that you're holding it in your hand.

JG: We can probably organise a scan for you.

MW: But do you know, it gets back to this. The trouble is as a theorist, you just pounce on everything, everything is grist for the mill. So the chance that the whole thing was, of course, exactly about what I was saying before, not knowing what you're doing, and mistakes are very, very crucial. That whole sub-thesis was about the history of that idea, that being a little bit out of control, not knowing, is the beginning of knowing.

By the way, why would you want to know anything if you hadn't had the sense of not knowing first? Doubt is like an engine. An engine of thinking, it might be an engine of relationships. I don't want to sound too "fortune cookie", but it's really like that, to the extent that you don't know, you learn, or you grow and so on. Now, I've turned it into a speech. Architecture is traditionally considered to be the opposite. It's the opposite of doubt. Actually, we build to cover up doubt. You could almost say that cities rise up and are their strongest and most permanent where our doubts are the biggest, so how do you take a field like architecture, which is making symbols of certainty, but for those symbols to be in any way interesting, there needs to be doubt. Teaching, school, and studio, and the inside of the architect's brain, and the inside of a school, are kind of laboratories of doubt. That's why those years were very productive, it seems to me in the School, because it was uncertain. There was doubt there, and good teachers nurture the doubt.

It's a trick, because architects are then called on to go in public and pretend that they know what they're doing and know what buildings represent, so there's this very boring role, very conservative role, that buildings play in society, but they're generated by very crazy people who think that buildings can talk. Only architects think that buildings talk, so this is what's wonderful of a school. It's like a room of children who think they can talk to buildings, and we fruitlessly try to tell the rest of society that that's really happening, and with not much success. For thousands of years. End of speech. That was just trying to go directly to the question of doubt, and chance.

JG: They let me take your PhD out of the library too. Completed in 1986, entitled "Jacques Derrida and architecture: The deconstructive possibilities of architectural discourse", again supervised by Mike Austin. The urban myth in Auckland is that early on in your enrolment, you went to New York and knocked on Peter Eisenman's door, and that he really encouraged your focus on deconstruction. I'm just wondering if there's any truth in this, or if it's a myth that has spiralled out of control.

MW: No, it's not true. No. But probably like most myths, there's truth in it, but it's not true. More or less, the way I remember it, but why would you trust my memory? You know I used to watch *Coronation Street*, and Ena Sharples once was having a beer or a stout or whatever she had with Minnie Caldwell, and she says, "I don't like to go down memory lane because the last time I went down there, I got mugged."

So, if we try to remember this moment, what happened was, in what was for me a very interesting journey, I ended up writing about deconstruction and always imagining that this was basically a philosophical position of the late 1960s, so basically feeling there in New Zealand, more or less happy, whatever, trying

to think through the implications of a philosophical movement of the late 60s, not thinking that that had any relevance to anyone, anytime. Then, an architect called Stanley Tigerman came to visit New Zealand on some kind of scam, selling Formica, and there were allusions to deconstruction in his lectures. For the first time, it occurred to me this was not just a personal fantasy, many decades later, but actually there were people who were interested in it. That started a desire to go over to see who was interested in this stuff.

When I went to New York, I did meet Peter Eisenman, but it was the other way around. He was interested in what I was doing with deconstruction. But there was great pleasure to discover that suddenly there was a community of people for whom this subject was not historical, but urgently relevant. I found all those conversations extraordinarily exciting, so exciting, and I think that Mike sensed this, I could easily just have stayed in New York. He actually sent me a message saying something along the lines, "If you don't come back and finish your PhD, we're going to ..." and the word I remember is "terminate you", which is a very un-Mike term.

I took that to be really a serious message, like you need to finish this PhD. This again was a great gift to me, because I came back and did finish it and then returned to New York to continue those conversations. So, it's a myth, but Eisenman, who became one of the assessors or the readers of the thesis, was an important reference point, because also of course, in his orbit were other people interested in the subject and so on.

Now, why do people want the myth to be that myth, because the myth would be once again, that somehow a New Zealander would need an American to guide them towards a French philosopher?

JG: It would look that way, yes.

MW: There's a classic New Zealand thing. I love the classic New Zealand thing. I'm the perfect example of that: we are not worthy, we are so distant from the world, we're genuinely modest, which is immediately followed by the opposite, which is an extraordinary arrogance, because since we are so distant from the world, we're pure, direct. If I'm reading Derrida, I'm getting it right for the first time, because I haven't been corrupted by all this other stuff going on. So, there's simultaneous genuine modesty, combined with this extraordinary arrogance, in equal mixture, that's the thing, and I think that myth is about the first part, which is the New Zealander feeling like there's got to be this other voice. That was interesting. You arrive in New York and they have the opposite point of view, which is like, "Hey, what have you got to say?" It was great.

JG: When you decided to move to the States, was that a risk in terms of being able to work or did you already have the job at Princeton lined up? Were you imagining staying awhile?

MW: No. No, I never thought anything would happen. That PhD was done as part of a first wave of PhDs taught by Mike, who had himself a PhD. Maybe Mike was the first.

JG: He wasn't the first, but he was one of the earlier ones.

MW: Right, so let's say the first generation to be taught by others who had done a PhD. The idea that this would be a career is ridiculous. It was the exact opposite.

I can't say it strongly enough, but it's really hard to do a PhD when you think that this is the basis of a career, because then everything you write is aimed towards a hypothetical audience that will love you, and then give you a job, but the problem is, PhDs are about changing the field. You're actually writing for an audience that doesn't exist yet. So I think again I was very lucky to be writing in a time in which it was a very stupid thing to do a PhD. And therefore you could really follow your instincts and try to do a good job and all that.

So, when I went to New York, it was just because I wanted to keep going with those conversations. I was appalled when Princeton gave me a job, and I was so sure that they would recognise their mistake, that during the first year there, I insulted everybody all the time, because I thought, this is it, I've got one year, or to say it another way around, I just was honest or direct. Of course, it turned out they loved that, so I stayed and all my diplomatic colleagues were fired.

JG: Did they give you a one-year contract to start with, and then it grew?

MW: Yeah, every year it was one year and one year, and then it got a little bit bigger. Then before you know it, I had gone from the outside of that institution to the very inside of it and so much so that I was no longer the rebel, so I ran away to Columbia, where again I was on the outside, but very quickly found myself on the inside there as well.

When I said before I was being honest, I probably just had a bad character. I was very undiplomatic, let's say, and again, it's really hard these days to be undiplomatic. Everybody's so risk averse.

So far in this conversation, Julia, there's a lot of luck here. There's a lot of lucky breaks.

JG: Luck and good timing.

MW: Yeah, but you know ...

JG: That's probably a good time to move on to working with Philip Johnson. You were co-curating the 1988 exhibition, *Deconstructivist architecture*, at the Museum of Modern Art in New York, with the book of the same name, published at the same time. How did the project and collaboration come about? What was it like working with Philip Johnson?

MW: This is a long story, but the short version is it's going to be exactly what I just said before. The reason I ended up curating that show is because I was invited to a dinner, where there were a few young scholars and a number of architects—Eisenman, Gehry and a few others. The dinner had been called by Philip Johnson, and during the dinner, they explained a concept for an exhibition they were going to do. I thought it was a shitty, stupid exhibition, and I said so, just because that was my mode at that time. This is quite soon after, a few months after, I had left [New Zealand]. I had just started the job at Princeton. And I said it was a very stupid exhibition.

Then, Johnson said something like, "Well, what would you do if it was you?" I said, "I would make an exhibition that proved that Frank Gehry is finished." They all looked aback. I mean, I really was thinking, I said, "Because that's the purpose of an exhibition, to celebrate the work of the last ten years, let's say, to create space for new work." Gehry, whose work I greatly admired, I thought he had done

some amazing work in the previous ten years. My argument was you get to MoMA and you celebrate work when it's finished. Like it's a high cathedral.

Gehry came up to me afterwards and said, "I really liked what you said. You put a gun to my head, but you're wrong, and I'll show you." I didn't know he was working on Bilbao at that moment. He's a street fighter. So as a result, I just found myself there, so then they said, "Okay, you're going to do it." So, I did it, and at the same time I was starting to teach, there was my first exhibition and first real teaching job, although I had been teaching at the school in Auckland, which was a great privilege as a PhD student.

Again, we didn't say it before, but there was such a kindness. As PhD students, we basically had lunch and coffee and so on with the faculty. This is a continuation of that thing of the experimental school, the young and the old. That was where I was doing all the complaining, sitting there permanently, the whole day, complaining. Basically, I just went with that, into that situation and started to curate.

And, what was it like to work with Johnson? Amazing, because Johnson was old at that time, but still fast. I mean, he walked faster than anyone and talked faster. Basically, people at the museum hated him, because he, of course, had invented that department. He was thoroughly unimpressed with what they had been doing, and the whole point of this exhibition was to rattle the cage. They hated the exhibition. They hated the thought that it was happening. Therefore, they hated me, because I represented Johnson. It's like the revenge. He's supposed to not be there. So they tried to block everything. The way it worked is Johnson allowed me to make every decision, every single thing, and he acted as the cover and defended me against all the institutional forces.

I have to say it was exhilarating, because at MoMA, they know the politics of typefaces. I got into arguing. I remember a couple of days before the exhibition opened, a man came to me and he said he was in charge of etiquette at the museum. He was incredibly well-dressed, like something out of a movie. I was just marvelling at the fact that there was such a person. He said, "Which colour flowers do you want during the opening, red or blue?" It couldn't be red because that would be a clumsy reference to the Russians, and it couldn't be blue because that would be the counter, so I said, "Could we have both?" He said, "It's never happened before. Let me go and check." He disappeared. He came back the following day, and said, "Your wish has been granted." It was like this. It was super exhilarating. Johnson somehow knew that what I was doing was rocking the boat, so he supported it all the way. I have to say it was a very great privilege and very, very interesting.

After the exhibition opened, very shortly afterwards, it started to surface, Johnson's intimate links with fascism and anti-Semitic writings and all of this. I just broke. I couldn't, you know. So I don't regret working with him, but I'm totally supportive of the removal of the name and disconnection of things that are unforgivable, but it came just after it. Now, if it had happened during. What kind of opportunist am I? That's when I would have learnt. If I had learnt this during, I wonder sometimes. I don't trust myself to have just walked out. I probably would've acted out. I would've stayed there and made this part of the story, but you gotta understand how innocent, and again, innocence was incredibly useful in that moment.

JG: You kept working further with deconstruction, reworking your PhD for publication as *Derrida's haunt* in 1993, and the introduction acknowledges that a lot had happened in the field of deconstruction between 1986 and 1993, including Derrida writing about architecture and collaborating with Tschumi on the Parc de le Villette. Your own position had also changed from periphery to centre, and you'd obviously made friends with at least several of the key players. So, what impact did those things have, do you think, on the development of the PhD to the book? Your move from periphery to centre in particular.

MW: Yeah, it's funny listening to you, you know me better than I know myself. A couple of things come to my mind here. I mean, the exhibition itself insists that that work is not derivative of deconstruction or a demonstration of it. The argument is that if you were interested in deconstruction, this is the aspect of architecture that would attract you. The idea was that a small set of architects were triggering certain doubts around the status of geometry and so on. Yes, there are occasional direct links, like Derrida working with Tschumi and things like this, but they're not, let's say, at all what interests me, although what Derrida writes about Tschumi in that collaboration is extremely interesting, in the history of Derrida's work.

The PhD is the opposite. The PhD was interested in the architecture that's inside deconstruction already, like what are the ideas about architecture on which deconstruction depends, even in the word deconstruction? It's the kind of inverse. One is the architecture inside deconstruction, and then you were asking what happened when deconstruction went inside architecture? Probably, I turned the PhD into a book to, as it were, reassert that previous attitude that I had, but actually it's not a shift of position. They are complementary. I insisted at the time that deconstruction would not be productive of some kind of style. People were very sceptical of that, because the museum is like a machine for style. I was, I guess, proven right relatively quickly, and the status of that exhibition changed relatively quickly.

Now, I'm almost embarrassed about how much honour is shown to that exhibition. In retrospect, I realised it was very, very focused, very polemical. I mean, all of those architects that were in there, of course, went on to become unbelievably important. I don't, in any way, think the show contributed to that. I think it's the other way around. These were already very, very bright [people]. Think of Zaha Hadid. Really just one of the most amazing architects of our time. She didn't need an exhibition at MoMA to be who she was and would become, but nevertheless that happened. Notice how all those directions were entirely different … Rem Koolhaas. Most of those people had not built anything at that time. They went on to build almost everything, but there's no debt there to the exhibition. At the time, they all were very aware of the fact that I was using their work to make a theoretical point. They were all happy to be celebrated at MoMA. Why not? But there was not a tie, so I'm saying all this, because actually when I turned the PhD into a book, I didn't have to fight for anything. In a way, the show had become almost embarrassingly respected. Turning the PhD into a book was a nightmare. It was like root canal work. If you leave a book alone, as you probably know, for three years or whatever it was, you're a different person. The first thing you have to deal with is someone else wrote it, and then when you write a book, you write a book to find out who you are. Imagine trying to find out who you are by rewriting a book by someone else, which is a previous you. There you are, somehow caught

between the old you and the new you. Nevertheless, I did it. Somehow it seems to mark that inquiry. Really, again, the book seems to have lasted in the sense of it still seems to trigger a certain attitude and hopefully a seriousness about the right of architects to think philosophically. This was at the heart of that mission.

Could an architect do this? I was only, only a New Zealander, only, only an architect, only, only young, all these things. Do you have the right to write about the most extraordinary French philosopher? My point would be, yes, you have that right, and the kindness that Jacques Derrida himself showed to me and to that work was incredibly embarrassing. I found actually when I was with him, he was always incredibly kind, but I couldn't speak. I could literally not speak because I was almost offended by how kind he was towards the work and then curious about it and so on. Again, he was a teacher.

JG: That's fantastic.

MW: A very long answer to your question, but boy, it was hard.

JG: It does help to explain a little bit why the next book, *White walls, designer dresses*, was so different, with the focus on modernism and challenging the original claims of the protagonists from the '20s about their architecture being a lack of style, given that architecture is always aesthetic. It draws out a question about the relationship between theory and history. I know that you've written about this separately. I'd like to invite you to say a little bit about the relationship between history and theory, as you see it.

MW: It's a bit of a risk for you to ask me that. Let me try it this way. I teach one class every year. I taught it for thirteen years at Princeton, and I've been a long time now at Columbia, but every year, I teach a class called the History of Theory. By the way, it's always the same class and it has the same syllabus. It hasn't changed, which is a crime, I'm sure, but it's a conceptual experiment. Could you have the same syllabus for decades? Of course, I think every time it's different, because you connect the ideas to the world differently, but it's really about how history and theory are inseparable, that every architect is a theorist, like I said before, but that also means a kind of historian, historia, telling a story. So, yeah, in that moment, it was very deliberate.

Also, I was obsessed. Of course, if you look in the *Deconstructivist architecture* show, in the PhD and in the book that came out of it, at the centre is a kind of obsession with the relationship between structure and ornament, that which is supposedly necessary and that which is supposedly not necessary. Yet, somehow it seems necessary to have the non-necessary thing around. That's the obsession. It's the only thing I'm interested in, probably ever.

So, there's this book, which seems, as you point out, much more historical. It's about the same thing. It's about the relationship between the surface and the structure—fabric, dress, the clothing, that which you don't need, but of course you do need. They're linked.

I think it was also, and to this day, very influenced by Beatriz Colomina, my partner, who as she always does, produces a kind of exhilarating sense of history, like history becomes an unfolding. Again, this is another part of the luck, the luck to be with Beatriz, the luck to be with Gill Mathewson when I was in New Zealand, who was doing her pioneering work on gender in both practice and in theory.

Figs. 7 and 8 Wigley as a keynote speaker at the Accessory/Architecture Conference, University of Auckland, 1995; and Mike Austin and Beatriz Colomina at the same event (Colomina was also a keynote speaker). [Photographs believed to be by Lynne Logan, Architecture Archive, Special Collections, University of Auckland Libraries and Learning Services, APPFA Photographs Collection]

Again, look at Gill. It was practise and theory together. So I think you learn a lot, if you're lucky, if you're lucky to be with super interesting people, you learn a lot.

I think you can see in that book on white walls, that Beatriz's expertise on Le Corbusier has infected me. Basically you're part of a conversation, which is the conversation at home, in the streets, in the school and so on.

In the end, I don't know if I like the book. Maybe I don't like any of them, but it's interesting that it's artists who are the strongest readers of the book. There's not a month goes by when I don't get calls from artists and so on. That's, again, another thing, very interesting. I said before, do architects have the right to speak? Then, there's another question. Who's listening? Listening seems to me such an under-estimated part of life and getting back to Mike, he was a great listener. Listening, this is something. Who's listening to us? I think when artists are listening, you know you're not so stupid. So I think it's a stupid book. For me, personally, I think it's clumsy. The issues are important and probably that's why the book's a bit clumsy. It really mattered a lot to me.

You can see that all the other books are the same book in different forms. Even the more recent work on radio and so on, it's the same. You're not going to get a new idea from me. You're going to get the same half idea that I had in Auckland, that same half idea. It's amazing. You can take a half an idea and maybe it's like a graft or something. You can grow half an idea for the rest of your life. If you have a whole idea, probably it's all over.

JG: We'll take you to your ideas about artists a little bit more now, asking about your work from the late '90s and the early 2000s, the focus on Constant's New Babylon, with exhibitions and publications exploring an artist's visions for a city, for a post-revolutionary society. Then, in the last ten years, you've done books and exhibitions on Gordon Matta-Clark, known for cutting buildings open. What is it about artists who work with architectural subject matter that interests you most?

MW: I think the question would be, what's an architect and what's an artist? By the way, Gordon Matta-Clark's definition was that art doesn't have plumbing. Of course, it's not necessarily completely true, but I think of architects as people for whom buildings are questions. Society thinks that buildings are answers, but for architects, a building is a question. In the same way that a painter, a painter is somebody who doesn't know what painting is. They paint their whole lives to try to understand why they love this thing, painting. The greatest painters are the ones for whom painting is their biggest question. For architects, we think buildings are questions. We're mystified by them and we find them enthralling. We'd talk forever about buildings.

You do a conference on door knobs, architects would go for a week, but people who make door knobs, won't go to a conference on door knobs. They make the door knob, and go home and have a life. Architects don't have a life—never have a life. We cannot stop talking. So for us, buildings are questions.

Then, for artists, an architect is supposed to be a figure of certainty, when it's actually somebody who is doubtful about what a building is. Artists, who are professional doubters, who ask us to change our ideas about what things are, when they get interested in architecture, you get a doubling of that. Somebody who's curious about everything becomes curious about architecture, itself as a form of curiosity.

Matta-Clark was trained as an architect first, and then his work is so provocative that everybody calls him an artist. My view is he's just an architect who's not boring. He just lets the doubt that is at the centre of our field become the work itself, whereas the rest of architects tend to then seal the doubt.

That also plays into the whole gender argument, because architects pretend to know what they're doing, so they assume this masculine, this man, explaining ideas about architecture, and the architecture which is radically uncertain, produced by complex collaborations of people, clients, and situations and so on, but then somehow we act as if a single figure, and preferably a male figure, could represent the certainty of this thing that's so doubtful.

Constant, on the other hand, was a painter who pretended to be an architect, as a criticism of painting. I guess I'm super interested in figures who cross those lines and then really research those lines. Matta-Clark's career was only ten years, as one of the most important architect/artists of the twentieth century, but it's really ten years of work. The New Babylon project of Constant is also about ten years, so it's amazing what you can do in ten years. Imagine you work for ten years on one architectural project, and the last five years of that work is criticising your own project. Who could not be interested in Constant?

I just got lucky. A friend, running a museum in Rotterdam, had an instinct that I would be interested in Constant, knew that I was lecturing about it and asked me to do an exhibition. Exhibitions are the single most exciting thing in the history of the universe, because they're so multi-dimensional. You're communicating your obsessions, but also you have to tune into the obsessions of the visitor. It's just very, very exciting, so I love, more than anything else, to do exhibitions.

So if you're going to make an exhibition, and there are millions of exhibitions all the time, wouldn't you want to make an exhibition about people who are changing the rules? I'm interested always in those figures that do that.

JG: When you've done a book and an exhibition together, what do you like to do with the exhibition to make sure that it's different from the book, but bigger, in terms of the images being bigger, and how can the exhibition be different?

MW: Well, it's horrible to go to an exhibition which is a book on the wall. Actually almost any text on the wall is horrible. Wall texts are the worst, most infantilising thing. Normally, it's better to treat them as separate projects. So for example, when Beatriz and I curated the Biennale in Istanbul, we deliberately made a separate book, the *Are We Human?* book, which has nothing to do with the exhibition, but has to do with the ideas that were in our heads while we were making

the exhibition. There's another book, which is the catalogue, so always, you do it like that.

With the most recent one, the Matta-Clark show in Shanghai, there was an enormous book that, to my knowledge, nobody has seen because the show opened during the pandemic, which means it didn't really open. The exhibition itself was a timeline, so when you entered the exhibition, you were actually inside a 3D timeline. It was like being in a swimming pool, with dotted lines of the lanes were the years. In that sense, there was a little bit more relationship between the chronology of the book and the chronology of the exhibition, but they are different things.

So, it's a long answer to your question, but I think the worst crime of an exhibition is to produce the sense that there's a book on the wall, because why bother? Get the book. Books are better in the end. Books are forever. Exhibitions are short-term. Buildings are short-term. Books are forever.

JG: I wanted to ask you just a little bit about your time as Dean of Architecture, Planning and Preservation at Columbia from 2004 to 2014. Was that a full-time gig, like it would be to be the Dean here; did you feel that you were doing much research during the time that you were Dean or was the deanship all consuming?

MW: Yeah, okay, I have to roll out the couch to answer this one. Firstly, it's not a full-time job, because that implies that there's a certain amount of time in the week and then you fill it all out. No, it's ten times a full-time job. Basically, you do that during your sleep. You never stop thinking about it. Incredibly exciting, stressful, complex. You're like a gardener, you're seeing what can grow. Your main responsibility, like that of every teacher, is to the ideas that people haven't had yet. How do you create an environment in which people could have ideas that they don't have yet? Just try to incubate that, to create an incubator. It's incredibly exhilarating and super satisfying when you see it flourish, when you see the flowers grow and you see colleagues and students do amazing things, but you use every micro-second of your life to do that.

So, the answer to your question is, I didn't do any research, basically, for more than a decade. I didn't write. I did a couple of exhibitions just to stay alive a little bit, but I never made the books that would normally go with those exhibitions. So, the answer is a big "no". I basically took time out from research. That's why I'm on the couch, because, was that a good call or not?

JG: I'm sure that you've enjoyed being back in the research space. You've certainly been prolific since then, exploring in particular human interactions with technology from radio and television to social media and artificial intelligence and their relationship to design. Do you have thoughts on where technology might be taking architecture or the architect now?

MW: Not really, but, I immediately want to reverse your question and wonder where could architecture take technology. Again, the assumption our field would normally have is that technology is biological, it's evolving in a certain direction. A fast architect catches up to that, or a young and fast architect. And we tend to think that young is fast. Not always the case. We all know that there's some kids that are much slower and some grandparents that are faster, but there is an ageism built into the way we think about technology.

This was the central focus of the exhibition that Beatriz and I curated in Istanbul. Technology is what makes the humans human. Technology is the most human thing about us. It is us. So technology never simply takes us somewhere, since we are technology.

Having said that, we are most of the time blind to our technological condition. We don't really think about the prosthetics. You and I are looking at each other through our glasses, through the Zoom and so on, so we act like that's a technology outside of our body that we are just using, but of course, we're different people as a result of these prosthetic extensions.

If you take the argument that technology is what makes a human human, you're saying an important question is something like, well, what is the future human? Where are we going? What relationship might architecture have to this? There's a couple of angles on this. One is what is the architecture of that, because if it's my glasses and your glasses, it's also the room and the buildings. Of course, the buildings that we occupy are part of us, part of our species.

With radio, we became insects. This was an exhibition I did in Rotterdam, where I tried to explain the idea of the human insect, that we became insects towards the end of the nineteenth century, as we learnt to communicate to each other with antenna. We became a different species. We think differently, and this is both a new kind of human, let's say a new kind of client for the architect, but it's also a new kind of space. We live in a different … you and I are now in a Zoom room. It has absolutely dramatically changed the status of architecture, but architects hate radio. You'll find very little discussion about radio, despite the fact that radio transformed our species utterly, and transformed space and time utterly, and we claim to be interested in space and time and humans, and we don't like to talk about radio because radio seems to insult buildings, it just passes on through. So the whole history of architecture is a defence against radio.

So, for me, there are two sides to your question. One is why don't we just look at ourselves, look at what we have become and think about how we then might respond to that architecturally, like what might our design work be?

Also, the implication is that the reason I say, "no," to your question, I don't know where technology is taking us, because precisely technology is the generator of uncertainty about what constitutes the human. Hence, the question, "Are we human?" Whatever technology is. I love Marshall McLuhan, almost all of it, but especially his idea that each new technology changes the human brain and body, and this change is so shocking that it's invisible to us. We cannot face it until the technology is replaced by another one and then we can see it, so we only ever see, as he put it, in the rear-view mirror.

So, even looking in the rear-view mirror, architects could respond to radio, television, and the internet. Probably, if you follow McLuhan, we are already some even stranger kind of species. I'm convinced that architects need to not only be in the forefront of that conversation, but are in a sense responsible for that conversation. There are wonderful thinkers, writers, and curators in and around architecture that are working on those questions. In that sense, I feel myself part of a community, but as you can hear from my answer to your question, it's a super obsession.

I mean, to not think about radio and the relationship of radio in architecture is to

be a real idiot. Nobody thinks about radio and architecture. Therefore, architects are a certain kind of idiot. There you go, and it's true. We blind ourselves, and our clients ask us not to consider the fact that we are a different biological species. Architecture is almost used as a prophylactic, as a kind of avatar of an old idea of materiality and so on. We almost have a discipline of architecture devoted to veiling the fact that we have become ... let me just give you one more example. Bacteria. We are, you and I, bags of thousands upon thousands of bacteria. We can't be human without those bacteria, so to be human, to be alive, is to be bacteria and to be with bacteria, in a very complex co-mingling. How could architects not talk about bacteria? I guess we are just, I don't want to say Neanderthal, because Neanderthals were pretty smart.

Architecture is a pretty big stockpile of stupidity, not exactly because we're stupid as such, but in a way, a kind of stupidity is what's asked of architecture and we deliver. At the same time, I'd rather talk to architects than anyone else about what something could be, because of this doubt thing. So, sorry for the speech.

JG: There's a question in the chat from a student, and that is, could you please share some practical advice for architecture students about pursuing their career in architecture?

MW: Well, it's, of course, a big mistake, but you've already made it. I mean, when you tell your parents that you're going to become an architect, their faces fall, you could have done something serious. So given that you've made the mistake and that you've joined this group of people for whom architecture is a question, then you're part of a very exciting community of misfits all around the world. There are one million architecture students, more or less, in the world at any one time, all of whom are excited to think that architecture could be ... What architects have in common is optimism. Despite the fact that actually the world is a super shitty place, and there's no reason to be optimistic about anything, architects are always feeling like even a small change of the physical environment could lead to a better society, better culture, and so on, so it is astonishing to be part of a community, who all naively but romantically think that there's a possibility of a better society and the way to do that is through some kind of relatively small adjustments to the physical fabric.

So, I don't have advice. I think you've already joined this community. It does mean, though, it's good to listen and enjoy the fact that we don't know what architecture is, and if we don't know, as a young architect, you don't not know any more than anyone else. You're actually right up there. That's again, getting back to the spirit of the experimental school. If the best architects are the ones that feel like they know the least, then the older architects are jealous of the fact that the young architect really doesn't know.

In a way, take advantage of the fact that you're in that position of not knowing, and be reassured that you're surrounded by people that would like architecture to be boring. Your role is to resist that, and it's fun, and you're not going to get paid. Nobody's going to love you, and nobody's going to quite believe in the idea of architecture. That's already lost, so just try to not be boring. I think of all the crimes, boring is the most damning. I have no practical advice. Just don't be boring. Why bother? That's interesting. I don't think architects are human, really. Actually, they look human. All architects, from a distance, look like human beings. It's only when you get close and you listen to them, you hear that they're

crazy. They really think the physical world is talking, so you've joined this group of kids that think the world is alive.

By the way, in thinking that the world is alive, you join most indigenous communities on the planet, who think that the physical world is talking, so you're suddenly in a very, very exciting place. I would totally enjoy it.

JG: Fantastic. My final question is what's next for Mark Wigley? What are you working on at the moment?

MW: Well, to survive being mugged on memory lane. I only ever work on one project. It's not important. It's just a fact. I can only work on one thing at a time, when I'm researching and so on. The last three or four months, I'm obsessing about a single building in Havana, a Brutalist building of '67 to '71. I'm desperately trying to stop being obsessed with it, but it's not working. Basically, if you say, "What's my future?" I don't know. I can't get out of this building. The text gets longer and longer. I get more and more fascinated. So I don't know what comes next, but basically I jump from one project to the other.

I'm in a very privileged situation. I also feel a little bit that as a workaholic or whatever... With the pandemic and so on, none of us know what's next. Actually, this doubt that I've described before, it's a kind of arrogance, if you think about it, when so many people on the planet don't know if they can survive to the next day because of poverty or institutionalised injustice and so on. The idea that there's a community of people who can claim that not being paid, like I just said before, is a form of suffering, in order to doubt, then there's a responsibility to figure out ways in which that doubt might be of wider use to other species. Maybe if we thought about other species first, we could think about ourselves better in the future.

I think that nevertheless, the pandemic means that even as scholars, I think we have to consider almost the next project we do might be the last one. If I say, "I don't know which project comes next," I think it doesn't mean I'm light-hearted about it. I think each one might be the last one. Maybe the artists and writers and so on that we admire are people who felt like the next project was it, was the one, finally, and probably the last one. I think if we all imagine that we're playing the end game, and it's not a game, it's over ...

But having said all that, then I may be nervous to start the next project. I always think that way. Maybe this is what there is of an architect in me. Getting back to the door knob, architects think that the door knob is the beginning of the physical and emotional relationship to the building. We think always that the smallest thing has a viral impact on every scale, so people in outer space get improved by changing the door knob. Maybe as scholars, we feel the same, that even the smallest, most precise, detailed study of a person or a phase of history has the possibility to transform the whole thing. I have that arrogance, and I think most writers do. You do. We all do in a way. Again, the mission is how not to be boring. And if you're going to be boring, go to the beach. If the decision is to be boring, then get to the beach as quickly as possible.

JG: At least enjoy it.

MW: Yeah, the great thing of New Zealand is to get to the beach, it's never more than half an hour. I think this thing of the island, this is also why I'm obsessed

with this building on the coast of Havana, because I think islands, and the idea of the island, is so important. Maybe this is once again, the arrogance of the New Zealander, "Hey, we've got the island thing and you don't." From islands, you think about your place in the world differently than those who believe themselves to be at the centre and believe themselves to be the world. The thought of being outside the world, but therefore inside your own world, creates a dynamic that's super interesting. That seems to be not very different from the dynamic of making a house for someone. It's in the world but not in the world.

Really, I do believe that all the work that I've done is based on this idea of New Zealand, feeling disconnected. What if architecture's relationship to all the other disciplines is the same as New Zealand's relationship to the world, like I'm not worthy, we're just late, we're not real serious scholars, we're not a real discipline? On the other hand, what's more fundamental than architecture? I think our whole discipline has a kind of New Zealand sensibility.

JG: Thank you so much for your time today. It's been absolutely wonderful talking with you, and I really, really appreciate it.

MW: Thank you. You're very kind. Thanks.

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review / TIM NEES

Aaron Paterson, Sarosh Mulla, and Marian Macken *Drawing room*

TOI MOROKI CENTRE OF CONTEMPORARY ART, CHRISTCHURCH, NOVEMBER 28, 2020–FEBRUARY 20, 2021

Based on the premise that architects do not make buildings, they instead make drawings, at its simplest interpretation this exhibition presents architectural drawing practices that do not lead to building. Three installations that can loosely be categorised by the term "drawing" exist in space without designing space, drawings in their own right, drawings that exist purely for their own art. This premise has a reliance, whether intentionally or not, on the host space, the quality of space and light and atmosphere in the rooms of the building that support and frame the drawings on display. In this case, the CoCA Building in Christchurch—a Brutalist gem by architects Minson Henning Hansen & Dines recently restored with nearly all of its original spaces and rigorous details intact—becomes a strong silent-type character in the visitor's experience of the exhibition, its success lying in the interaction between the two. CoCA's boldly hewn architecture, its materiality and atmosphere, lends vigour and robustness to the no-less-bold installation on display.

I visited the exhibition on three separate occasions and with each visit my response was more or less the same. Which is to say there was no diminishment of my experience through familiarity. There were instead variations of surprise, exploration, puzzlement, and the partial unpicking that leads not to an understanding but to a personal interpretation that included cataloguing all of the things from past experience that the work reminded me of. On each occasion my admiration for the conceiving and executing of these alternative drawing practices was reinforced, and my enjoyment of the work oscillated between the sensual and the cerebral, from the experiential dance—light, sound, and movement that entertains and leads the visitor to explore the gallery—to the implied narrative—a story that seems to contain all the familiar tropes of film noir, yet cannot finally be pinned down. Throughout there is an assured handling of line and detail, of light and shadow. Though mainly shadow. Shadow in atmosphere and in narrative. Does it make sense to say there is an assured handling of ambiguity? In the exhibition catalogue, Fritha Powell succinctly writes: "I am an emerging idea; you, yourself have created a version of me as you travel and traverse the gallery."

We the visitor, however, cannot help but think we make an unreliable interpreter, that if we were called upon to articulate our thoughts we would falter, for surely

Fig. 1 *Drawing room*: Drawing machine. [Photograph by Simon Devitt (2020)]

there is an official version tethered to the drawings that will trump us. Anything we proffer will remain speculative. The anxiety of what we think we are supposed to think pushes what we actually think to the side and this is where the collaboration with the gallery's spaces becomes so deft, for the atmosphere arising from building and exhibition together is both fit and reassuring, prodding and comforting, emerging and confining … in a good way. We can relax, enjoy, let go.

The largest and first gallery I enter after climbing the stairs has height and breadth and is almost misty with gloom. Particular lights flash and I hear a soft whirr along with the tinkling of upper register music, somehow watery, and because I'm looking through the darkness at a giant metal contraption that could be a piece of space junk, but which is moving, though moving slowly, I find the sounds otherworldly. The scale is important. A large arm (Fig. 1). Small wheels. And it is tethered. As it follows an arc across the room it inscribes, or imprints, a line. The wheels marking the floor, layer upon layer, back and forth. An impressive level of engineering to complete a simple task, perhaps, but it is not just engineering. It is a relic, a remnant, a prop. Which is why the shadow is so important, and the sound, and the points of light. The shadow is a cushion that encourages my mind to wander as I watch the pairs of wheels blind in their task. The atmosphere constructed quickly transports me to the lunar surface, to an abandoned oil field, to the perverseness of Archigram's Walking Architecture. This could be where Neil Armstrong and Ron Herron engage each other in conversation. The atmosphere resonates, though it could just be my mind, resonating, and the shadow thick in the room cloaks me with nostalgia.

I briefly wonder about Paterson, Mulla, and Macken's pretentions, whether they

see themselves as cutting edge artists or provocative set designers, though I realise that if they can combine all the qualities required to create memorable architecture and marry them ephemerally to an existing architectural space, and by so doing create a palpable murky energy as demonstrated in this exhibition, their skill as architects is unquestionable. Their ideas articulate. Their production values top shelf.

Attracted by light flickering in my peripheral vision, I turn and make my way to the smaller galleries fitted tightly behind the stair and beneath some mezzanine offices. My mind crouches as I leave the high space and enter the low. I discover a transparent screen with digital perspectives winding/unwinding. I circle around both sides, search for differences. I notice another screen with a headset and another drawing (Fig. 2). An assistant helps me put the headset on. I move, manipulate the images I see, and feel simultaneously expansive and claustrophobic, vertiginous. The images resemble the drawing beam. In VR, the past is still present. I search for differences but a cartesian grid holds it all together in a retro kind of way. I can still hear the soundtrack tinkling from the other room. I'm helpless to the creep of nostalgia; the works of Piranesi, Cedric Price, and Superstudio surface.

In the final space, on the back wall, a film is screening (Fig. 3). An agitated woman paces through a commercial office of some kind. The props seem obvious yet

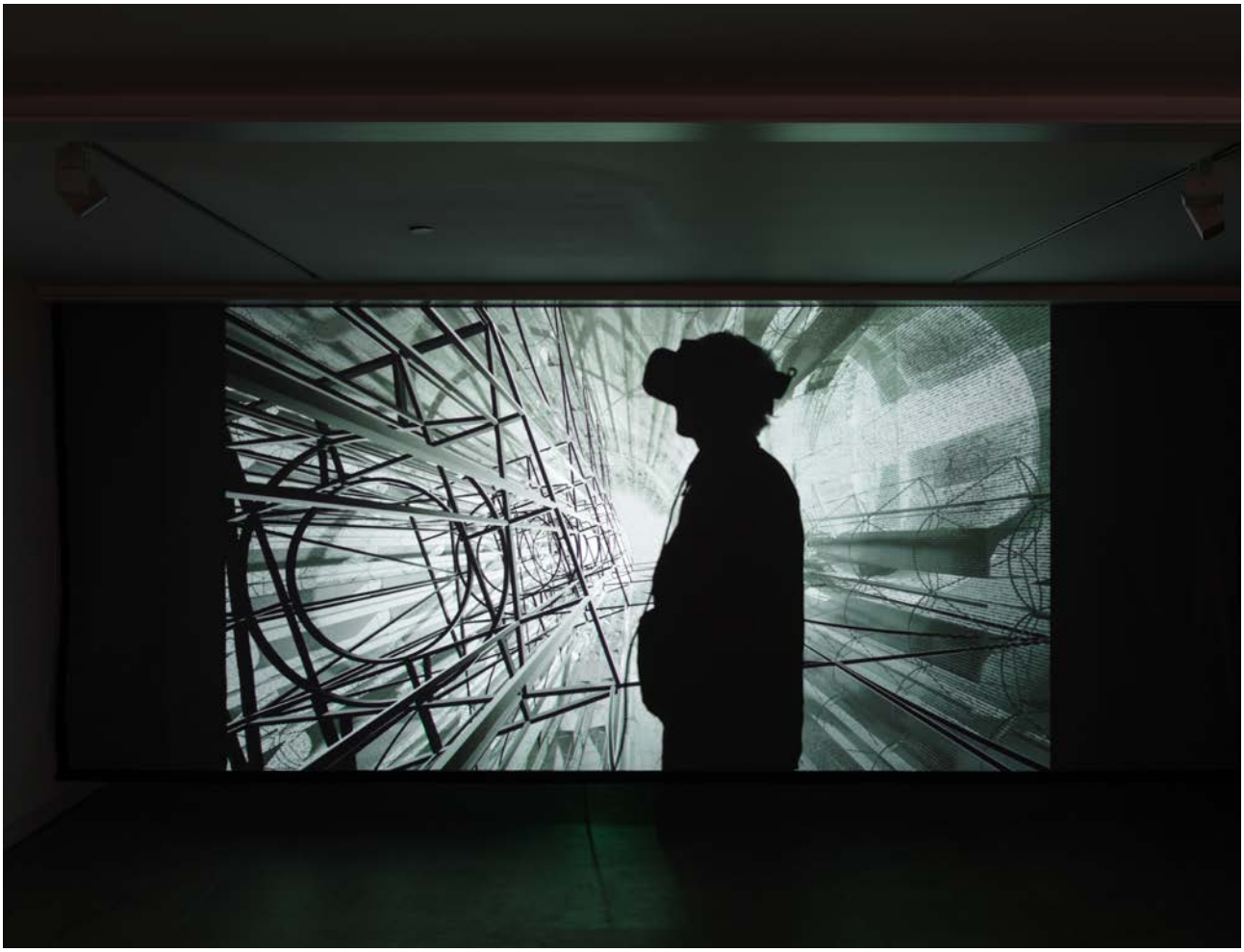

Fig. 2 *Drawing room*: Edge of shadow. [VR projection, photograph by John Collie (2020)]

enigmatic, the action circuitous, the narrative open. The sound design emphasises the background sounds, heels clack, a plastic bottle drops to the floor. The camera zooms in too. I realise there are two different locations in the film, a kind of mirroring, a repetition, a circling. Everything is polished, elegant, unsettling. On the cusp. I'm sure I've seen an arthouse movie that looks like this and for not only that reason I'm impressed.

To call the exhibition "an alternative kind of architectural drawing" sidelines the other creative disciplines that have been engaged by its creators. Sound, sculpture, lighting, graphics, writing, film, and all of the art direction required for film—the ability and professionalism of the curators to bring all these things together is really quite astonishing. It is to their credit that placing their work in CoCA's spaces leads to neither subservience nor domination, but an appropriate pairing that makes the experience of the exhibition all the more stirring.

Fig. 3 *Penumbral*, short film, Brendan Donovan, Sarosh Mulla, and Aaron Paterson (2018). [Photograph by Simon Devitt (2020)]

bios

SIBYL BLOOMFIELD
Sibyl Bloomfield (Waikato Tainui, Ngāti Maniapoto and Ngāi Te Rangi) has a Bachelor of Design (Interior Architecture) and Master of Landscape Architecture (Professional) from Victoria University of Wellington. She is a landscape architect and lecturer, currently working in the School of Architecture at Unitec Institute of Technology, Auckland. Her research interests include climate change and coastal communities, land stewardship, indigenous concepts of land ownership, resilience, community development, and pedagogy/design education.

LUCIANO BRINA
Luciano Brina is an architect for the Faculty of Architecture and Urbanism, La Plata National University, Argentina. He is an alumnus of the Strelka Institute for Media, Architecture and Design, Moscow. He has been a visiting professor at the School of Architecture and Urban Studies, Torcuato Di Tella University. He is founder of Abiogenesis, a design research practice focused on speculative cartography and post-carbon futures. He has published his research in *ARQ*.

JEANETTE BUDGETT
Jeanette Budgett is a registered architect and senior lecturer at Unitec Institute of Technology, where she teaches design and technology in the Master of Architecture programme. In previous research, she has investigated digital technologies, mission-period and modern colonial architecture of the Pacific, and New Zealand's early twentieth-century urban architecture. She often collaborates with artist Allan McDonald. Her recent architectural practice includes a prefabricated transportable building (2020).

TIMOTHY BURKE
Dr Timothy Burke is a lecturer in the School of Architecture and the Built Environment at the University of Newcastle, NSW. He has been researching and teaching at Newcastle since 2015, and in 2019 was awarded a PhD in Architecture through creative practice research that examined the role of making, drawing, and play within design processes.

MICHAEL CHAPMAN
Dr Michael Chapman is a professor in the School of Architecture and the Built Environment at the University of Newcastle, NSW. His research explores architectural drawing and its theory and scholarship, specifically in relationship to politics, industrialisation, and modernism.

CARL DOUGLAS
Dr Carl Douglas is a senior lecturer in Spatial Design at Auckland University of Technology. His research circulates around two themes: unprofessional space (informal, ad-hoc, illicit, and amateur space-making); and procedural design techniques (cartography, design computation, abstraction, drawing, and intuition). He is currently affiliated with the Material Imaginaries Research Collective.

CHRIS FRENCH
Dr Chris French is a lecturer in Architecture and Contemporary Practice at ESALA, the University of Edinburgh. His research explores how forms of representation and the architectural project institute and perpetuate particular social imaginaries. He has collaborated with Maria Mitsoula on projects exploring the intersection of architecture and landscape, and the manner in which representational conventions frame and condition these intersections. They are founders of the atelier for architecture, Aporia, and are co-founders and editors of the architectural research-by-design e-journal *Drawing On*.

JULIA GATLEY
Dr Julia Gatley is an associate professor of Architecture at the University of Auckland. She is an architectural historian, with research interests in twentieth-century architecture in general, and the history and heritage value of twentieth-century New Zealand architecture in particular. She has written widely on New Zealand architecture, and has published four books with Auckland University Press. With Andrew Douglas and Susan Hedges, she is an executive editor of *Interstices*.

ANASTASIA GLOBA
Dr Anastasia Globa is a lecturer in Computational Design and Advanced Manufacturing at the University of Sydney. She works with digital media, including algorithmic design, advanced manufacturing, and virtual immersive environments. She is a member of the CoCoA research lab and SydneyNano research centre, with close involvement in the Computer Aided Architectural Design in Asia community and CAADRIA. She has experience in data visualisation and creating innovative concepts and prototypes, focusing on extended reality (XR) applications related to architectural design.

LAWRENCE HARVEY
Lawrence Harvey has had a multifaceted practice-led research career as a sound designer, curator, performer, and artistic director while also producing traditional research outputs. He is artistic advisor to the RMIT Sonic Arts Collection, for which he curates high-profile public installations and performances, and leads academic publications on the collection. As director of RMIT's SIAL Sound Studios, he has curated over 30 public speaker orchestra concerts and has presented installations, theatre performances and concerts in Melbourne, Brisbane, Toronto, Seoul, the UK, Germany, and Holland.

KARL HOFFMANN
The author of this thesis, Karl Hoffmann, grew up in the township of Waihi, attending Waihi College from 2006-2012. He graduated with a Bachelor of Architectural Studies degree from Te Whare Wānanga o Wairaka/Unitec: Institute of Technology in 2016. Karl then completed his architectural studies at Te Herenga Waka/Victoria, University of Wellington, where he found a new interest in speculative architecture and drawing. Karl discovered the essay 'The Task of the Translator' by Walter Benjamin in the summer before starting this research. This text became a key source from which to draw ideas. Completing the research in May 2021, Karl went on to gain his Master of Architecture (Professional) with distinction.

LOUISA KING
Louisa King is a landscape architect with a Master of Landscape Architecture from RMIT University. Her research explores the potential of the picturesque and post-representation thought for contemporary landscape practice. By applying critical materialist attention to the global, distributed influences of climate change, she examines the role of design within extreme climatic landscapes. This includes work with the Australian Antarctic Division to explore the collaborative potential of science and landscape design.

MARIA MITSOULA
Dr Maria Mitsoula is an architect, tutor, independent researcher, and architectural photographer. Her PhD in Architecture, conducted by design and funded by the Interprofessional Education Program (IPEP) and the Eugenides Foundation, explored marble as a complex material image-*opsis* central to various Athenian and Attic mythologies. With Chris French, Maria is a founder of the atelier for architecture, Aporia, and a cofounder and editor of the e-journal *Drawing On*.

JULES MOLONEY
Dr Jules Moloney is Associate Dean Research and Innovation at the School of Design, RMIT University. His research extends from architectural digital design to spatial design in a range of applications including exhibition design, installation art, simulation of human interaction, and the immersive analytics of spatial data. He is the author of *Designing kinetics for architectural facades: State change* (Routledge, 2009) and has published extensively on research through design.

TIM NEES
Tim Nees is a practising architect and a member of the Christchurch City Council Urban Design Panel. Recently he was architect-in-residence at the University of Canterbury's College of Engineering, was a founding director of Bartley Nees Gallery in Wellington, and has been a recipient of several New Zealand Institute of Architects (NZIA) national awards for excellence in architecture. He is a Fellow of the NZIA.

JULIEANNA PRESTON
Dr Julieanna Preston is Professor of Spatial Practice at Toi Rauwharangi/College of Creative Arts, Te Kunenga ki Pūrehuroa/Massey University and holds a PhD through artistic practice from RMIT. Her creative and scholarly practice draws from art, architecture, philosophy, material science, geology, and landscape studies. Her work is shown and published widely in the form of experimental live art performances, sound art, site-responsive installations and interventions, moving image, and performance writing.

TAMSIN SALEHIAN
Tamsin Salehian is a sessional lecturer teaching design, theory, and communication in the landscape architecture program at UTS, Sydney. Her research explores ontologies of place and multi-species collaborations, and she has a particular interest in the registrations of intersecting geographic bodies with ecological thinking.

MARK SOUTHCOMBE
Dr. Mark Southcombe is an Associate Professor in Architecture at Te Herenga Waka/Victoria, University of Wellington in the Te Kura Waihanga/School of Architecture. Mark is also a principal of Southcombe Architects. He is a design teacher in the Architecture and Interior Architecture programmes. He leads the Design Lab research cluster focused on design-led research theory and practices, and their testing through design in architectural and interdisciplinary realms. He is a co-author of the book *Ecologies Design: Transforming Architecture, Landscape and Urbanism* (2020). He has for many years supervised master's research primarily focused on urbanity, landscape, and housing. Mark was Karl Hoffman's principal supervisor for the thesis titled, Translating a *Post Industrial Landscape: The Rebirth of Pukewā* (2021).

SIMON TWOSE
Dr Simon Twose is an architect and an associate professor in the School of Architecture, Te Herenga Waka | Victoria University of Wellington. His work focuses on drawing, particularly in the territories between art and architecture practices. His creative practice research has transitioned from traditional drawing and built projects to spatio-temporal drawing installations, combining physical and digital media. Twose has published and exhibited widely, including invited contributions to five Venice Architecture Biennales as well as the Prague Quadrennial of Performance Design and Space PQ15.

VERARISA UJUNG
Verarisa Anastasia Ujung is a graduate of Universitas Indonesia and Victoria University of Wellington. She is a teaching and research assistant at the Department of Architecture, Faculty of Engineering, Universitas Indonesia. Her research focuses on the complex relations between interior and landscape. Her work has three main strands—*traversing* interiority, *weaving* interiority, and *framing* interiority—demonstrating her interest in the potential for poetical encounters between interior and landscape.

YUE YU
Yue Yu received a Bachelor of Landscape Architecture (Honours) from Unitec Institute of Technology in 2019. She is currently enrolled in the Master of Urban Planning (Professional) and Urban Design programme at the University of Auckland. Her research interests include urban resilience, sustainable housing, eco-districts, and urban morphology.

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Contributors this issue
Luciano Brina, Jeanette Budgett, Sibyl Bloomfield, Yue Yu, Verarisa Ujung, Julieanna Preston, Carl Douglas, Timothy Burke, Michael Chapman, Louisa King, Tamsin Salehian, Chris French, Maria Mitsoula, Anastasia Globa, Lawrence Harvey, Jules Moloney, Simon Twose, Julia Gatley, Tim Nees

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Catherine Griffiths

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