Desert-mapping: Site-specific modes of resistance to territoriality and colonisation

Submitted for the Degree of Doctor of Philosophy

School of Arts and Humanities, Royal College of Art

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Date: 25/03/2024

Signature: K. Yoland

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DEDICATION

This research is dedicated to the memory of Yuri Lilcat and to those friends and loved ones who died during my time working on this thesis: Dora Diamant (2020), Nancy Koen (2022), Ken Campbell (2022), Alastair Brotchie (2023), Chance X (2023), Aimee & Lucas Cardoso (2023) and Mary-Jane Wetheral (2023).

ABSTRACT

This research develops an artistic practice methodology that promotes a form of spatial empathy which decentres the human body and exposes multiple temporalities existing across land. On-site and off-site practice methods open new ways of seeing and moving that act as modes of resistance to colonialism, territoriality and control.

Focused on the Southwest deserts of the United States and the military training centre at Fort Irwin in the Mojave Desert, my research operates across the fields of land art, installation art and socio-political art. It develops a body of site-specific practice to examine how desert spaces are experienced, contrasting the open desert with military simulation sites.

I explore three research questions: (i) What does encounter through bodily immersion in the desert reveal and offer a site-specific art practice engaging with land and representations of territory? (ii) How do creative encounters with movement, mapping and spatial control inform understanding of open and closed desertscapes? (iii) Working off-site, how might creative encounters with on-site findings impact spatial relations between bodies and land? The practice-based methodology I developed to address these questions works with encounter through desert immersion, encounter through on-site creative methods (*first-order desert-mapping*) and encounter through off-site installations (*second-order desert-mapping*).

Desert immersion exposes the human body to the co-existence of multiple temporalities, which I call *spatial complexity*, informed by spatial theory. In contrast, simulation training in the desert imposes a frozen narrative and single fixed time, which I call *spatial control*, informed by spatial design and military geographies. Although there is significant literature on the history of the military in the desert during the Cold War period, there is limited analysis of the impact of current desert training on occupation and territorial ideologies.

Through encounters with desert immersion, I connect my sense of vulnerability in the desert with the notion of *desert hospitality*. In this ecological understanding of hospitality, the mutual vulnerability and spatial exile of bodies on land create the circumstances for sharing and thinking together – which I refer to as *spatial empathy*.

On-site, creative encounters involve experimental cartographic methods using site-writing, lens-based processes and intervention (*first-order desert-mapping*). These resist Cartesian and colonial mapping formats by refusing fixed perspectives,

positions and proximity inside the military's training sets and across open land. Depictions of desertscapes and military simulations are then blended in off-site installations (*second-order desert-mapping*) which use fictioning and materiality to offer new modes of resistance to the spatial control of simulation design – spatial representations which flatten space and lead to constraint and inequality. Through the creative desert-mapping methods, the on- and off-site empirical research combines to support forms of spatial complexity to challenge the colonial frameworks of spatial control (surveillance, territory and occupation).

By foregrounding the new mapping approaches as a form of disruptive empathy, and spatial complexity as radical space-time resistance, my research proposes ways of rethinking deserts (and other spaces), going beyond notions of bounded territories to frame desert encounters as opportunities for ecologically-minded change.

CONTENTS

ABSTRACT....5

CONTENTS....7

LIST OF IMAGES....11

LIST OF ACCOMPANYING MATERIAL....14

NOTE TO THE READER:....15

INTRODUCTION....16

Welcome to the desert....16

0.1 The Desert....17
0.2 Research Questions....21
0.3 Context....23
0.3.1 Invisible lines in the sand....23
0.3.2 Fort Irwin....24
0.4 Spatial dynamics and the desert....29
0.5 Methodology....32
0.6. Findings and contribution to knowledge....39
0.7. Navigating the thesis....40

CHAPTER 1....47

Desert hospitality: Spatial complexity and disruption....47

Overview....48

Part I : Hospitality and the desert....52

1.1 First impressions: Scale, isolation and deep time....53
1.2 Hospitality and its challenges....65
1.3 Desert hospitality: Exile and vulnerability....68

Part II: Spatial control....74

2.1. Claims to land....76
2.2 Fictions in the desert....84
2.3 Diverging imaginaries: Control vs Freedom....88
2.4. An environment of immersion and observation....99

Part III: Encounter through immersion: disruption and resistance.....104

3.1 Encounter through immersion with movement.....104
3.2 Land – The value of desert learning for a site-specific methodology...107
3.3 Space-time.....108
3.4 Representations of territory & their implications for developing art.....111

Summary.....112

CHAPTER 2.....114
Land, borders and Fort Irwin:.....114

Overview.....115
Encounter as method.....116
Encounter as rupture.....116

Part I: Encounter as negotiation.....119
Im/mobility inside Fort Irwin.....120

Part II: Encounter as site-writing.....123

Part III: Encounter as desert-mapping.....129
3.1. The urgency of alternative cartographic systems.....129
3.2. Road maps and satellite surveillance.....132
3.3. Camera as mapping device.....138
3.4. Mirrors as mapping device.....145

Summary.....152

CHAPTER 3.....155
New ways of seeing and behaving across space.....155

Overview.....156

Part I: Disrupting and connecting space-times.....157
1.1. Second-order site-writing processes.....158
1.2. Image reconstruction: fragmentation and scale changes.....163
Part II: Encounter as off-site installations.....169
2.1. Installation Components: Maps, Equipment and Mirrors.....171
2.2. Disturbing the Simulation Representations.....176
2.3. Creative encounters across site and off-site.....179

Summary.....181

CONCLUSION **183**
Contributions and outcomes *183*

Overview 184
4.1 Findings 186
4.2 Contributions of the research 190
4.2.1 Expanding cartographic practice 190
4.2.2 Land art, site-specific art and socio-political art practice 191
4.2.3 Spatial theory 193
4.3 Applications for today and tomorrow 194
4.3.1 Practice-based contributions 196
4.3.2 Beyond the desert 197

BIBLIOGRAPHY 198

APPENDIX 223

INTRODUCTION 224
Appendix 0.0 224
Appendix 0.1 225
Appendix 0.2 226
Appendix 0.3 227
Appendix 0.4 228

CHAPTER 1 229
Appendix 1.0 229
Appendix 1.1 230
Appendix 1.2 231
Appendix 1.3 232
Appendix 1.4 233
Appendix 1.5 234
Appendix 1.6 235
Appendix 1.7 236
Appendix 1.8 237
Appendix 1.9 238

CHAPTER 2 239
Appendix 2.1 240
Appendix 2.2 244

CHAPTER 3 245
Appendix 3.0 245

Appendix 3.1....246
Appendix 3.2....249

CONCLUSION....250
Appendix 4.0....250
Appendix 4.1....252

GLOSSARY....255
Action(s)....255
Body(ies)....255
Cognitive dissonance....255
Desert attributes/conditions/environment....256
Desert hospitality....256
Desert Learning (also see Immersion)....256
Desert-mapping....257
Deep time....258
Ecological thinking (also see Future Ecologies and TEK)....258
Encounter....258
Equilibrium....259
Fictioning....259
Flattened space....259
Fold....260
Future ecologies (also see Ecological thinking)....260
Glitch....261
Human time (Individual time/Colonial time)....261
Immersion....262
Manifest Destiny (also see Westward Expansion)....263
More-than-human....263
Individual time – see Human time....263
Kinship....263
Scripted space....263
Simulation....264
Spatial (in)justice....264
Sovereign time....265
Space-time....265
Spatial complexity....266
Spatial control....266
Spatial empathy....267
Traditional ecological knowledge (TEK)....267
Thirdspace....267
Westward Expansion....268

LIST OF IMAGES

INTRODUCTION

Images below: *all rights reserved.*

p16 - Fig 0.0: Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p20 - Fig 0.1: Fort Irwin National Training Center (NTC), map on waterproof coated paper Image credit: Fort Irwin National Training Center. Redacted for reasons of National Security.
P26 Fig 0.2: Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p35 - Fig. 0.3: Michael Heizer, *Double Negative*, 1969, as seen by Google Earth, 2023.
p35 - Fig 0.4: Robert Smithson, *Spiral Jetty*, 1970, as seen by Google Earth, 2023.
p36 - Fig 0.5: Jean Tinguely, *Study for an End of the World* No. 2, 1962, Jean Dry Lake Playa, Mojave Desert. Photo credit: Allan Grant / The LIFE Picture Collection.
p36 - Fig 0.6: Lita Albuquerque, *Spine of the Earth*, 1980, El Mirage Lake, Mojave Desert. Photo credit Lita Albuquerque.
p38 - Fig 0.7: Agnes Denes, *Wheatfield – A Confrontation* © 1982 Agnes Denes.
p38 - Fig 0.8: Gerald Clark, *Earth Memories*, 2022. Photo: K. Yoland.
p43 - Fig 0.9: *Electric Desert*, Mojave Desert, book format, 2023, © K. Yoland.
p44 - Fig 0.10: *Electric Desert*, Mojave Desert, large scale poster format, 2023, © K. Yoland.
p45 - Fig 0.11: *Electric Desert*, residential land and *Twentynine Palms Marine Base*, Mojave Desert, large scale poster format, 2023, © K. Yoland.
p46 - Fig 0.12: *Electric Desert*, *Twentynine Palms Marine Base* supermarket and Ubehebe crater in Death Valley, Mojave Desert, large scale poster format, 2023, © K. Yoland.

CHAPTER 1

p47 - Fig 1.0: *Land*, The Great Basin Desert, 2022, © K. Yoland, all rights reserved.
p50 - Fig 1.1: An aerial view after the first atomic explosion, Trinity test site, New Mexico, July 16, 1945. Image courtesy of the Atomic Archive. Public domain.
p51 - Fig 1.2: “Operation Buster-Jangle”, *Nevada Proving Grounds*, Yucca Flat, October 30, 1951. 14-kiloton device dropped from a B-50 bomber. Image courtesy of *National Nuclear Security Administration* / *Nevada Field Office*. Public domain.
p55 - Fig 1.3: *Land*, Death Valley, Mojave Desert, 2022, © K. Yoland, all rights reserved.
p56 - Fig 1.4: *Land*, Amboy, Mojave Desert, 2022, © K. Yoland, all rights reserved.
p58 - Fig 1.5: *Amboy Crater*, Mojave Desert, 2022, © K. Yoland, all rights reserved.
p59 - Fig 1.6: *Ubehebe Crater*, northern Mojave Desert, 2022, © K. Yoland, all rights reserved.
p61 - Fig 1.7: *Badwater Basin*, Death Valley, 2022, © K. Yoland, all rights reserved.
p62 - Fig 1.8: *Sand dunes*, northern Mojave Desert, 2022, © K. Yoland, all rights reserved.

p63 - Fig 1.9: Land, northern Mojave Desert, 2022, © K. Yoland, all rights reserved.
p73 - Fig 1.10: Screen Capture: "Color footage of atomic bomb tests with active duty military personnel at *Camp Desert Rock, Nevada Test Site, Nevada*. U.S. Army, 1959, photo courtesy of the Prelinger Collection at Internet Archive. Public domain.
p75 - Fig 1.11: John Gast, *American Progress*, 1872. Public domain.
p78 - Fig 1.12: *Lubbock Feeders* (Chihuahuan Desert), screenshots, Google Earth, 2024, K. Yoland, all rights reserved.
p79 - Fig 1.13: *National Chloride Company of America* (Mojave Desert), screenshots, Google Earth, 2024, K. Yoland, all rights reserved.
p80 - Fig 1.14: *Cowboy Mining Company* (Chihuahuan Desert), screenshots, Google Earth, 2024, K. Yoland, all rights reserved.
p83 - Fig 1.15: Jurisdiction of NAVSEA (Naval Sea Systems Command), used for storage and maintenance of undersea mines, Veterans Memorial Highway, Great Basin Desert, Nevada, 2022, © K. Yoland, all rights reserved.
p87 - Fig 1.16 "BOY, HAVE WE GOT A VACATION FOR YOU...where robot men and women are programmed to serve you for ...ROMANCE ...VIOLENCE ...ANYTHING" & "The playcenter for sensation seekers, where robot men and women do anything for you. And nothing can possibly go worng." © Neal Adams and Warner Bros, all rights reserved.
p89 - Fig 1.17: *Billboard Premonition*, video & large scale photograph (part of a triptych) 2021, © K. Yoland.
p92 - Fig 1.18: *Punishment Park*, Peter Watkins (director), Project X Distribution, 1971 (screen shots). © Peter Watkins, all rights reserved.
p93 - Fig 1.19: *Capricorn One*, Peter Hyams (director), 1977 © Warner Bros, all rights reserved.
p95 - Fig 1.20: *Don't be a Dick*, Slab City map, 2022, © K. Yoland, all rights reserved.
p96 - Fig 1.21: *Dog Food, Prayers, Water,* Slab City Garden and sign, 2022, © K. Yoland, all rights reserved.
p97 - Fig 1.22: *Salvation Mountain*, 2022, © K. Yoland, all rights reserved.
p98 - Fig 1.23: *Bombay Beach*, Mojave Desert, 2022, © K. Yoland, all rights reserved.
p101 - Fig 1.24: *Surveillance building*, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland, all rights reserved.
p103 - Fig 1.25: Casualty cards in Fort Irwin. Image courtesy of Venue and The Atlantic. Courtesy Geoff Manaugh and Nicola Twilley, Venue (v-e-n-u-e.com), all rights reserved.

CHAPTER 2

Images below: *all rights reserved*.

p114 - Fig 2.0: *Razish*, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p128 - Fig 2.1: *Tracking myself: Location of Barstow motel whilst visiting Fort Irwin*, Google maps, K. Yoland.
p128 - Fig 2.2: *Tracking myself: Route to Fort Irwin*, Google maps, K. Yoland.
p133 - Fig 2.3: Example maps used for hiking, travelling or planning in Death Valley.
p134 - Fig 2.4: Troops in Fort Irwin NTC on the edge of a simulation site and screengrab from Google Maps of the same location, 2019, © K. Yoland.
p136 - Fig 2.5: *On the map*, Razish, Fort Irwin NTC, Mojave Desert, 2021, © K. Yoland.

p137 - Fig 2.6: *On the Map*, altered GoogleMap printed onto carpet, 2023, (photographs courtesy of *Voloshyn Gallery*, Kyiv & Miami,) © K. Yoland.
p139 - Fig 2.7: *Mosque View I*, Ujen, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p139 - Fig 2.8: *Mosque View II*, Ujen, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p141 - Fig 2.9: *Mosque View III,* Ujen, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p141 - Fig 2.10: *Mosque View IV,* Ujen, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p142 - Fig 2.11: *Surveillance unit,* Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p142 - Fig 2.12: *Fake meat*, Razish market, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland.
p146 - Fig 2.13: *Sightlines*, near Split Rock, Mojave Desert, 2022, © K. Yoland.
p147 - Fig 2.14: *Sightlines*, Amboy Rd, near *National Chloride Company of America*, Mojave Desert, 2022, © K. Yoland.
p150 - Fig 2.15: *Sightlines*, Joshua Tree, Mojave Desert, 2022, © K. Yoland.
p152 - Fig 2.16: *Sightlines*, Joshua Tree, Mojave Desert, 2022, © K. Yoland.

CHAPTER 3

Images below: *all rights reserved*.

p155 - Fig 3.0: *The Road to Death Valley*, Nevada, 2022, © K. Yoland.
p162 - Fig 3.1: *REscaled*, details from photographic installation, 2023, © K. Yoland.
p163 - Fig 3.2: Details of installation, 2023, © K. Yoland.
p164 - Fig 3.3: *Desert Invasion Saga* (video stills) 2021, © K. Yoland.
p167 - Fig 3.4: *Sliding Walls*, video, 2021, © K. Yoland.
p168 - Fig 3.5: *Wormhole*, 2021, © K. Yoland.
p169 - Fig 3.6: Performance within the installation *'REconfigured II'*, 2021, © K. Yoland.
p169 - Fig 3.7: *REconfigured VI*, 2022, © K. Yoland.
p173 - Fig 3.8: *REconfigured II*, Installation, 2022, © K. Yoland.
p174 - Fig 3.9: Detail from *REconfigured*, Installation & performance, 2022, © K. Yoland.
p177 - Fig 3.10: Details from performance inside *REConfigured II*, 2022, © K. Yoland.

CONCLUSION

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p183 - Fig 4.0: One perspective on *ReConfigured: The Time For War*, documentation, London, 2023, © K. Yoland.
p185 - Fig 4.1: *Military Land,* Fort Irwin, Mojave Desert, 2019, © K. Yoland.

LIST OF ACCOMPANYING MATERIAL

Documents:

AM.1 *Desert Diaries* – text in book format, excerpt, 2022.

AM.2 Process book: *Land* – photographic documentation, 2022.

AM.3 Process book: *Fort Irwin* – photographic documentation, 2019.

AM.4 *Sightlines* – mirror interventions in desert, 2022.

AM.5 *On the map* – photographic print, carpet, and installation, 2019 & 2023.
Billboard Premonition – photographic triptych, (video below,) 2020.
Rehearsal – video and photography, (documentation, video below,) 2020.
Electric Desert – photographic images in book and installation format, 2023.
REconfigured – installation series, documentation, 2021-23.
REscaled – photography, installation series, documentation, 2022-23.

Video works:

AM.6 *Rehearsal*, 2020.
Video link: https://vimeo.com/489469628
PW: Rehearse_*

AM.7 *Billboard Premonition*, 2020.
Video link: https://vimeo.com/478642385
PW: Bill_%

AM.8 *Sliding Walls*, 2021.
Video link: https://vimeo.com/542087302
PW: Walls_*

AM.9 *Wormhole aka Russian Doll*, 2021.
Video link: https://vimeo.com/542090240
PW: Worm_&

AM.10 *Desert Invasion Saga*, 2021.
Video link: https://vimeo.com/489002974
PW: Saga_%

Note to reader:

Please read *Desert Diaries* (AM1) before reading the thesis.

INTRODUCTION

Welcome to the desert



Fig 0.0: Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland, all rights reserved.

0.1 The Desert

Desert spaces are immense, isolated and diverse. They are perspective-bending landscapes that can appear both prehistoric and futuristic. To many outsiders, including myself, these desertscapes are as alien as landing on another planet. Although European settlers and colonial cartographers regarded this foreign and disorientating environment as desolate and void, the desert is not empty.[1] It is teeming with diverse ecosystems and rich in more-than-human and human histories – of monumental geological epochs, of nomadic and rooted First Nations societies, and of European and religious settlers with their genocidal actions.[2]

This doctoral research is grounded in my long-term engagement with the deserts of the Southwestern United States, specifically my experiences of their vast open land and the patrolled zones of international borders and the military training centre at Fort Irwin (Fig 0.0, 0.1, 0.2). The desert brings shock and challenge to the foreigner, submerging them in extreme conditions of sweltering heat, blinding light, immense scale, far-reaching isolation and geological time, all requiring them to make a new assessment of previously learned ways of engaging with space and time. Traversing these landscapes, with their visible and invisible environmental challenges, has enabled me to explore what desertscapes offer in terms of living with and learning from the land and other bodies (human and more-than-human) without territorial objectives. It has also allowed me to examine what these desertscapes reveal about how systems of power attempt to close down newfound spatial freedoms. Travelling solo through these zones has let me test my

---

[1] The following writers have referred to the colonial and settler perception of these deserts as empty and void, and have described the contrary position through their own field research: Rebecca Solnit, *Savage Dreams: A Journey into the Landscape Wars of the American West* (Berkeley: University of California Press, 1994); William L. Fox, *The Void, the Grid & the Sign: Traversing the Great Basin* (Reno: University of Nevada Press, 2000); Mary-Jane Rubenstein, *Astroptopia: The Dangerous Religion of the Corporate Space Race* (Chicago & London: The University of Chicago Press, 2023). Also see Kim Stringfellow's *Mojave Project*, documenting ecology, history and activities in the Mojave Desert, https://mojaveproject.org/. For the argument that deserts are not empty, see Samia Henni ed., *Deserts Are Not Empty* (New York: Columbia Books, 2022); and the *Desert Futures Collective* at the Yale MacMillan Center.

[2] First Nations societies in the region include the Northern Paiute people (Numu), Mohave people (Pipa Aha Macav), Pueblo peoples (e.g. the Hopi and Zuni (see Appendix 0.0)), Solano peoples, and the Yaqui peoples (Yoeme). For accounts of forced displacement and genocide of First Nations peoples, see: Ned Blackhawk, *Violence over the Land: Indians and Empires in the Early American West* (Cambridge, MA: Harvard University Press, 2008); Sarah Winnemucca Hopkins, *Life Among The Piutes: Their Wrongs And Claims* (Reno: University of Nevada Press, 1994). For a study of temporalities and First Nations histories outside of settler narratives see: Mark Rifkin, *Beyond Settler Time: Temporal Sovereignty and Indigenous Self-Determination* (Durham (NC) & London: Duke University, 2017).

understanding of space and time, revealing a more entwined and slippery connectivity between them, one that upends and remakes notions of perspective, position and proximity to land and other traversing bodies. It starts and ends with bodies in space.

My site-specific research uses the body as a tool for encounters with desertscapes and military actors in the desert to see what can be learned about mobility, immobility and engaging with space, land and territory. The research is founded on desert learning and supported by an artistic practice of walking through open land and controlled territories. With this in mind, the written and practical thesis develops a practice-based methodology for encounters with desertscapes and Fort Irwin's simulation site, comprised of: (i) encounter through immersion, (ii) encounter through on-site creative methods (first-order desert-mapping) and (iii) encounter through off-site installations and creative-nonfiction (second-order desert-mapping).

I start with encounters produced by bodily immersion in the desert, experiencing both open and restricted zones (chapter one). What emerges out of journeys in such conditions is a form of desert hospitality: the sense of vulnerability and spatial exile lead to new ways of seeing land and other bodies. This understanding guides me to explore a second set of encounters while navigating land and military training.

These encounters emerge from acts of site-writing, lens-based processes and mirror interventions – the creative methods I have developed through my desert journeys (chapter two). In combination, these methods represent a new, experimental and evolving practice methodology for apprehending the desert as space-times rather than as fixed territory – I call this desert-mapping.

Thirdly and finally, I take the findings produced by the creative encounters on-site and recycle, fragment and reconfigure them inside installation formats off-site – a method I call second-order desert-mapping. These off-site works provoke encounters between the collected components (maps, mirrors, camera, text, video and images) inside the installation space and encounters between the visitor and the space and its collected components (chapter three). Through these three sets of encounters, desert-mapping as research contributes new ways of seeing,

understanding and interacting with spatial relations across land and the controls imposed across space.

These articulations pertain to how space impacts bodies and how systems of power control space. Through encounter, I explore spatial complexity (space-time interconnectivity) and spatial control in the desert.[3] Immersion in the desert generates encounters with the scale, breadth, isolation and multiple temporalities of the desert, stimulating a new spatial understanding and vulnerability. Solo journeys and desert-mapping also expose the body and artistic practice to the multiplicity of narratives existing in space (e.g. geological history, political histories and indigenous histories) which support cognisance of how these times collectively form the present, past and future of land and the experience of space.

Meanwhile, my desert journeys submit the human body to zigzagging encounters with open and militarised desert spaces, examining how systems of power seek to suppress exposure to multiple space-times (spatial complexity). Moving in and out of the contrasting territorial zones reveals a matrix of what I call spatial control – forces that visibly and invisibly shape how bodies see and act in space. My research explores a combination of physical design and imaginary scenarios (e.g. Fort Irwin military simulations) which sever the multiple histories/narratives/times from space in order to freeze that space within one narrative and one time – a time structured by a system of power.

[3] These terms are unpacked in the subsequent section: 0.4. *Spatial Dynamics and the Desert*.

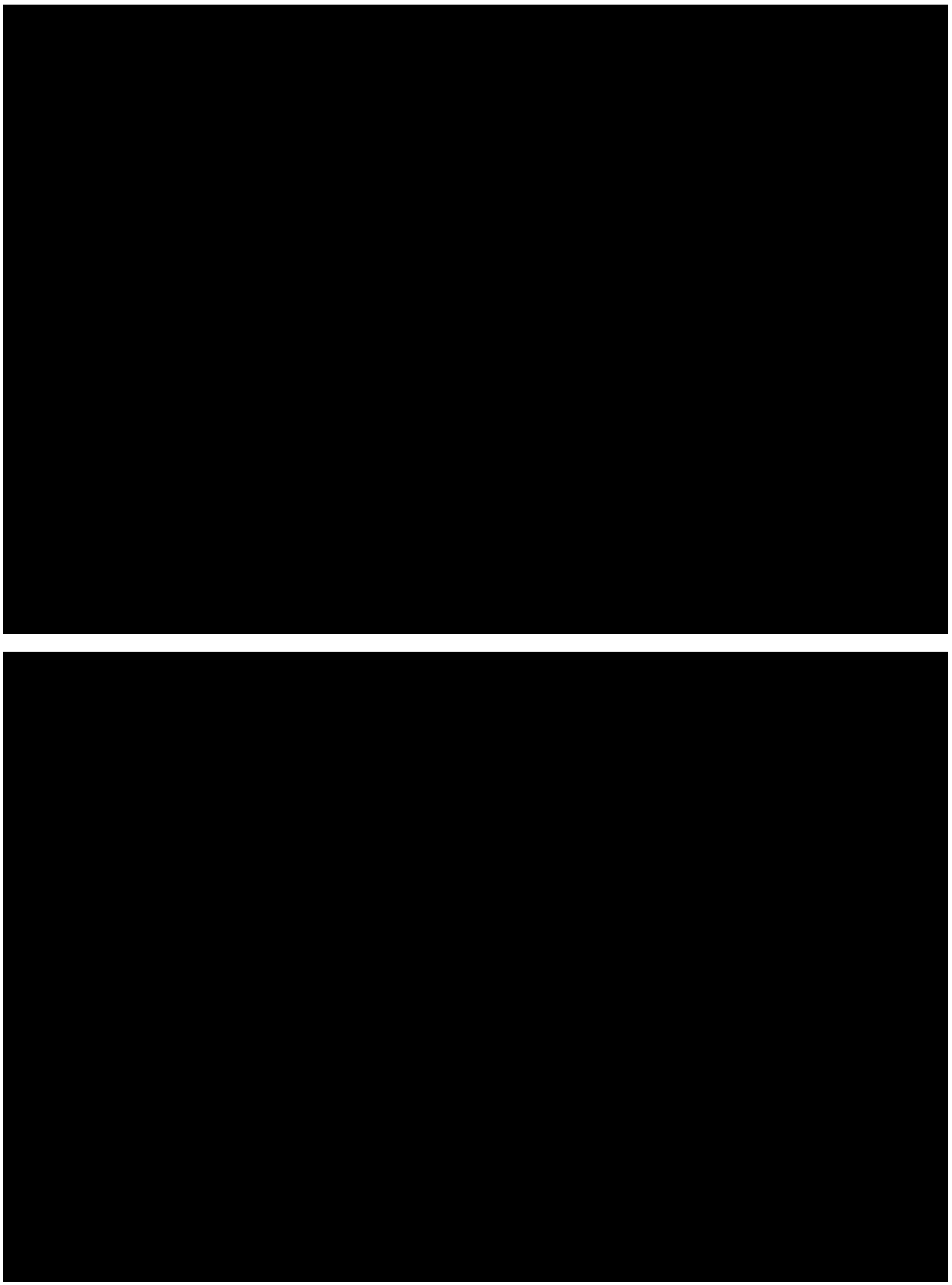

Fig 0.1: Fort Irwin National Training Center (NTC), Orientations map (top image) and close-up on part of the map (bottom image) on waterproof coated paper. Images: © Fort Irwin National Training Center, all rights reserved. Redacted for reasons of National Security.

0.2 Research Questions

My research questions draw from ten years' experience of living and working in three of the four US deserts (Chihuahuan, Great Basin and Mojave Desert). For three of those years, I lived on the US/Mexico border in the Chihuahuan Desert. During a four-month artist residency programme in Marfa, Texas, I focused on the desert border lands and used my on-site days to engage with relevant groups including the US border patrol, oil riggers and cattle ranchers. Additionally, I worked as a daily host/producer for *Marfa Public Radio* at the time, conducting over 200 long-format interviews with environmental activists, scientists, politicians, filmmakers and artists who were visiting or specialising in the region (2013-2015). I was also the desert-based artist coordinator for *Fieldwork Marfa* (2013-2017), a role in which I supported artist research and practice in the desert, including site works, interventions, and performances.

All human bodies are vulnerable to extreme weather conditions and certain living organisms in the desert. However, the risks associated with human encounters are not equally distributed. The desert's remote, open, and vast nature makes it difficult to seek help or refuge from racist, misogynistic, homophobic, or transphobic attacks. In my case, certain ascribed characteristics – such as my white skin and Anglo-European nationality – afforded privileges that others, including First Nations people or people of colour, might not have received in similar encounters.[4] At the same time, as someone ascribed female, my body was also a potential target for misogyny and violence.

I have sought to use both the privileges and risks associated with my body as a means of understanding how mobility across land and space is neither constant nor equal. This personal experience, along with an awareness of how prejudice shapes different encounters, informs my research objective: to explore how all bodies might move freely, equally, and safely. I approach this objective critically, recognising how imperialism, colonialism, and white supremacy shape many spatial experiences; however, I have not explicitly foregrounded my own racial or gender categorisation within the research itself.

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[4] Other factors shaping my initial experience of the desert relate to my upbringing in an urban environment with no prior exposure to vast arid landscapes or Indigenous ways of knowing. While the city I grew up in is culturally diverse, its educational and governing systems remain deeply embedded in historically imperial, colonial, and Christian frameworks. These structures can be understood as forming a prevailing 'atmosphere,' as described by Andreas Philippopoulos-Mihalopoulos, *Spatial Justice: Body, Lawscape, Atmosphere* (London: Routledge, 2015) (See glossary entries 'Immersion' and 'Spatial Justice').

Set against the backdrop of living and learning from the Southwest deserts of the United States, including visits to Fort Irwin, my thesis asks the following three questions:

(i). What does encounter through bodily immersion in the desert reveal and offer a site-specific art practice engaging with land, space-time interconnectivity and representations of territory?

(ii). How do creative encounters with movement, mapping and spatial control inform understanding of open and closed desertscapes?

(iii). Working off-site, how might creative encounters with on-site desert-mapping outputs influence understanding of spatial relations between bodies and land?

Over the ten years I have researched and made work in urban and open desert regions, the locations which have informed the research questions include desert national and state parks (e.g. Big Bend, Death Valley, Joshua Tree), Amboy Crater, desert cities (e.g. Phoenix, Las Vegas, Los Angeles), *Arcosanti*, *Slab City*, Bombay Beach, *High Test Desert Sites*, *AZ West*, *The Center for Land Use Interpretation,* and the Nevada Museum of Art's *Center for Art + Environment* with its director William Fox and Sara Frantz. My observations of military simulation training, on which this research is focused, took place at the *Fort Irwin National Training Centre* over the course of six days. I was granted official permission to visit and conduct these observations, accompanied by a chaperone at all times (2019).

Alongside this long-term engagement with the deserts of the US, my research questions are also anchored in over fifteen years of socio-politically informed and site-specific art practice, my former dance training and choreographic work for stage, live art and film, as well as my studies experimental film (in particular, techniques of montage). Their relevance will be explained in the methodology section.

0.3 Context

My research focuses on two desertscapes, the Mojave and the Great Basin. They were selected for their present-day military training activity and their history of nuclear battlefield testing. The region includes the Twenty-Nine Palms Marine Base, the Nevada Proving Grounds, and Survival Town. I conducted direct observation of military training at Fort Irwin's National Training Center (NTC).[5] There is a sizeable body of literature on the history of the US military in the desert, from World War I to the Cold War; however, there has been little analysis of the impacts of desert training on future occupation, colonisation and territorial ideologies.[6]

0.3.1 Invisible lines in the sand

The broader research is informed by my experiences of the Chihuahuan Desert, home to the White Sands Missile Range and ground zero to the first atomic bomb, Trinity, in 1945. The desert straddles the US and Mexico, and it is where my research on large open terrain began in 2012. It is a region I lived in for three years and have visited for ten.

That relocation instantly thrust me into the realm of geopolitical conflict across invisible lines in the sand, upheld by soft and hard power wielded by the border patrol (who had a base in my town).[7] Borders were a daily complication when I was living and working in the region. There was not only the border between countries but numerous soft borders within the US, which led enforcement agents to run checks on me in remote areas. Through these experiences of border zones and the ongoing threat of border enforcement, my research sent me further west to observe and assess the impact of desert military training on territoriality (at Fort Irwin).

Extensive time working and living in the desert has afforded me widespread observation and experience of how land is controlled, and this informs the research

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[5] A military zone hosting a simulation of the fake country, Atropia, a country fictionally allied with the US. For more information on the simulation and fictional war see Appendix 0.1.
[6] For historical reference: Terrence R. Fehner & F. G. Gosling, "Battlefield of the Cold War: Volume 1", *The Nevada Test Site: Atmospheric Nuclear Weapons Testing, 1951 – 1963* (Office of History and Heritage Resources and the National Nuclear Security Administration, United States Department of Energy, Washington DC, 2006); Andrew Kirk, "Rereading the Nature of Atomic Doom Towns", *Environmental History*, 2012, 17 (3): 634-647, Oxford University Press.
[7] President George H.W Bush famously said he was drawing "a line in the sand" when he sent troops to Saudi Arabia (1990). Jim Mann, "Bush's 'Line in the Sand' Shifts as Objectives Grow", *Los Angeles Times,* 23 August 1990.

in examining how spatial control – the invasion, occupation and defence of land – is maintained and enforced across desert spaces. This is conducted through my desert encounters with land, spatial design, and im/mobility in open and closed zones of the desert. As introduced above, I use the artistic methods of site-writing, lens-based processes and interventions to seek alternative ways of engaging with this desertscape to develop greater empathy and hospitality between bodies and across land.

0.3.2 Fort Irwin

Fort Irwin, a national training centre (NTC) for the US military, offers a perfect system for maintaining control in the desertscape. Located in the Mojave Desert, it consists of 1,000 square miles of terrain without a walled perimeter (see Fig 0.1 & AM.3). Before troops are deployed abroad, they train in Fort Irwin for 21 days, with over 2,000 logistics corps supporting the troops' rotational needs.[8] Additionally, the base is used to train international allies (e.g. military personnel from the United Kingdom and South Korea). The Fort Irwin site contains 15 known simulated towns, including extensive tunnels and caves.[9] During the time of my research, the site was being used for training for conflict across the Middle East (see Appendix 0.1 for the current simulation's fictional narrative).[10]

The declared mission of the Fort Irwin NTC includes:

> ...develop[ing] ready units and adaptive leaders; replicat[ing] complex, hybrid threats using a dedicated opposing force and a high fidelity training support system.[11]

Fort Irwin's activities have so far attracted little scholarly attention and critique, with the exceptions of work by James Der Derian (2001) and Scott Magelssen (2009) and

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[8] Fort Irwin's simulations are descendants of the UK's Salisbury Plain simulations. James Der Derian, *Virtuous War: Mapping the Military-Industrial-Media-Entertainment Network* (New York & London: Routledge, 2001) 24-28.
[9] Additional terrain is used for live mines, gun ranges, tank battles, and various high-security areas which I did not have access or information. For full-time occupants of the facility, the site contains a residential town with a supermarket, restaurants, bars, gun shop, sports, post office, schools and hospital. Science research units onsite include JPL and NASA's 'Deep Space Network' and environmental units (preserving vegetation and habitat).
[10] During the Cold War period, Fort Irwin hosted tank battles and the insurgents at this time performed as Soviets. Derian's site visits during that era have been valuable for comparison to current-day simulation design. Derian, *Virtuous War*, 2001, Chapter 1 "The tank and the tortoise", 1-22.
[11] See Appendix 0.2 for the NTC mission statement.

larger work on urban warfare by Ersela Kripa and Stephen Mueller (2020).[12] Otherwise, documentation about the training centre is generally limited to the outputs of military press and public media organisations, which provide an overview of the control of the simulation territory without any profound analysis or proposed alternatives.[13]

For instance, the majority of media outputs focus on how the training hones a soldier's decision-making across diverse unexpected scenarios, optimises collaboration between soldiers, tests their physical endurance (extreme temperatures and sleep deprivation) and reduces cultural shock. However, the discussions do not address whether or how the spatial design of these training simulations purports to contribute to de-escalation of real-world conflict or, better still, help humans to navigate and share space equitably. Therefore, the spatial theory employed to design and build these spaces remains ambiguous. The dynamics between the action and the flattened aesthetics of the reproduced architecture are unknown (see Fig 0.2).

Moreover, it is hard to assess whether the training is stuck in a feedback loop or whether spatial navigation allows trainees to create unexpected outcomes.[14] With this in mind, I have set out to explore how artistic methods, using movement and creative forms of unplanned encounter, might test the limitations of simulation training and reveal how state players engage with both the public domain and international space.

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[12] The thesis is supported by the contributions of Magelssen and Derian; however, it should be noted that they visited the site 10 and 20 years earlier, respectively, than my site visit in 2019. Derian visited Fort Irwin when it was focused on Cold War training and before the simulation turned towards Middle Eastern occupation. Magelssen visited Fort Irwin before the US withdrew from Afghanistan (August, 2021) and Iraq (December, 2021). Derian, *Virtuous War,* 2001; Scott Magelssen, "Rehearsing the 'Warrior Ethos': 'Theatre Immersion' and the Simulation of Theatres of War." *The Drama Review,* 53:1 (2009): 47–72.

[13] For example, Geoff Manaugh and Nicola Twilley, "It's Artificial Afghanistan: A Simulated Battlefield in the Mojave Desert", *The Atlantic*, May 18, 2013.

[14] For example, could outcomes be far from what Sanford Kwinter calls the equilibrium point? Or, based on specific goals and assumptions baked into the simulation design, do simulations require a soldier's actions to remain close to a baseline controlling equilibrium? If the latter, this can pose a problem for building future solutions and change which is not based on occupation and power. See glossary for Kwinter's term, Equilibrium. Sanford Kwinter, *Far from Equilibrium: Essays on technology and design culture* (Barcelona & New York: Actar, 2008).





Fig 0.2: (Current and following page) Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland, all rights reserved. Above (from top to bottom): North western edge of simulation set, Ujen (fake village), and map for training exercises (inside Fort Irwin but not inside village or fictional narrative).





Above (from top to bottom): Alleyways in Razish training village and fake brick wall.

Acknowledging the range of other military simulation sites globally, I have chosen to focus on Fort Irwin because of its international scope, theatrical scale and desert setting.[15] My aforementioned experiences in the region led me to believe that desert conditions offer potential for unique insights into how space is interpreted, navigated and mapped to control access and mobility. Military training events in the desert directly informed my research, enabling me to observe first-hand how terrain is managed by systems of control which apply representational schemas to re-design space and enforce vast choreographed movement.

My research explores whether the particular and unique ways in which space is understood across desertscapes supports Fort Irwin's endeavours. For example, if the military perceives the desert environment as empty, vast and remote, it may elicit a sense of suspended reality. In such a context, the space may be perceived as a no-man's land where military actors can disregard such things as collateral damage (i.e., unintended or acceptable loss).[16] Serving as training scenarios, the simulation might not only desensitise the trainee soldiers to destruction, violence and death – treating them as insignificant – but also has the potential to define and engender the very distinction between that which is considered collateral damage and that which is not. If the simulation actively produces and shapes the categories of what counts as "collateral", this implies that it plays a more fundamental role in constructing the framework or criteria that separate "collateral" damage from other forms of harm. This process could significantly influence military logic and decision-making in a deeper way. Hence, my research has a two-fold purpose. First, it explores Fort Irwin's simulation mechanics in conjunction with testing encounters in the open desert – from the position of military and non-military bodies. Second, to achieve this, the research develops experimental desert methods which examine the spatial dynamics of the desert. This process starts with on-site encounters generated through embodied navigation, desert-mapping techniques and interventions (discussed in the subsequent methodology section). These encounters reveal two kinds of influential spatial dynamics, which I have called *spatial complexity* and *spatial control*.

[15] See glossary term, simulation, for examples of other global sites.
[16] Emily Scott has also made this point, describing military tests in the desert as theatrical stages that are 'laboratory'-like and sterile in their approach. See Emily Scott, "Desert Ends," in *Ends of the Earth: Land Art to 1974*, ed. Philipp Kaiser and Miwon Kwon (Los Angeles and London: MOCA and Prestel, 2012), 83. It should be noted that Fort Irwin has conservation initiatives on site, suggesting an acknowledgment that the land is not barren. However, the U.S military is legally obliged to avoid environmental damage.

0.4 Spatial dynamics and the desert

To understand how power and violence operate across open-scale terrain, I have incorporated existing literature on spatial theory with artistic strategies developed through desert learning in this research. The desert has offered the research unique conditions that enable me to formulate three terms for understanding how space operates, how control of space permeates land-based relations and mobility, and what spatial alternatives might arise through new ecological thinking (for living together). These terms are *spatial complexity*, *spatial control*, and *desert hospitality*.

Spatial complexity refers to the interconnectedness of space and time. In the desert, spatial complexity is exposed by the landscape's immense scale, isolation and deep geologic time, which disrupt the human body's ability to gauge perspective, positionality and proximity towards land and other bodies.[17] Such an experience has the potential to engender new and compassionate thinking across space – which I call *desert hospitality*.[18]

The notion of spatial complexity is informed by Doreen Massey's space-time connectivity (1994), Edward Soja's Thirdspace (1996) and spatial justice (the spatial turn) (2010).[19] Massey's argument that multiple temporalities act within a spatial context, and Soja's call to recognise the spatial component of justice, both align with the multiple temporal remains I witnessed in the desert. These multiple temporalities include geological and ecological history (deep time), colonial history (e.g. Manifest Destiny and Westward Expansion), suppressed histories (e.g. erasure of indigenous cultures) and large-scale military history in the past, present and future. My research into encounter through immersion (chapter one) and site-writing (chapters two and three) reveals how the interaction of diverse temporalities within a place operates independently of human control.

Spatial control involves actions conducted or designed across space which reduce land to fixed zones and suppress the multiple histories existing within space. Such

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[17] For spatial complexity as experienced through desert immersion see chapter one, section 1.1. *First Impressions*.
[18] Developed in detail in chapter one, section 1.3. *Desert Hospitality: Exile and Vulnerability*.
[19] Doreen Massey, *For Space* (London: Sage Publications, 2008), Edward Soja, *Thirdspace* (Oxford: Blackwell Publishers, 1996); Edward Soja, *Postmodern Geographies: The Reassertion of Space in Critical Social Theory* (London: Verso Press, 1989); Edward Soja, "The city and spatial justice", *Justice Spatiale | Spatial Justice*, n° September 1, 2009; Edward Soja, "Spatial Justice and the Right to the City: an Interview with Edward Soja", *Justice Spatiale | Spatial Justice*, n° March 3, 2011.

restricted spaces are maintained by human-imposed infrastructures, such as legal constraints which justify international borders, private property, zoning rules, and corporate or military land.[20] My framing of spatial control and research of Fort Irwin's training villages are informed by Norman Klein's term *scripted space* (2004) – referring to designed environments that operate to manipulate choice and navigational outcomes.[21] It is also influenced by Peter Sloterdijk's argument (2011) that built architecture absorbs the body and is a form of totalitarianism via spatial possession and oppression.[22] Massey's and Soja's work also inform research on spatial control, as they both warn that ignoring the impact of various temporalities acting on a space serves to conceal suffering and sustain power imbalances. By applying these arguments to the numerous military actions choreographed and performed in the desert, for this research I have devised an artistic practice-based methodology which provokes *encounters* (see glossary) with the desert and the military, to examine power and space-times across land. This comes with the secondary goal of understanding if desert learning yields broader applicability outside the desert.

In my explorations, I compare and contrast the impact of spatial complexity with the imagined geographies and fixed times developed by military testing/training, Manifest Destiny (Westward Expansion), and Hollywood narratives (e.g. the narratives reinforced by Westerns – see chapter one (part two, sections 2.2 & 2.3) and *Desert Invasion Saga* (Fig 3.3 & AM.10) and *Wormhole* (Fig 3.5 & AM.9) – all three of which succeed through spatial control.[23] I argue that the stark manifestation of these conflicting spatial dynamics in the desert (control and complexity) creates a

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[20] The focus of chapter one, part 2. *Spatial Control*.
[21] Norman Klein, *The Vatican to Vegas: The History of Special Effects* (New York: The New Press, 2004). Also relevant is UCL's *Space Syntax Laboratory*, which has a focus on spatial design, use of space and social outcomes. Engaging VR their research involves agent-based navigation simulation inside built environments.
[22] Peter Sloterdijk, "Architecture as an Art of Immersion", *Interstices: Journal of Architecture and Related Arts*, 2011, 105-109. Note that research on spatial complexity is informed by another form of 'immersion' – Coccia's use of the term to describe how all living organisms are interconnected through their merging with the planet, conjoined by its embryonic-like fluid which supports, houses and feeds us. Discussed further in chapter one, section 3.3. *Space-time*. Coccia, *The Life of Plants*.
[23] Imagined geographies, as coined by Edward Said, describes how the constructed "geographical space of the Orient" enabled a form of "possession and penetration" by British and French powers. These perceptions, shaped by imagery, art, and travel writing, reflect a colonial perspective. See Edward Said, *Orientalism* (New York: Vintage Books, 1979), 211. Also see Andreas Immanuel Graae, *The Cruel Drone: Imagining Drone Warfare in Art, Culture and Politics*, PhD thesis (Odense: University of Southern Denmark, 2019), 23.

unique and rich opportunity for analysing and testing alternatives to territoriality, colonisation and violence.

Although I believe that spatial complexity exists everywhere (it is intrinsic to what constitutes space), my experiences and observations on-site have revealed that the desert environment exposes the human body to spatial complexity in a particularly acute or heightened way (discussed in chapter one). A body's capacity to recognise and interact with spatio-temporal dynamics in the desert is unlike that in other spaces or terrains such as forests, jungles, mountain regions, and water masses. These environments do not generate the same disorientating land-based spatial dislocation as in the desert, where bodily isolation across immense scale and multiple temporalities refuses Cartesian geometry, which otherwise turns land-body relations into fixed points in a flattened space.

However, the desert is also where the military develops its most precise and concentrated counterpoint to this disorientation, with spatial control spanning highly restricted zones designed for rehearsing, choreographing and perfecting territorial conflict scenarios.[24] Therefore, the desert is a fecund setting for both heightened awareness and heightened control of space. The experience of spatial complexity in the desert informs new ways of acting in space (desert hospitality), while scrutiny of the devices of spatial control (e.g. surveillance, mapping, training, simulation set design) exposes how occupation and territory are perfected.

Heightened exposure to spatial complexity and spatial control in the desert supports my three research questions – which in their individual ways link to the broader goal of shifting body-land relations away from a human-centric perspective of occupation and towards a broader ecological perspective in which multiple temporalities are recognised. In this study's exploration of spatial dynamics in the desert, the use of a practice-based methodology of encounter enables the findings to emerge – first through bodily immersion on-site (chapter one) and later through creative acts of encounter which are site-specific or installation-based (chapters two and three respectively). The shift in perspective on space, which has the potential to engender a more holistic approach to land-based actions through what I term *spatial empathy*, aligns with indigenous thinking such as Traditional Ecological

[24] For the US military in the desert see chapter one, 2.4. *An environment of immersion and observation.*

Knowledge (TEK, discussed in chapter one, p.66-68) and the ecological thinking of Emanuele Coccia (2018) and Jane Bennett (2010).[25]

This pursuit aligns well with the term Future Ecologies, which is examined in the compendium titled *Fieldwork for Future Ecologies* (2022).[26] In the context of the contributors' research, and my own, ecologies are not limited to the environment but also constitute the ecologies formed through multi-species action, collaboration and thinking. Furthermore, the futures indicated in the term are not necessarily beyond us, but point to futures already surrounding us. These include indigenous practices and knowledge systems, as well as suppressed ways of living together that have existed within communities that are repressed daily by racism, homophobia, sexism, poverty, war, colonialism and environmental danger.[27] These ways of living with others and the planet are a future-in-the-making, through engagement, collaboration, experimentation and activism.

0.5 Methodology

Through solo journeys across public and private desertscapes I have developed a practice-based methodology, called desert-mapping. It encompasses three different types of encounter with the desert: (i) encounter through immersion, (ii) encounter through on-site creative methods (first-order desert-mapping) and (iii) encounter through off-site installations and creative-nonfiction (second-order desert-mapping). Within the practice-based methodology, there are specific methods used to provoke and mediate these desert encounters.

First-order desert-mapping methods, which take place on-site, are *site-writing*, *lens-based processes*, and *mirror interventions*. Second-order desert-mapping methods *reconfigure* the products of the first-order desert-mapping by selecting and recycling fragments and re-forming them into *non-chronological site-writing*, *book formats* (image or text) and *installations* (which include large-scale maps,

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[25] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010); Emanuele Coccia, *The Life of Plants: A Metaphysics of Mixture* (Cambridge: Polity Press, 2018). Also relevant: James Gibson, *Ecological Approach to Visual Perception* (New York: Taylor Francis, 2014); Brendan Hokowhitu, Aileen Moreton-Robinson, Linda Tuhiwai-Smith, *et al.*, *Routledge Handbook of Critical Indigenous Studies* (New York: Routledge, 2019).
[26] Bridget Crone, Sam Nightingale, and Polly Stanton, *Fieldwork for Future Ecologies*. Onomatopee 225 (Eindhoven: Onomatopee, 2022).
[27] Crone *et al.*, *Fieldwork for Future Ecologies*, 14.

printed images, mirrors, monitors, camera and performer). The encounters produced by each method function individually or can be observed/experienced in combination. This is to say that each of these tools operates differently (because of their different media) and so engage with space-times in different ways. For example, multiple temporalities can be emphasised to different effect by video techniques in contrast to photography or the written word. Combining them as a larger body of work and research illuminates the diversity of perspectives and positions available to the observer on land and in space.

As a methodology for wandering and travelling through the desert, testing and experiencing both spatial control and spatial complexity, these methods enable me to be open to unexpected meetings and spontaneous action. My journeys blend with the multiple fictions on-site, including those of the military's representations of space and place (Fort Irwin simulation villages).[28] These fictions punctuate the multiple histories already intertwined with the land and ecosystem here. Through creative encounters provoked by site-writing and lens-based processes, I juxtapose contrasting dynamics and force a dialogue. For example, in *Electric Desert* (Fig 0.9 – 0.12) and *Desert Diaries* (AM.1), the images or narratives of the military simulation and other urban desert environments must be seen against open desertscapes which illuminate the multiple temporalities in existence.

The blending of open desertscapes and Fort Irwin's simulations allows for both on-site interventions and off-site installations, which offer new modes of resistance to spatial control through non-military engagement with the simulation design. Encounters brought about by the methods of desert-mapping, and the new ways that spaces are entered and seen, serve to engage with the military system.

For example, the outcomes of site-writing allow for jumps between different spaces and times, awakening multiple non-chronological instances of bodies across space and time. Lens-based actions explore sites from different vantage points and distances, and experiment with cropping and rearranging scenes into multiple perspectives. Interventions and installations use mirrors to disturb lines of sight and

[28] By 'fictions', the thesis also refers to Hollywood fictions (science fiction and cowboy westerns) which my research samples as video clips. Additionally, my own site-writing is also sampled and forms the basis of disembodied voices for sliding text works in the video and installation works. Furthermore, the military representations are also fictional scenarios and therefore research on location at those sites is also engaging with another diverse set of proliferating and evolving fictions.

expose constructions of fixed positions. Thus, the range of processes used in desert-mapping, as well as their unique modes of iteration, have allowed me to challenge a fixed perspective, positionality and proximity to zones of territory and the bodies within.[29]

As will be discussed in chapters two and three, in this research I have devised ways to expose or counter spatial representations which flatten space and are designed for control of bodies and land.[30] Furthermore, desert-mapping plays with alterations and reconfigurations of spatial control – as will be explained in the following chapters – which in turn makes it possible to imagine alternatives.[31] In this way, my research reveals desert-mapping as a spatial disruptor or chaos agent with the potential to challenge territorial thinking and to awaken forms of empathy across space.[32]

[29] These methods are explored in chapter two (onsite) and chapter three (off-site).
[30] In this case the existing representations are those of the simulation.
[31] These alternatives will be explored through terms such as fictioning in chapter three, part one. *Disrupting and connecting space-times*.
[32] For example, David Levi-Strauss talks of Joseph Beuys and his performance with a coyote during *The Vietnam War / The American War* in political terms as being a transformer and a trickster "bringing order to chaos and chaos to order". David Levi-Strauss, "American Beuys: I Like America and America Likes Me", *Between dog & wolf, Essays on Art and Politics* (New York: Autonomedia, 1999) 38.

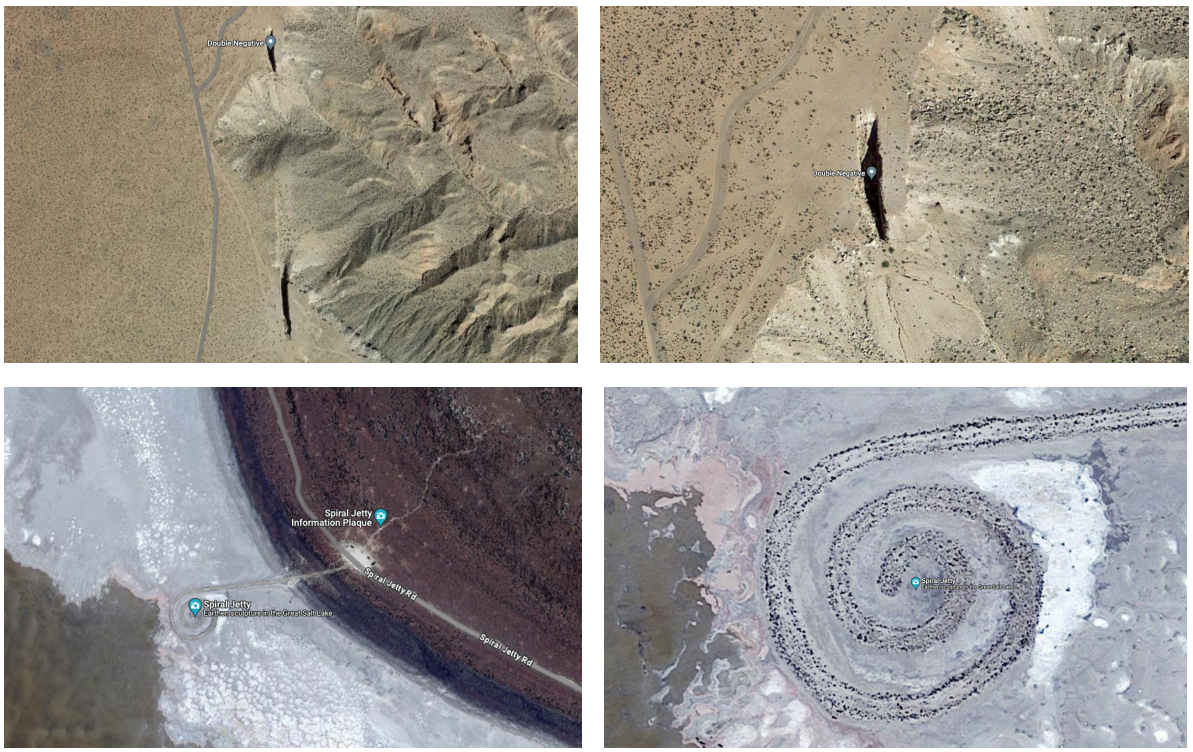


Fig. 0.3 (Top images): Michael Heizer, *Double Negative*, 1969, as seen by Google Earth, 2023;
Fig 0.4 (Bottom images): Robert Smithson, *Spiral Jetty*, 1970, as seen by Google Earth, 2023.

Through my open-ended journeys across desertscapes I have been witness to different dimensions of the site: the environmental (land), the industrial (extraction) and the sociopolitical. Desert-mapping explores the intertwining present, past and future iterations of these factors on-site, probing the unique spatial dynamics within each instantiation.

Deserts are diverse places, but all desertscapes are large, arid expanses with sparse vegetation and extreme temperatures. What is relevant to my research across three of the four US deserts is that they offer immense scale, raw material, aerial perspective, and a remote setting.[33] Being on-site allows artistic methods to focus on complex and abstract spatial explorations.[34]

This aligns my practice, in part, with the North American land artists of the 1960s/70s, including Michael Heizer and Robert Smithson. They were drawn to working with these unique desert conditions, which were impossible to find in an

[33] Aerial perspective has been valuable to the military for surveillance, planning and tracking, and to land artists for showing large-scale works from vast bird's-eye-view perspectives (e.g. see Fig 0.3, 0.4 and 0.6)
[34] Thus, the desert setting allows research to address spatial factors that sit above and beyond imagined geographies of colonial perspective.

urban setting, studio or gallery space. However, there are differences between land art and this work. My artistic strategies distinguish themselves from the monumentality and environmentally disruptive permanence of land art (e.g. Smithson's *Spiral Jetty*, 1970, and Heizer's *Double Negative*, 1969) which are visible still today from satellites (Fig 0.3 & 0.4). Also, I argue through this research that space is inseparable from the known and existing factors operating on land (history, politics, infrastructure, traversing bodies), whereas the land art movement rarely acknowledged these compounding factors. However, exceptions include artists such as Lita Albuquerque (Fig 0.6) whose land works were non-permanent interactions with land and space (best viewed from above) and Jean Tinguely (Fig 0.5) whose work directly engaged with military tests and was televised live.[35]





Fig 0.5 (Left): Jean Tinguely, Study for an End of the World No. 2, 1962, Jean Dry Lake Playa, Mojave Desert, photo credit: Allan Grant / The LIFE Picture Collection, all rights reserved; Fig 0.6 (Right): Lita Albuquerque, Spine of the Earth, 1980, El Mirage Lake, Mojave Desert, image credit: © Lita Albuquerque, all rights reserved.

For this reason, and as a spatio-temporal practice, my research aligns well with site-specific artworks which recognise the inequalities of occupation, power and segregation across space and time. Relevant site-specific examples include Beverly Buchanan's material engagement with the history of slavery in the deep south of the United States (*Marsh Ruins*, 1981 (Appendix 0.3)), Xxavier Carter's ghostly reincarnation of segregation and violence on the streets of Dallas (*Sweet Jesus*, 2018), Agnes Denes' field growing within the capitalscape of Wall Street (*Wheatfield*, 1982; Fig 0.7) and Jeremy Deller's tour of an exploded Iraqi car across the United States (*It is what it is,* 2009 (Appendix 0.4)). In these works, the artists insert the human body, inanimate objects or new landscapes into sites and expose how

[35] Tinguely is not a land artist but his work in the US deserts predates the infamous land art of the 1970s and provides a sharp distinction with how the desertscape might be understood in socio-political terms. Scott contrasts him with those land artists in "Desert Ends", 82-83.

different space-times exist and interact with each other. However, none of those works engages with desertscapes.

Examples of direct artistic engagement with the American Southwest desert regions include Doug Aitken's mirror house near Palm Springs (*Mirage*, 2017), Gerald Clark's flags of prehistoric fish (*Earth Memories*, 2022; Fig 0.8), John Gerrard's video projection of oil in Texas onto a site near Palm Springs (*Western Flag,* 2019), and Hito Steryl's work performed and filmed on US Air Force aerial-photography calibration targets (*How Not to Be Seen,* 2013). Like these works, desert-mapping also involves on-site engagement with desert-related resources, territorial domination, and the corresponding virtual or fictional spaces of geopolitical imaginaries, by forcing the multiple realities present on-site together. However, while these artists respond to the treatment of bodies and/or land and recognise the far-reaching consequences of actions in the desert and other faraway spaces, they do not explicitly engage with the particulars of spatial complexity in the desert (including its potential to generate desert hospitality) nor do they engage with the military or spatial control (with the exception of Steryl, who addresses the military).[36] To that extent, there is a risk that the desert becomes a backdrop to their themes. Ironically, this point circles back to how the present research was influenced by 1960s/70's land art. Its articulation and mapping of raw materials/qualities unique to the desert inadvertently disturb and expand the ways that humans see open space, provoking sociopolitical questions.[37]

[36] Other works on military training and desertscapes include: Nira Pereg's, *Melt Away Before You* (2018), employing a documentary approach to examining 'authenticity' and 'fiction', focusing on Fort Irwin; Claire Beckett's, *Simulating Iraq* (2006-2017), documenting the representation of Muslims and Arabic people in simulation training across the US; and Broomberg & Chanarin's photographic work *Chicago* (2006), documenting Baladia City, an artificial Arabic urban environment built by the Israeli Defence Force (IDF) for training in the Negev Desert, southern Israel (close to the Tze'elim military base).

[37] For example, Heizer's works concerning displacement – existing in and off the land e.g. *North, East, South, West* (1967/2002) inside Dia Beacon, and *North* (1967), outside in the Sierra Mountains, Reno, Nevada.



Fig 0.7 (Redacted, Left): Agnes Denes, *Wheatfield – A Confrontation*, A View with New York Financial Center, Battery Park Landfill, Downtown Manhattan © 1982 Agnes Denes. Image can be found at www.agnesdenesstudio.com; Fig 0.8 (Right): Gerald Clark, *Earth Memories*, 2022 (Photo: K. Yoland, 2022).

My research involves a land-based, site-specific and sociopolitical practice in order to provoke new ways of seeing and acting across the desert. This has required me to manoeuvre through the constraints and dangers of highly restricted and reactive sites, such as military zones. These sites are heavily monitored and the freedom to explore is limited, which particularly constrains the potential for interventions for desert-mapping. Furthermore, parts of the military site remain a dark zone for the research. These issues have forced some work to be made off-site. However, the restraints on artistic interventions provide compelling empirical data on spatial control, indicating that the research process is in direct contact with its subject matter.

In summary, through the site-specific and practice-based methodology of desert-mapping, I have tested (i) the impact of my own desert immersion and quality of movement across open and closed zones, (ii) what emerges from deploying the creative tools of site-writing, lens-based processes and interventions on site (first-order desert-mapping); and (iii) explored multiple temporalities and perspectives of space through off-site encounters within installations and second-order site-writing which reconfigure fragments of on-site encounters (second-order desert-mapping). Both the on-site and off-site creative encounters involve building on the findings of desert immersion, in particular trying to echo spatial complexity through first- and second-order desert-mapping to disturb the mechanics of spatial control which flatten space and freeze time. These three methods of testing lead the way to answering my three research questions as well as the broader goal of understanding how the methods support empathy across space – desert hospitality.

0.6. Findings and contribution to knowledge

Through journeys undertaken on foot in open and closed desert zones (solo excursions and militarily chaperoned site work), I experienced cognitive dissonance from the disorientating environment of the open desert (scale, breadth, isolation, multiple temporalities). However, at Fort Irwin, the site of military simulation training, there was a sense of frozen time with no past, present or future. Immersion in the open desert provided a heightened understanding of spatial complexity (multiple narratives and times scales of other living organisms and diverse peoples), whereas immersion in the simulation site revealed a closed system of spatial control, devoid of alternatives to the war game's narrative. The disorientation which is elicited by heightened spatial awareness in the desert in turn creates a sense of vulnerability and bodily exile from known physical coordinates. The consequence of this vulnerability and exile is desert hospitality – the potential for empathy between diverse humans, more-than-humans and the planet.

Creative encounters with the open desert and Fort Irwin generate new understanding of spatial complexity and how to engage with it. The encounters also reveal how spatial control operates. Developing a methodology of desert-mapping that begins with on-site methods of site-writing, lens-based processes, and site interventions – first-order desert-mapping – my research engages with spatial complexity – disrupting perspectives, positions and proximity to land and bodies in space – to reveal that spatial control, such as at Fort Irwin, operates by flattening space.

Taking desert encounters off-site to rework them in new configurations and in installation format, the research further develops creative ways to engage with spatial complexity to reveal and resist spatial control. The second-order desert-mapping methods (second-order site-writing, photographic montage, installation and video-editing), serve to echo desert hospitality, by mimicking the sense of vulnerability and exile from fixed coordinates. The off-site reconfigurations also reveal the potential of the methods for application to spaces other than the desert.

0.7. Navigating the thesis

The thesis is laid out over three core chapters preceded by this introduction and followed by a conclusion reviewing the findings and the contribution. Each chapter is developed from desert learning and contributes new processes and data to answer my research questions and broader goals (p.21-22). Each core chapter aligns with a stage of my practice-based methodology, addressing a different form of encounter with the desert: (i) encounter through immersion, (ii) encounter through first-order desert-mapping and (iii) encounter by second-order desert-mapping. The findings in each chapter inform the motivations and results of the subsequent chapters.

Chapter one (Desert hospitality: spatial complexity and disruption) investigates my initial experience of desertscapes through solo travelling across public lands and private/restricted zones. My dance background informed the way I used my body as a research tool in the desert to explore what happens to the human body when it is immersed in the open desert – confronted with its scale, breadth, isolation, multiple temporalities and extreme climate.

My first-hand experiences of moving through a disorientating environment revealed that the desert compels the human body to relearn how to move and interact. These journeys yielded new ways of thinking about empathy – away from notions of territory and towards a new, spatially-driven ecological thinking – *desert hospitality* – which involves kinship across space (*spatial empathy*).[38]

Additionally, this chapter addresses the presence of state actors in the desert (e.g. Fort Irwin) and details the relation between this landscape and the military training that takes place there. I distinguish between the heightened exposure to spatial complexity found in open deserts (multiple temporalities and spatial perspectives) and the spatial control forming across restricted zones (where time becomes unchangeable within the framework of a system of power). Here, spatial control

[38] In chapter one, the following literature will be relevant to hospitality and spatial empathy: Jacques Derrida, "Hospitality", *Angelaki: Journal of the Theoretical Humanities* 5(3): 3–18, 2020. Jacques Derrida, *The Animal That Therefore I Am* (New York: Fordham University Press, 2008); Anne Dufourmantelle, "Hospitality–Under Compassion and Violence", in Thomas Claviez ed, *Conditions of Hospitality, Ethics, Politics, and Aesthetics on the Threshold of the Possible* (New York: Fordham University Press, 2013); Achille Mbembe, *Necropolitics*, (Durham & London: Duke University Press, 2019); Rebecca Tamás, "On Hospitality", in Jaspar Joseph-Lester, Sharon Kivland, and Michael Corris, eds., *Hospitality*, Transmission Annual (Sheffield: Artwords Press, 2012).

operates along fixed and prescribed perspectives, positions and actions across land (for example, military simulations). This chapter details the embodied and spatialised insights I drew on to develop creative methods to interact with open and closed desert zones (chapter two).

Chapter two (Land, borders and Fort Irwin: Creative encounters with spatial control and spatial complexity) explores what emerges from creative methods of encounter with open deserts and Fort Irwin's simulation villages. Continuing a process of solo travelling, I developed site-specific methods and tools – site-writing, lens-based processes and mirror interventions – which combine to create an artistic methodology I call desert-mapping:

In their totality, the desert-mapping methods alter and disturb fixed vision by multiplying the perspective, positionality and proximity to land and bodies in the desertscape. Desert-mapping expands ideas of possible spatial interactions and resists territorial representations of land.

Thinking through the collective impact of these methods, chapter two explores how they disturb representations of imagined colonial geographies (Cartesian mapping) and spatial control, forcing the body instead to engage with multiple space-time realities. Desert-mapping reveals how military simulations impose a flatness in the depiction of the spaces they represent. My findings from desert-mapping inform the next chapter which examines them off-site to build more expanded spatial interactions.

Chapter three (New ways of seeing and behaving across space) takes the on-site encounters with desertscapes and reworks them off-site through acts of fragmenting, recycling and reconfiguring the lens-based imagery, site-writing and mirror interventions.

As second-order desert-mapping techniques, the new installation formats for desert encounters expose the multiplicity of stories and perspectives operating across space. These creative encounters rupture representations of land and places that freeze them in one fixed time, narrative or positionality (which supports spatial control). Instead, the underlying spatial complexity of the space is revealed. Second-order desert-mapping thereby becomes a method for engaging with spatial complexity and disturbing the flatness of spatial control. Chapter three

proceeds to rethink encounters within desert spaces as an opportunity and broader spatial enabler for change.

The concluding chapter reviews the findings of the three core chapters, bringing all three research questions together. Providing a new practice-based methodology for interacting with desertscapes of the United States and military simulations, the research shows the importance of desert learning (exposure to spatial complexity and desert hospitality) and the value of understanding spatial relations in terms of multiple temporalities and spatial perspectives.

This in turn allows the research to provoke new spatially-based ecological thinking. This thinking decentres the human body from colonial frames of how land is represented and managed. Instead, spatial interactions are informed by the multiple spatio-temporal realities of land, grounded in a broader more-than-human perspective. This enables new, inclusive thinking to emerge in which actions operate with empathy across land and bodies – that is, spatial empathy. I discuss possibilities for applying this thinking, and my practice methodology, to other contexts.

* * *

Having laid out the context, key terms, research questions, and the road map of the thesis, I proceed to chapter one, which will begin in the desert, looking at the impact of entering the desert, and the military involvement in the desert. It gives an account of gaining a new but disorientating perspective of land and space – one which brings about vulnerability and has the power to create desert hospitality.

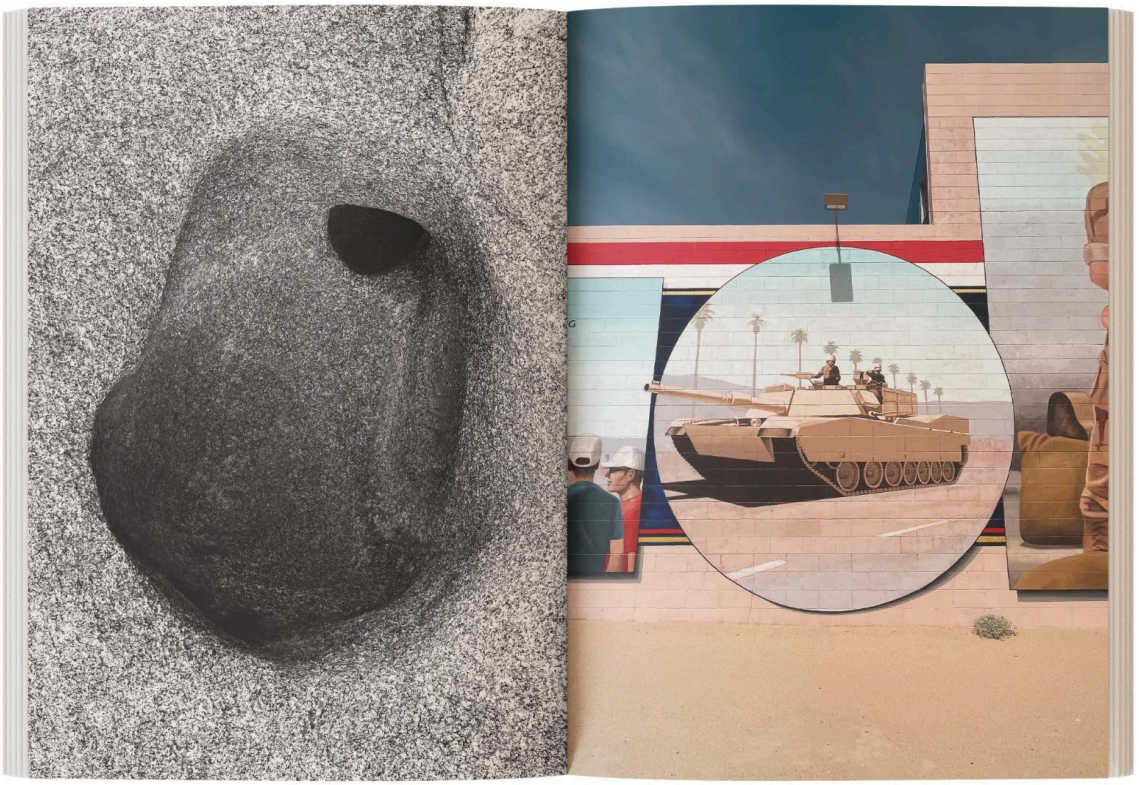
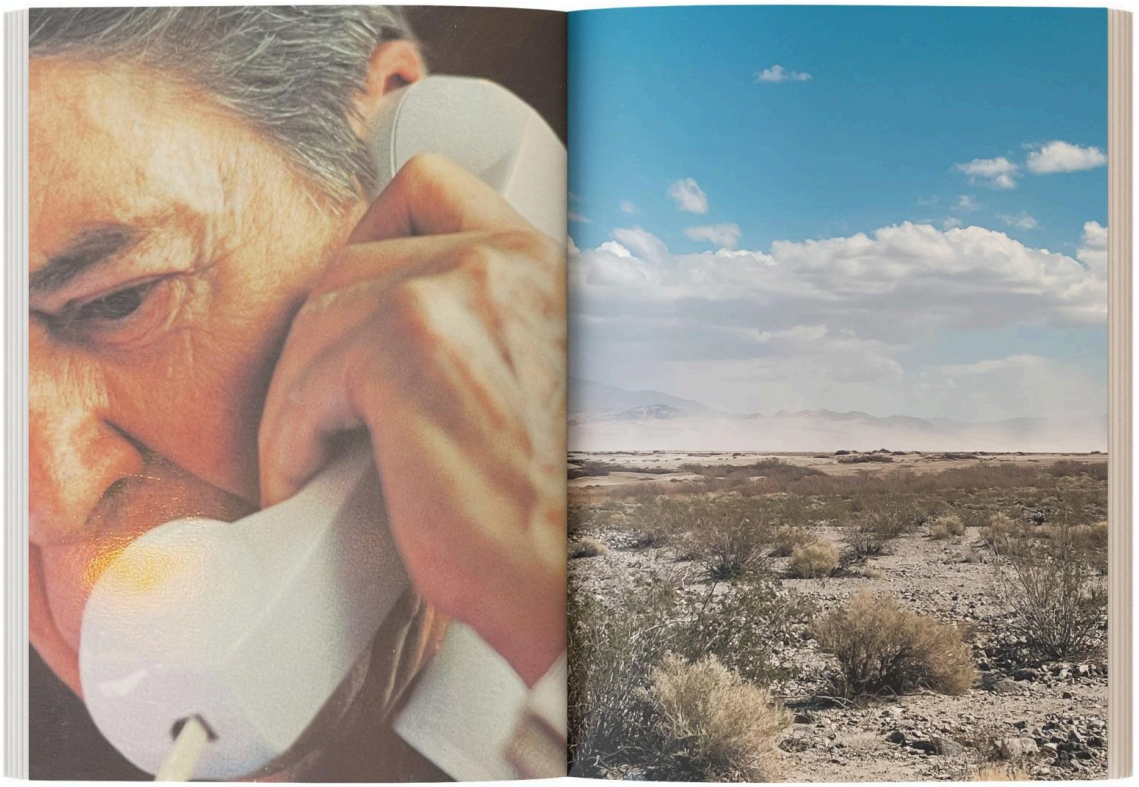


Fig 0.9: *Electric Desert*, Mojave Desert (↑ public land and Twentynine Palms town) & Great Basin Desert (↓ book shop and private land) book format, 2023, © K. Yoland, all rights reserved.



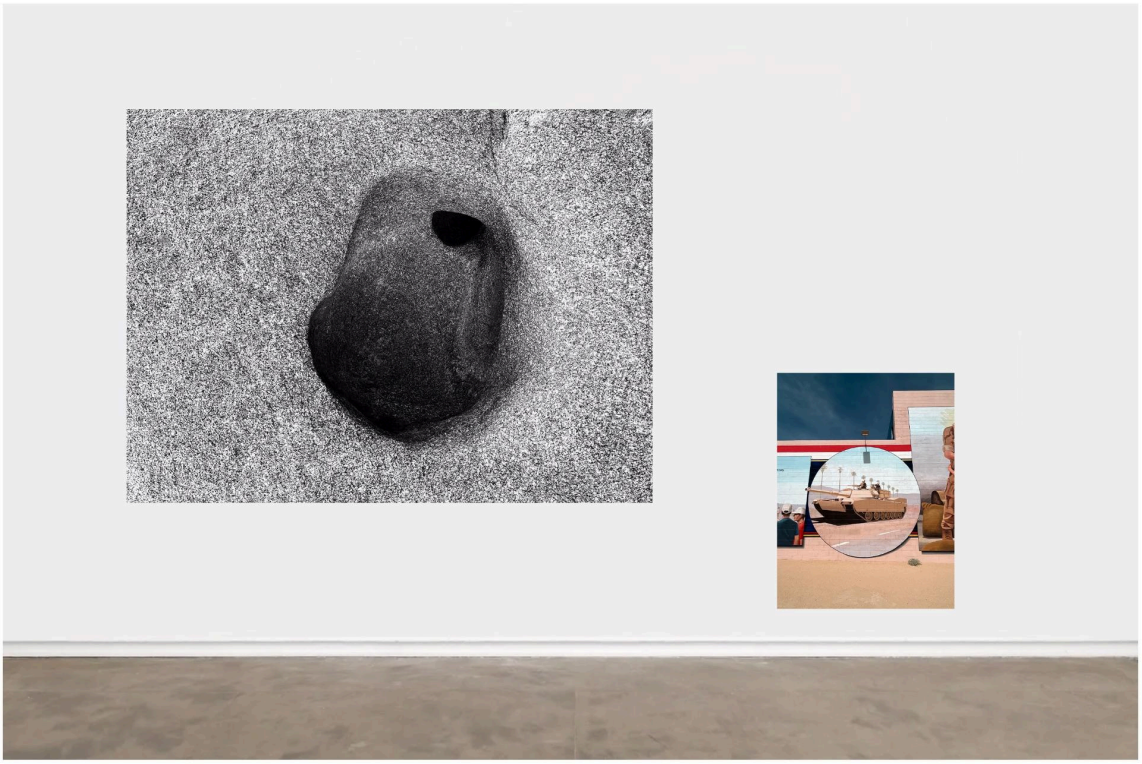


Fig 0.10: *Electric Desert*, Mojave Desert, large scale poster format, (*Blueback* paper, a material used for billboard displays) 2023, © K. Yoland, all rights reserved.



Fig 0.11: *Electric Desert*, residential land (left) and *Twentynine Palms Marine Base* supermarket (right), Mojave Desert, large scale poster format, 2023, © K. Yoland, all rights reserved.

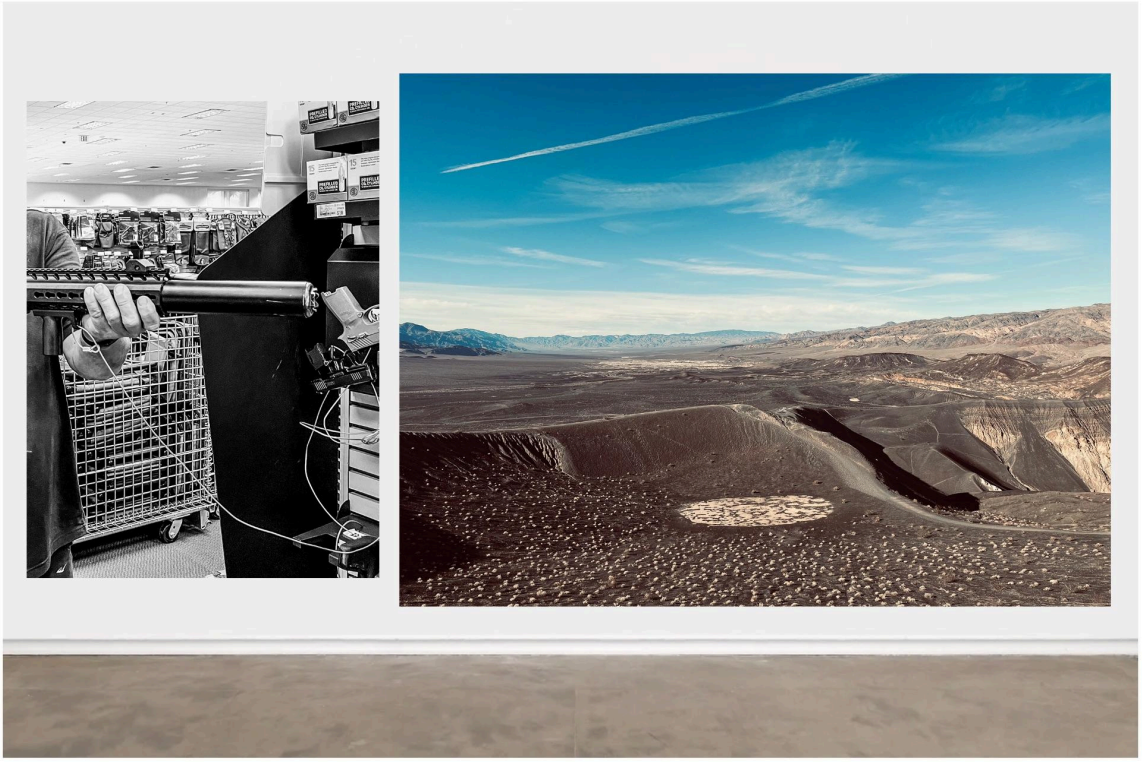


Fig 0.12: *Electric Desert*, *Twentynine Palms Marine Base* supermarket (left) and Ubehebe crater in Death Valley (right), Mojave Desert, large scale poster format, 2023, © K. Yoland, all rights reserved.

CHAPTER 1

Desert hospitality: Spatial complexity and disruption



Fig 1.0: Land, The Great Basin Desert, 2022, © K. Yoland, all rights reserved.

Overview

This chapter focuses on my first research question:

What does encounter through bodily immersion in the desert reveal and offer a site-specific art practice engaging with land, space-time interconnectivity and representations of territory?

In order to answer this, I have grounded the research in my observations and experiences, supported by ten years of working and living across these desertscapes. It is also informed by my dance training and previous experience directing live art, in which I have worked with untrained dancers performing task-based improvisations, to explore the visible and invisible challenges existing in public and private spaces.[39]

In this context, I have explored what happens when the human body encounters the desert's large-scale open terrain – using myself as a test case and moving solo across land. As well as travels on foot, my journeying also involved moving through the built environments in the desert – its towns, cities, off-grid camps and military zones. To cover large distances and access remote zones (including Fort Irwin), I also travelled by truck and bus. I have built these forms of travel into the research as a means of witnessing other bodies in space (e.g. my works *Electric Desert* (Fig 0.9 – 0.12) and *Desert Diaries* (AM.1) engage with both open land and urban environments in the desert, linking spaces separated by vast distances).

This chapter explores what it is like to encounter the desert and how immersion in the desert brings both disorientation and insight. From my observations and experience of trying to find my bearings, I find that encounters with the desert create a sense of vulnerability and spatial exile from previously understood coordinates. I refer to this experience as exposure to spatial complexity – something which is normally less perceptible inside built or dense environments.

Additionally, this chapter explores how the cognitive dissonance emerging from encounters with the desert might pave the way for new political imaginaries in which humans are decentred from representations of land, space and the ensuing ideas of territory. I call this *desert hospitality* – a new kinship and empathy that humans can build between all bodies (human and more-than-human) and land. It

[39] Previous work has included choreographing or collaborating with Olympic fencers, boxers, butchers, mechanics and hairdressers, soldiers and barbers.

represents a valuable counterpoint to the cycle of violence found in military desert training as well as the ongoing global conflict over land, borders and resources.

I begin this chapter by engaging with open and remote terrain where the human body is free to travel (part one). I then explore highly restricted military sites equipped with simulations in which mapping, surveillance and controlled mobility are perfected (part two). The final part of the chapter lays the ground for exploring how non-military desert encounters (an artistic methodology of creative encounters) might rupture spatial control and support ecological thinking with spatial complexity and desert hospitality (part three). As a whole, the chapter describes the foundation for the development of a practice-based methodology for desert learning. The approach seeks to promote a spatially-based form of ecological thinking (*desert hospitality*) that resists the land-based representations that lead to territoriality, occupation, war and colonisation (chapters two and three).[40]

[40] To think ecologically or to approach a subject with ecological thought would be to start from a position in which humans are not hierarchically more important than other animals and the planet. So, ecological thinking is an umbrella term with application to a range of disciplines, subjects and contexts. Desert hospitality can be understood as a form of ecological thinking. Desert hospitality, born from desert learning, is the experience of vulnerability and spatial exile in the desert which produces empathy across space – empathy for the land and all other beings.

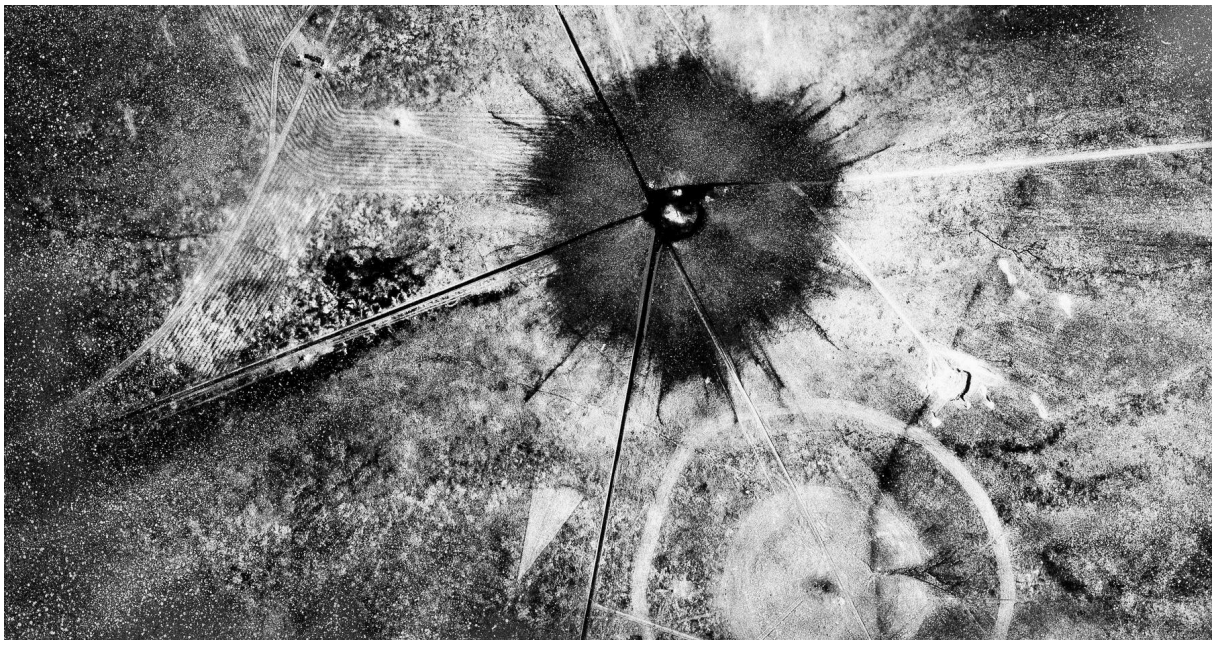


Fig 1.1: An aerial view after the first atomic explosion, Trinity test site, New Mexico, July 16, 1945. Image was taken 28 hours after the test. (The circle, bottom right, is 100-ton test, May 7, 1945). Image courtesy of the Atomic Archive. For additional images of desert scars from military testing see Appendix 1.0.



Fig 1.2: “Operation Buster-Jangle”, *Nevada Proving Grounds*, Yucca Flat, October 30, 1951. 14-kiloton device dropped from a B-50 bomber. Eighth detonation at the *Nevada Proving Grounds*. Photo courtesy of *National Nuclear Security Administration / Nevada Field Office*.

Part I : Hospitality and the desert

Since the mid-20th century, the US military has used the American deserts as a stage to imagine invasion and occupation elsewhere (e.g. Nevada Test Site, Fig 1.1 & 1.2).[41] As outlined by Emily Scott, the desert has provided a "reductive aesthetic, minimal legal regulation, vast scale, orientation to an aerial perspective.... and raw materiality."[42] Together with extreme isolation, these desert attributes have offered state actors a sense of disconnect from collateral damage and legal oversight. The impacts on land, ecology and other humans have been ignored in favour of controlling space within a context of force (e.g. Yucca Flat, Appendix 1.0).[43]

However, the Southwest deserts simultaneously offer the lone traveller different kinds of imaginaries. Immersed in the intense heat and light of the desert, with its huge scale, seemingly endless horizon and alternative time scales, the human body is bombarded with new and disorientating perspectives and positions in relation to space and land. Survival in such a context is challenging and sometimes cruel, but it also offers new ways of seeing and acting in space (Fig 1.3 & 1.4).

Part one explores how encounter through immersion leads to desert learning and to desert hospitality. I start by exploring how solo travelling provides contact with desert attributes – immense scale, breadth, isolation and multiple temporalities (section 1.1). I find that desert attributes expose the body to a heightened form of spatial complexity – multiple temporalities and diverse perspectives which upended my positionality and proximity to land and other bodies. Then, I link existing ideas on hospitality to the vulnerability and exile caused by exposure to spatial complexity (section 1.2 & 1.3). I find that encounter through immersion brings new knowledge of an ecological relationship to space and land through desert hospitality.

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[41] Military testing in the region has prepared for wars connected to Russia, Eastern Europe, Balkans, Japan, the Middle East, and moon and Mars colonisation. See FN 6.
[42] Scott, "Desert Ends", 84. Scott argues that the US land artists of the 1970s are attracted to the desert for similar reasons as the military. In this quote she is referring to land artists, but it reinforces the core attributes appropriated by the military too.
[43] Military tests have enabled horrifying violence, such as the bombing of Hiroshima and Nagasaki. Filming military tests and broadcasting them via the television sets in every home has enabled a nation to consume the story of American supremacy and their founding rights. (On February 1, 1952, the first nuclear bomb was broadcast live on US television to millions of viewers.) As Scott so aptly puts it, the consequence of televised military actions and Hollywood narratives leads the desert to start "symboliz[ing] American-ness itself". Scott, *Desert Ends*, 70. In this quote she is also saying that this symbolising of 'Americanism' is stronger in the desert than anywhere else.

1.1 First impressions: Scale, isolation and deep time

Encounters with the desert began with shock and destabilisation, as my body was exposed to space in a way I had not experienced elsewhere. I first arrived in the desert in 2012: in the Chihuahuan Desert, 30 miles from the US/Mexico border, I was often surrounded by open terrain stretching as far as the eye could see. With no border wall in this region, the legal zones of Mexico and Texas were blurred – the desertscape crossed the human-made frontiers and looked identical (mainly flat) on each side. Often the land appeared to contain no visible human population or infrastructure. It was distinct from urban environments that were crowded with construction embedded in ground which is sculpted, designed, and legalised. Instead, on first encounter, the desert suggested an immensity and openness that was outside of human control and human design: it appeared as an alien, otherworldly space without political and social matrices devised by humans.

In the open desert I could breathe freely without the pressure and constraint of visible rules. However, there was also a feeling of breathlessness in the face of something spatially alien; new ways of living and surviving needed to be learned and understood. New dangers and fears arose (e.g. the dangers of dehydration or poisonous animals). Therefore, the desert offered a new ground by being, paradoxically, groundless compared to previously understood norms.[44]

Upon first arrival, the desert attributes of scale, breadth and isolation affected my vision and cognition – I struggled to gain perspective and translate embodied positionality (Appendix 1.1). Desert scale dwarfed my body, whilst the unpopulated expanse appeared limitless and troubled horizons. Submerged, isolated and consumed by a mostly flat landscape, I felt a form of horizontal vertigo. As noted by William L. Fox, these environmental conditions contradicted my previous understanding of how to read distances, because often the landforms do not soften, colours do not grow cool far away, and there are few vertical features to indicate scale change at intervals.[45] Fox calls the desert the "American Frontier of cognitive

[44] By previously understood norms, the research refers to representations of land, space and place which will be detailed shortly (and returned to in part two). Briefly, these norms are closely related to the entrenched colonial categorisation of earth, territory and bodies which have come to permeate the rules and understanding of western societies. The term 'norms' is in no way meant to ignore that these societies include much more diverse opinions, practices and cultures that think outside of these parameters. However, those diverse philosophies have not been absorbed into the dominant representational models applying to legislation, law, military, government, corporations and society.
[45] Fox, *The Void*, 12.

dissonance", by which he means that desert conditions are so alien to the human body that "you have to travel through it to gauge for yourself what its size is in relation to your body".[46]

With this in mind, I attempted to operate and move in this space and found my relationship to the literal and psychological ground to be in flux. This is important because it upended my Western, European-centric early education in which there is a propensity to understand space as being rooted in fixed coordinates and materiality (land). In the desert, my experience of the relation between space, land and diverse bodies became one of fluid dynamism. It involved ever-changing perspectives and positions that could evolve or differ depending on the context I was in.

The Southwest desertscapes are sparsely populated zones in which I would drive or walk for hours without seeing another human.[47] Often without dense vegetation, the land is raw and exposed. The arid conditions of deserts are like an ecological space-time archive, preserving the visibility of previous ecological epochs.[48] In the Chihuahuan Desert I would occasionally see fossils of sea creatures, which reminded me that the desert was once underwater and has, therefore, hosted multiple lives.

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[46] Fox, *The Void*, 11.

[47] Although most of my research is conducted via solo or military-chaperoned walking/hiking, a vehicle or Greyhound bus is needed at times, for example, to travel from the city airports to the desert. During my six days on the military site (Fort Irwin), it was impossible to get there without my own truck. Whilst a vehicle might imply fast, air-conditioned and comfortable transit, it actually depends on the circumstances. Because I was travelling day and night alone, even my motorised journeying became data for how I experienced the dangers on the land (for example if I broke down) and I dictated/recorded my vehicle-based site-writing (what I saw of the land when I was not allowed to stop or when I witnessed other people's predicaments on the side of the road).

[48] This isolated, non-human environment has been made use of by artists such as Smithson (Spiral Jetty), in which he explicitly aims to create a connection to land on a primordial scale which decouples the human-centric perspective. Robert Smithson, *Robert Smithson the Collected Writings*, ed., Jack Flam (Berkeley: University of California Press, 1996) 147.



Fig 1.3: *Land*, Death Valley, Mojave Desert, 2022, © K. Yoland, all rights reserved.



Fig 1.4: *Land*, Amboy, Mojave Desert, 2022, © K. Yoland, all rights reserved.

The significant time I spent alone in the Mojave, Great Basin and Chihuahuan Deserts opened me to new sensory experiences and shifts in perception. For example, the deserts seemed silent at first (no traffic, voices or music) but over time I found them to be full of sounds (e.g. wind, insects, my own footsteps or those of passing javelina, and occasional tinnitus).[49] I found the desert impossibly bright by day – causing my eyes to water if I was not wearing sunglasses – but then profoundly dark at night (Appendix 1.2). When I was living in what is called a *Dark Sky Reserve,* I would lie on the bed of my truck to observe the crystal-clear night sky. Having only lived in cities before this, I was accustomed to a night sky which was often orange-tinted and resembled a giant ceiling rather than a window into the universe. In the desert night, my eyes gained a sharp three-dimensional perspective which created the sensation that I was in danger of falling upwards – reverse vertigo – plunging towards the stars, which would mean plummeting into the past (of dead stars). These new experiences reminded me that my body was just a tiny dot in the time of the land. Gazing up at night, and taking in the sounds and sights around me, contested any ideas that humans are at the centre of the universe or the planet. For example, my visits to Amboy Crater and Ubehebe Crater (Mojave Desert) reinforced the sense that the planet, the sand at my feet – and humans in general – are connected to the stars and other histories (Fig 1.5 & 1.6). Experiencing such physical and temporal fragility brought me new awareness of the profound existence of space, land and other non-human lives – and a multitude of times – beyond human civilization.

Following two pages:

Fig 1.5: *Amboy Crater*, Mojave Desert, 2022, © K. Yoland, all rights reserved.

Fig 1.6: *Ubehebe Crate*r, northern Mojave Desert, 2022, © K. Yoland, all rights reserved.

[49] A javelina is also called a peccary or skunk pig. They travel in herds and can be confused with feral pigs. I would see them regularly in the Chihuahuan Desert.









Submerged in the desert, I have observed geological changes (e.g. the impacts of past volcanic eruptions, plate tectonics, wind and water erosion, extreme temperatures, meteorite craters (e.g. Fig 1.5 – 1.9)) and the changing colours of land and rock (from muted yellow to red to blue). My journeys across the land were shared from time to time with many animals of the desert: families of travelling javelinas, coyotes roaming on rock faces, lizards camouflaged inside cracks, insects hitching a lift on my bag, and snakes slithering across paths and occasionally blocking my only exit. These interactions allowed me to encounter a multitude of temporalities, becoming aware that human time and other times operate simultaneously – sharing space and giving that space meaning.[50]

Immersion in the desert revealed to me that space is neither an empty vessel nor is it in relative stasis waiting for settlers to occupy it (see part two).[51] It is a brutal awakening to a pervasive fallacy – that open space requires humans to give it meaning and history (past, present and future). Danika Cooper underscores the dangers of mislabelling land and deserts:

> Emptiness is neither a geographical category nor an ecological feature; it is a culturally constructed, political instrument. When visualised through cartographic drawing, "emptiness" directs the perception of deserts, their ecologies, and the people who occupy them, and validates the social and ecological exploitation of desert environments.[52]

The consequences emerging from that fiction are violent and destructive, supporting legal loopholes for mining, military testing, and the genocides of

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[50] The deep time (ecological time) of the desert encounters human time and sovereign time which imposes on the land. The body also encounters future times and trace times (the archaeology of lost or suppressed times due to genocide, inequality and environmental damage). Such suppressed or erased times exist everywhere but are often hidden by urban construction or legislation. For example, see "Coming Home: To Indigenous Places Names in Canada" (by the Canadian-American Center, Maine, 2017) in which indigenous names replace all colonial place names. Margaret Pearce, "Coming Home" in *Diagrams of Power: Visualising, Mapping and Performing Resistance,* ed. Patricio Dâavila, (Eindhoven: Onomatopee 168, 2019) 30-39.

[51] For example, colonial frameworks only recognize the times directly linked to systems of power, such as sovereign time and capitalist time. Upending this framework creates opportunity to protect open spaces which have been subject to legal acquisition, invasion or dumping based on the incorrect labels that open spaces are barren, infertile, wild, unruly, empty, unconquered, or a 'no man's land'.

[52] Danika Cooper, "Drawing Deserts, Making Worlds", 83, in Henni, ed., *Deserts are not empty*.

indigenous populations.[53] The fiction has enabled systems of power to ignore human rights and environmental concerns (discussed in part two).[54]



Fig 1.7: *Badwater Basin*, Death Valley, 2022, © K. Yoland, all rights reserved.

[53] David Maisel has conducted aerial photography of the pollution, industry, climate change and military testing, which has or is destroying desert regions (e.g. *Great Salt* (2003-06), and *Proving Ground* (Dugway Proving Ground, Utah, 2014)).
[54] Relevant sources for colonial frameworks of space as territory and the projection of theologically based rights to land include: Henni, ed., *Deserts are not empty*; William L. Fox, *Driving to Mars,* (California: Shoemaker and Hoard, 2006), Fox, *The Void*; and Rubenstein, *Astrotopia*.



Fig 1.8: *Sand dunes*, northern Mojave Desert, 2022, © K. Yoland, all rights reserved.



Fig 1.9: *A line crossed*, northern Mojave Desert, 2022, © K. Yoland, all rights reserved.

In contrast, acknowledging deep time and the time of diverse ecological systems (multiple more-than-human temporalities) helps to decentre human time from its position as privileged time on the planet. Acknowledging this dynamic requires a reassessment of space-time relations and bodily interaction. It provokes new behaviours which can stand outside colonial frameworks. It can also stimulate new political imaginaries in which community and political organisation is developed alongside all humans and more-than-humans.[55]

Experiencing these diverse spatio-temporal dynamics means exposure to the many stories and timescales that exist everywhere but are often suppressed by the mechanics of spatial control (see part two). It is not that the desert has more stories or timescales than elsewhere, but that we can witness them more clearly (firstly, it hasn't entirely been covered with concrete). This is important because if space is understood in a more pluralised way – not as a rigid place of one fixed time (relating to systems of power or, more broadly, human time) – it opens the door to recognising the multiple and diverse temporalities of space (those of diverse bodies and the planet). This recognition moves thinking about space towards principles of co-living rather than domination and occupation.[56]

The desert's capacity to expose multiple coexisting times aligns with Doreen Massey's argument that space and time are inextricably linked. Space is not merely a 'residual dimension' or points on a map.[57] Instead, space is the 'dimension of multiplicity' arising from all the stories that exist in the space – 'a simultaneity of stories-so-far'.[58] Massey's work did not focus specifically on learning from open terrain or desertscapes, and desert learning fills that gap. Starting with encounters through immersion (this chapter), desert learning can challenge representations of open terrain through embodied and creative interactions with *spatial complexity* (the subject of chapters two and three) – that is, learning to interact with the spatial relations existing across bodies, space and land in ways that recognise the

[55] In line with TEK's inclusion of diverse and more-than-human community members, see section 1.2 *Hospitality and its challenges*, TEK 82-84. Also relevant: Latour's Parliament of Things, Bruno Latour, *We Have Never Been Modern*, (Cambridge: Harvard University Press, 1993) 142.
[56] In later chapters this will be explored through artists such as Robert Smithson and Dan Graham.
[57] Doreen Massey, "Doreen Massey on Space", *Social Science Space*, January 2, 2013.
[58] Massey, *For Space*, 9.

simultaneity of multiple times across land. (This is especially relevant to the development of *second-order desert-mapping*, in chapter three).[59]

1.2 Hospitality and its challenges

To highlight the generative possibilities of a hospitality born of a desert environment, it is useful first to outline a different, more limiting, model. Ancient Greek society's model of ethics and justice integrated the idea of hospitality.[60] However, this definition benefitted only free men. As a ritualised form of friendship, the host (the male master of the home) was expected to treat a stranger (another free male) as if they were a friend and not an enemy – the stranger might be a traveller, a refugee or someone in need. This form of hospitality encompasses bounded space and invitation. The host provides a temporary safe space for the visitor without judging or analysing the guest. The guest reciprocates with a gift or other forms of appreciation.[61] Although this hospitality is grounded on mutual respect, the host remains the master of his space, and the guest understands that the hospitality is not limitless. The basis of the entire framework is an agreement between free men based on ownership of space, thus excluding more than half of the population (i.e. all women and slaves).

In her essay, 'Hospitality—Under Compassion and Violence', Anne Dufourmantelle probes ideas of hospitality pertaining to migration and observes that the evolution of the aforementioned Greek form of hospitality has resisted inclusivity:

> In the face of today's political rules, hospitality is not an invitation for a better life—at most, it offers a shelter—but a fully armed technological gate, serving as a limit and a threshold: "Here the civilised world begins: no trespassing!"[62]

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[59] It has also been informed by Johnny Golding's concept of entanglement and its relation to how the past and future are neither separate nor enmeshed but rather always and already co-existing and co-dependent in their inseparable existence – creating a universe "without edge or outside". Golding, *The Courage to Matter*, 480.

[60] At this time, Aristotle presents a model for ethics founded on what he believes is most important to men: happiness. He concludes that if men are to mutually achieve happiness, then friendship and moral virtue is needed for mutual and maximum attainment. Aristotle, *Nicomachean Ethics*, (Oxford: Oxford University Press, 1980.) See Book I.7 and II.6 (on happiness); Book VIII.1 and IX.9 (on friendship).

[61] Rooted in this concept of hospitality was an understanding of the threat and gift offered by a stranger. In case the stranger was a God, one would act with kindness so as not to incur punishment at a later time. Of course, this does not factor in any kindness or empathy, only fear of repercussions. See Dufourmantelle, "Hospitality", 14 and Hamington "Toward a Theory of Feminist Hospitality", 23

[62] Dufourmantelle, "Hospitality", 13. Also relevant: Derrida, "Hospitality", 2000.

Dufourmantelle regards this current mode of hospitality as a 'gateway to hell' – individual gestures are absent, and instead we act as nation-states rushing to close borders to refugees, fearing invasion.[63] Immigration laws have not improved since Dufourmantelle's essay was published (2013), suggesting that existing ideas about hospitality are no more than obligations in which a loophole is preferable.[64] That is to say that hospitality has not become embedded between diverse bodies: states and citizens require convincing as to why they should care.[65] Additionally, the violence risked upon crossing land borders is illustrated by the infrastructures of intricately cruel walls and fences between countries. In *Handbook of Tyranny*, Theo Deutinger documents these barriers which mutilate the desperate body, and his work is a sombre reminder that nations are a long way from being disposed to receive strangers with kindness.[66]

In contrast to the hospitality of conditional and limited invitation – legalised by a conceived ownership of land – the desert offers an alternative hospitality that is born from a new way of thinking of space, bodies and land. Under desert conditions, the human body has the opportunity for encounters with desert-being and for being with the desert. This draws on indigenous thinking, in which one communicates with and learns from the natural world: being with the desert yields an expanded awareness of one's body, the diverse bodies of others, and the land.

Raymond Pierotti and Daniel Wildcat have explored traditional ecological knowledge (TEK) in the practices and philosophies of indigenous peoples of North America, which provide a critique and alternative to the Aristotlian ring-fencing of hospitality, community, ethics and politics to the domain of humans. TEK erases ecological hierarchies and boundaries, and pivots on a broad understanding of community. For example, the Cherokee Nations' teaching of *nigada gusdi didadadvhni* translates best as "a relatedness between all beings" – humans,

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[63] The attempt to design 'out-of-sight' housing for refugees has included the UK Home Secretary, Priti Patel, suggesting that refugees be housed in the UK territory Ascension Island, 4000 miles from the UK. George Parker, Peter Foster, et al,. "Priti Patel looked at shipping UK asylum seekers to the south Atlantic", *Financial Times*, September 29, 2020.
[64] Echoed in Lindsay Anne Balfour, *Hospitality in a Time of Terror: Strangers at the Gate* (Pennsylvania: Bucknell University Press, 2017) and reinforced by essays which look at international acts of neglect, containment, and displacement of asylum seekers, and spatial design as catalysts for trauma: Tom Scott-Smith and Mark E. Breeze eds., *Structures of protection: Rethinking Refugee Shelter* (London: Berghahn Books, 2020).
[65] This can be seen played out in the militarised captivity and squalid conditions of the Calais migrant camps (France), US detention centres (US/Mexico border), Australia's offshore facilities (Manus Island), and the UK's floating barge, Bibby Stockholm.
[66] Theo Deutinger, *Handbook of Tyranny* (Baden: Lars Müller Publishers, 2018).

animals, land and cosmos.[67] The inclusivity of TEK, sitting far from colonial and capitalist doctrines, has clear positive ramifications for the planet and its resources:

> The respect for the non-human inherent in TEK can constrain natural human tendencies towards overexploitation, because non-humans are incorporated into the ritual representation of the community, and are considered as members of the community.[68]

The expansion of the notion of community to include the more-than-human is a form of ecological thinking which provides a broader kinship and hospitality. If the desert is to be understood as a member of a community, then thinking through and with the desert is an important part of learning to live ecologically together.[69] Additionally, if the desert can expose the body to the dynamism and fluidity of space – albeit disorientating and at first alien – it offers humans the opportunity to gain new humility, learning from the desert and then applying this ecological thinking – desert hospitality – to other diverse locations. This is the subject of the next section.

Immersion in the desert, with its scale and breadth and ecosystem evolved for arid conditions and extreme temperatures, produced a feeling that I did not belong or that everything surrounding me was alien. However, I was equally alien to everything around me. Furthermore, were not many things alien to each other? A passing mayfly would live for no more than two days, whereas the rock formations it rested upon had already surpassed 400 million years – in many ways they are very distinct.[70] This led me to consider if this alienness could be a bridge to bring diverse bodies closer, rather than a chasm to separate all bodies.

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[67] Clint Carroll, *Cherokee relationships to land: Reflections on a historic plant gathering agreement between Buffalo National River and the Cherokee Nation,* January 6, 2020. Alternative articulations of the interconnected relationship between land and humans includes the stewardship of the Yocha DeHe Wintun Nation and the Karuk Nation, which has been described as a Kincentric ecology: "An Indigenous worldview does not differentiate or separate ontological spaces beyond and between the human and non-human worlds. It is felt that humans are directly related to everything around us. The trees are us, we are the trees. I am rain, rain is me. The rain is all around me, it aligns inside me." A-dae Romero-Briones, Dr. Enrique Salmon, et al., Recognition and support of the indigenous California land stewards, practitioners of kincentric ecology, *First Nations Development Institute*, 2021, 5-6.

[68] Raymond Pierotti and Daniel Wildcat, "Traditional Ecological Knowledge", *Ecological Society of America, Ecological Applications*, 10(5), (2000): 1334.

[69] It can be said that the whole basis of learning from the desert recognises, aligns with and is indebted to the long-standing but widely ignored and repressed TEK community framework of inclusion.

[70] The juxtapositions of lifespans are featured in *The Spiral Dance*, by *Chihuahuan Desert Research Institute* (http://www.cdri.org/chihuahuan-desert-films.html).

Likewise, Derrida makes a similar point in “The Animal That Therefore I Am”, when he observes a cat and attempts to observe himself from the cat’s position. Through an analysis of their differences, Derrida concludes that the cat’s alien qualities are equivalent to his own. Strangeness is mutual. Therefore, the strangeness of his cat no longer justifies human supremacy.[71] It is not the cat that is other: we are all other.[72] Likewise, if we embrace TEK and recognise the desert as a member of the greater community (an alignment with TEK), then it follows that research can examine the unfamiliar otherness of the desert as if facing Derrida’s cat; desert strangeness makes the desert no less inferior to fertile landscapes or to humans. Moreover, the desert is no more in the service of humans than the cat is.

Acknowledging the parity of desert-being begs the question of how to integrate desert learning into human frameworks (as TEK does). The alienness of the desert made it possible for me to experience the alienness of my own body and to reassess my bodily actions and former beliefs about territory. If I am equal to the desert and the desert is equal to me, this provokes new ecological thought and disrupts the validity of ownership and extractivism. Inevitably, the growing awareness that strangeness is mutual, and positive, offers a bridge to reassessment of the treatment and exclusion of other humans. If each body is equally alien, this opens the way to broader kinship across all more-than-human bodies too.

1.3 Desert hospitality: Exile and vulnerability

The last section noted the limitations of dominant models of hospitality and highlighted TEK as an ecological alternative. It remains important to probe the impact of desert encounters with spatial complexity and their relevance to hospitality. Therefore, this section looks more closely at the phenomena of alienation, exile and vulnerability in the desertscape – states which can emerge from encounters with spatial complexity. This will inform the creative methods I come to describe in chapters two and three (*desert-mapping*). To this end, my research is supported by insights from critical race theory, and ecological and animal studies.

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[71] Jacques Derrida, “The *Animal That Therefore I Am (More to Follow)*”, *Critical Inquiry*, Winter, 2002, Vol. 28, No. 2 (Winter, 2002): 369-418, The University of Chicago Press, 380, 382-3, 387. Also see Derrida, The Animal, 2008.

[72] Similarly, Thomas Nagel argues that humans cannot objectively know what it is like to be a bat. “What Is It Like to Be a Bat?”, *The Philosophical Review 83*, no. 4 (1974): 435–50.

The cognitive dissonance described by Fox (2000), and which I experienced in the desert, destabilises perspective, positionality and proximity to land and other bodies (see excerpt of site-writing in Appendix 1.1). However, the vulnerability experienced by way of cognitive dissonance can be shaped toward a positive goal. As I remained vulnerable and alert to the challenges of the desertscape, I also breathed anew. I rejected complacency and representations and made no assumptions. I could not operate according to previously learned experience. To be compelled to relearn ways of seeing and breathing is a form of desert hospitality, which continually makes the body vulnerable.[73] However, it is a vulnerability conducive to radical thinking: because the desert cannot remain fixed in my imagination, it is always emerging as many possible outcomes. Extended travelling through the desert is important for encountering this complexity.[74]

Achille Mbembe, contending with the violence and inequality of racism and its ideologies, has examined the contemporary world as framed by colonial regimes and their ongoing war matrix.[75] He argues that the solution – and thus the mode of resistance – is to move towards "our common vulnerability and finitude".[76] This is not dissimilar to Dufourmantelle's call to recognise each and every one's real state of exile.[77] Mbembe underscores that to be human constitutes "being in and of the world" and (referring to Frantz Fanon's writings on resistance) that "becoming a human being in the world means accepting one's being exposed to the other."[78] This exposure to otherness is similar to desert hospitality. My own immersion in the desert's vibrating otherness reflected back my own difference and stimulated an intensified feeling of mutual 'aliveness', yielding a sense of unity through difference

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[73] The importance of finding a new metaphorical way of breathing aligns with the breath as a symbolic act of resistance to oppression and the actual physical deprivation of oxygen. See Mike Baker, Manny Fernandez et al., "Three Words. 70 Cases. The Tragic History of 'I Can't Breathe.'" *New York Times*, June 29, 2020 and Franco Berardi, *Breathing: chaos and poetry,* Semiotext(e), intervention series 26 (California: Semiotext(e), 2018).
[74] The importance of movement aligns with Kasa's discussion of walking through spatial complexity, which provokes experiences that unsettle and awaken imagination. See Adam Kaasa, "Against Porosity, Against the Crowd: Walking for a Spatial Complex City" 45-58, *Walking Cities: London*, eds. Jaspar Joseph-Lester, Simon King, et al., (Routledge: London, 2020) 57. Also Fox, *The void*, 11.
[75] This includes the rise in isolationism and the idea of 'pure' citizenship.
[76] This is contextualised through an analysis of colonial warfare and Fanon's writings. Mbembe, *Necropolitics*, 3 (also see 78, 80 and 100).
[77] Derrida also arrives at a similar point with the cat: "Mortality resides there, as the most radical means of thinking the finitude that we share with animals, the mortality that belongs to the very finitude of life, to the experience of compassion, to the possibility of sharing the possibility of this nonpower, the possibility of this impossibility, the anguish of this vulnerability and the vulnerability of this anguish." Derrida, *Animal (More to Follow),* 396.
[78] Mbembe, *Necropolitics*, 3 & 5 respectively (more detail 174-175).

with the desert. To reach this state, the human body must survive cognitive dissonance – triggered by the disruption of bodily assumptions as the body struggles to find fixed positionality in desert space – to embrace perpetual vulnerability.[79]

When Mbembe advocates resistance to colonialism and inequality through a fundamental change in how humans recognise their universal shared experience of 'being' in the world, this is a move towards compassion. It is also a form of hospitality which welcomes all by decentring us from human, white, European and/or male hierarchies. Similarly, when the Cherokee Nation treats every being as related, it provokes a connection through kinship. However, the Cherokee Nation's and Mbembe's principles for uniting us do not forgo or deny difference. Instead, as Rebecca Tamas writes, hospitality can occur through the "radical reality of intimate difference", which she calls a true "ecological thought".[80] It is here where my research develops artistic methods to provoke desert encounters which can create a fold in the mapping and colonising of space, which diverts us off a path of violence (see part three).[81]

Desert hospitality can be understood as involving two phases – the first is the desert's offering of this rude awakening, and the second is the bringing forth of this awareness to build an opening between bodies and land. In the destabilising conditions of the desertscape, humans must comprehend that there is no ultimate control or ownership of space. All actions in the desert confront the extreme scale of the space and its multitude of times (*spatial complexity*). The experience exiles all bodies mutually; humans are no longer bound to human scale with respect to vision, geometry and time. This gift of unfastening can liberate humans from the colonial binary models that restrict bodies to hierarchical categories and exert power to maintain them – my practice in the forthcoming chapters tests this conjecture.

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[79] By cognitive dissonance, I am referring back to Fox's term and the discussion of the destabilisation the human body experiences due to desert attributes. See section 1.3 Desert hospitality.

[80] Tamás, "On Hospitality", 3. Tamás explores an ecological hospitality in relation to the parasite, in which humans accept the fluid spatial boundaries between what they can recognise *in* and *outside* of themselves. This supports her in challenging certain hostile occupations of space and the restriction of bodily rights based on otherness. Relevant research connected to the parasite includes: Thomas Claviez, 'Taking Place—Conditional/ Unconditional Hospitality', in *Conditions of Hospitality, Ethics, Politics, and Aesthetics on the Threshold of the Possible*, (New York: Fordham University Press, 2013); and Michel Serres, *The Parasite* (Baltimore and London: The John Hopkins University Press, 1982).

[81] Aligned with the Fold as used by Deleuze (1992) and Golding's (2021), see glossary.

Dufourmantelle, faced with the aforementioned 'hellgate' of nation-states, advocates a form of radical ethics and radical compassion – a state in which humans, particularly those upholding colonial frameworks, come to understand that we (human and more-than-human) are all bound through the first exile. This is the essence of our very humanity, and thus humans must embrace "an existential exile .... a relationship, a place, a dwelling, which is both native .... but never complete".[82] This, she argues, also makes us guests in our own homes – inverting the Ancient Greek notion of hospitality.

I found that Dufourmantelle's description of exile and radical compassion can be activated in the desert, a landscape where one can simultaneously be at home, but paradoxically never at home, due to desert conditions (e.g. scale, isolation, and exposure to a multitude of times). As I experienced it, the rebirth offered by the desert represents an extreme shift from a human-centric (particularly colonial) perspective to a more universal one.

Whilst witnessing the desert's openness and alien qualities, I found it hard to reduce the land to fixed positions and clearcut edges. Immersing myself in the desert produced experiences of space and land which subverted the colonial frameworks which define and fix space with Euclidean geometry (e.g Cartesian maps).[83] As noted by Fox:

> Only in the void, a disorientating space we conceive of as being vacant and thus a landscape of open possibilities, can we imagine ourselves to step outside of the boundaries of what we know and receive intelligence from some other place, somewhere alien to the egocentric pivot of our bodies.[84]

Desert conditions, which expose spatial complexity and its multiple temporalities, mean that the desert resists fixed representations of how to live in space.[85] Importantly, this resistance creates an opening for new imagination, making the desert a refuge for humans willing to merge and change with this environmental

[82] Dufourmantelle, "Hospitality–Under Compassion and Violence", 22. This also aligns with Mbembe's argument.
[83] Note that I am not concluding that the desert remains free and open to all, only that initial encounters with the desert can produce this incongruous relationship to land, the body and 'limits' of space. Thinking through a TEK framework, the desert is a community member with its own way of being. Its way of being can be learned from and lived with in ways which must be considered and imagined.
[84] Fox, *The Void*, 4.
[85] However, with satellite technology, it is not impossible. Along the US/Mexico border (about 30 miles of soft border) I have witnessed my movements triggering border patrol deployment.

system.[86] This was evident when I visited communities living off the grid, such as Slab City (Mojave Desert, Fig 1.20-21), and those forging alternative ways of living, such as Terlingua (Chihuahuan Desert), Bombay Beach (Mojave Desert, Fig 1.23) and Arcosanti (based on Paolo Soleri's theories of arcology situated in the Sonoran Desert). As an outsider and a foreigner, I engaged with these spaces through *site-writing* (see chapter two, part two) which enabled me to build an impression of the patchworks, layers, traces and interweaving stories I observed on the land (also see *Desert Diaries, AM.1*).

In summary, part one has explored how encounters through immersion (solo travelling) in the desert can support desert learning (exposure to spatial complexity). It has also explored the value of such learning (the emergence of desert hospitality). Through my extended desert journeys, which put my vision and physical endurance to the test, I found that desert attributes of scale, breadth, isolation, and multiple temporalities expose the human body to spatial complexity – which in turn causes a sense of vulnerability and spatial exile. This has the capacity to awaken empathy between diverse bodies and land: I have called this desert hospitality. Part two will examine other aspects of desert living that were exposed in my solo travels in the desert. These other aspects are connected with the suppression of spatial complexity by forces of spatial control.

[86] Bodies refer to plants, non-human animals and humans. Also see glossary.



Fig 1.10: Screen Capture of: "Color footage of atomic bomb tests with active duty military personnel at Camp Desert Rock, Nevada Test Site, Nevada. US Army, 1959, photo courtesy of the Prelinger Collection at Internet Archive. Public domain. (The footage “Shows soldiers in foxholes as nuclear detonation occurs nearby; light and shockwaves; blowing dust; soldiers climbing out of foxholes and running towards mushroom cloud." US Army, 1959.)

Part II: Spatial control

Whilst part one of this chapter laid out the potential for desert hospitality by virtue of encounter with spatial complexity which brings about vulnerability and a sense of spatial exile, part two examines opposing forces acting in the desert. The aim is to understand how control operates on open land and space and to what end it suppresses spatial complexity. Parts one and two together provide the foundations for chapters two and three to develop understandings of the heightened spatial complexity and spatial control found in these desertscapes.

Part two continues to examine encounter through immersion, the product of solo travel across the land. Here, I examine closed zones, contrasting the open desert of part one with the current use of large-scale terrain by humans. Desert journeys interact with military sites and to a lesser extent with industry, urban sites and fantasy. My observations of the encounters are recorded via site-writing. I found that North American settlers often manage space as flat and bounded land, restricting mobility and suppressing a diversity of activities. This forecloses mutual vulnerability and shared exile potentially experienced in open land, and limits exposure to the interconnected space-times that could otherwise support new political imaginaries. These controls on land were generated by systems of design and/or power relations – systems which impose a framework for how to act, see and be in space, producing spatial control (e.g. Fig 0.10 & 1.11).

Across the Southwest desertscapes, spatial control has a footing in religious ideology and is maintained (and advanced) by the actions of diverse players, including the military and Hollywood. Desert attributes are treated as an immense stage, allowing these major players to develop and replay ambitious fictions of the past, present and future, which serve to test and promote future iterations of control, culminating in power dynamics with unequal ends.[87]

Part two starts with a consideration of claims to land – Westward Expansion and Manifest Destiny – and proceeds to explore fictions that play out in the desert and either support or challenge the claims to land and related representations of land. I will then explore how the openness of the desert can also enable violence and trauma. This pain can be inherited by diverse bodies (human and

[87] These are the very same desert attributes (scale, breadth, isolation) which provide a possibility for desert hospitality.

more-than-human) and land (for example, due to genocide, military testing, pollution, extractivism, border control). I will end part two by examining the environment created by Fort Irwin's military simulation, and comparing it to real and imaginary spaces (e.g. *Slab City* and *The Truman Show* respectively).



Fig 1.11: John Gast, *American Progress*, 1872.
"The spirit of America heads Westward accompanied by prospectors, farmers, and settlers while Native North Americans and creatures of the land move away before her advancements." *Archive for Research in Archetypal Symbolism* (ARAS) (author unknown).

2.1. Claims to land

Examining the antecedents and consequences of frontier thinking, Mary-Jane Rubenstein summarises the founding biblical justification for colonial occupation:

> [God blessed them, and said to them,] “have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" (Genesis 1:28). Because human beings are made "in the image and likeness of God," they receive from him the godly powers of reproduction and dominion, of creation and conquest.[88]

Furthermore, God’s people designated themselves as a category superior to non-believers. This was used to justify the murder or enslavement of peoples considered to be savages or non-believers, in order to do God’s work and attain the life God promised them.[89] As a theological scholar, Rubenstein does this analysis of the Old Testament in order to understand frontier thinking in relation to the corporate and state race to Mars and the Moon (also see the fictional exploration of this through Capricorn One, discussed in section 2.3), but it is equally relevant to the desert because the very same frontier thinking was manifested in Westward Expansion through the Southwest deserts from 1844.[90]

This frontier thinking lacks empathy or hospitality towards the ecosystem, animals and other humans. The desert must cater to the needs of the chosen people who may claim everything and anything in it.[91] In this context, the ‘service’ owed to European settlers reflects an institution of colonial expansion which has justified ongoing military action, environmental damage, and genocide.[92] Through my travels, I found evidence of this in the poor conditions on reservations for First Nations peoples (e.g. Pyramid Lake Paiute Reservation, Great Basin Desert, and Tohono O'odham Nation Reservation, Sonoran Desert). In contrast, my visits to desert cities such as Phoenix and Las Vegas, and the nearby Hoover Dam, revealed

[88] Rubenstein, *Astrotopia*, 41.
[89] The quote refers to the two creation stories in Genesis. Rubenstein, Astrotopia, 42. Supporting texts include: Fox, *The void*.
[90] See for example, Patricia Nelson Limerick, *Desert Passages: Encounters with the American Deserts* (Albuquerque: University of New Mexico Press, 1985).
[91] For the hierarchy of man, woman, animal and the consequence that “the people of God are superior to the people of every other nation”, see Rubenstein’s review of Genesis 2 and 1 Corinthians 11:8-9. Rubenstein, Astrotopia, 42.
[92] See for example Darren Dobson, “Manifest Destiny and the Environmental impacts of Westward Expansion”, *The Flinders Journal Of History & Politics*, 2013. For the impact on contemporary politics, economics, and society, see Henry Nash Smith, *Virgin Land: The American West as Symbol and Myth* (Cambridge, Massachusetts: Harvard University Press, 1971). Also see FN 95.

that water and energy were consumed in huge quantities in order for humans to live and expand as dense 'modern' populations (e.g. air conditioners to survive scorching temperatures).[93] Additionally, when I travelled by road, I came across meat, mining and oil industries, which I could observe from the roadside or by walking in (see site-writing below). I then used satellite images to understand the full scale of operations (see Fig 1.12, 1.13, 1.14). (My use of maps and satellites as part of this research will be discussed in chapter two, part three.)

> The first time I saw the chloride pools (2012) I almost made the mistake of putting my hand in the curious liquid. They went right up to the edge of the road and looked like single swim lanes for high intensity Olympic training. The turquoise colour was luminescent and contrasted with the red desert land surrounding it. There were no immediate signs, industrial sounds or people in sight. Having only recently been travelling in the desert I was unaware of how industry might be cheek by jowl with other systems on the land (like myself driving past in what seemed like the middle of nowhere). Pools surrounded me in every direction. Straight lines hidden by slopes on either side. What were they made of? Why were they needed? Were they safe? Did they kill birds, coyotes, lizards, and other more-than-humans who mistakenly stopped to drink? Could they smell that it was toxic? Was it toxic? I stood and stared at the pools transfixed. Although I knew the truth I willed it not to be human-made or dangerous. Instead, perhaps this was prehistoric embryonic fluid which would give birth to creatures I didn't know existed. Or, maybe they were portals into another dimension. I had the urge to step in and say goodbye to this world.....now ten years later I stand before them again. I've changed but they appear the same. If I was an ant maybe I'd see the differences – ridges and crystals around the pools have probably changed their microscopic shape....
>
> Site Writing, Desert Diaries, 2022, K. Yoland (See Fig 1.13)

Following three pages:

Fig 1.12: *Lubbock feeders* (Texas), screenshots, Google Earth.

Fig 1.13: *National Chloride Company of America* (California), screenshots, Google Earth.

Fig 1.14: *Cowboy Mining Company* (West Texas), screenshots, Google Earth.

(K. Yoland, 2024)

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[93] Desert cities like Las Vegas exploit the land and its natural resources and are not ecologically integrated. Las Vegas has built its reputation on consumption and decadence, serving as a modern equivalent of a Dionysian setting. I witnessed set designs imitating monuments and artefacts from around the world, transforming the city into a theme park for the uncanny.


Restaurants
Hotels
Things to do
Transport
Parking
Chemists
ATMs
Sign in
Layers
Google


Restaurants
Hotels
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Parking
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Layers
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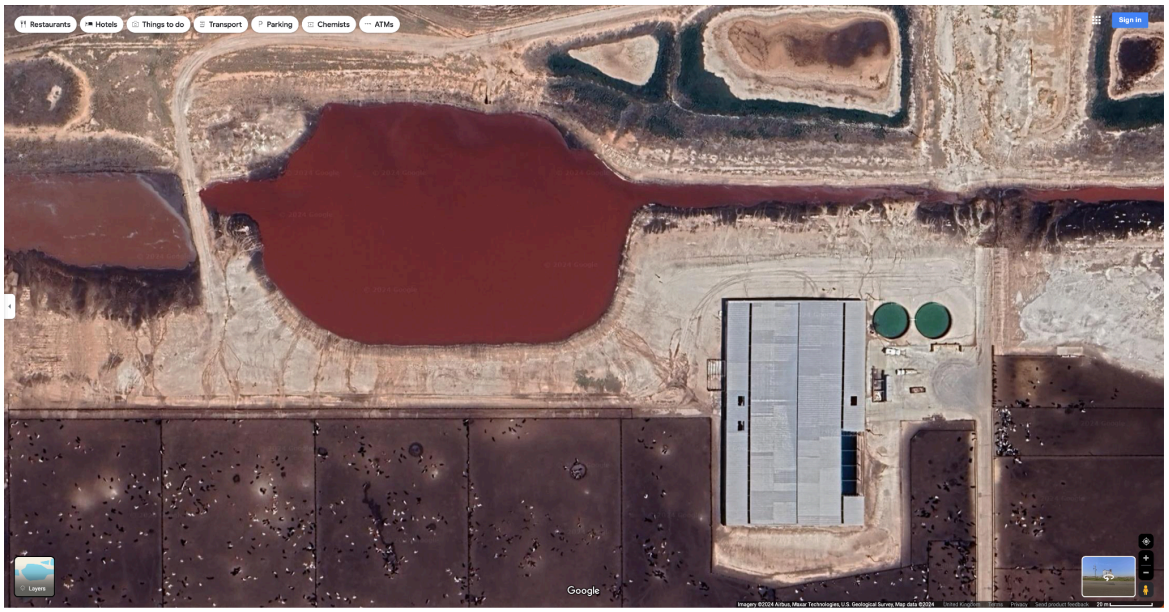
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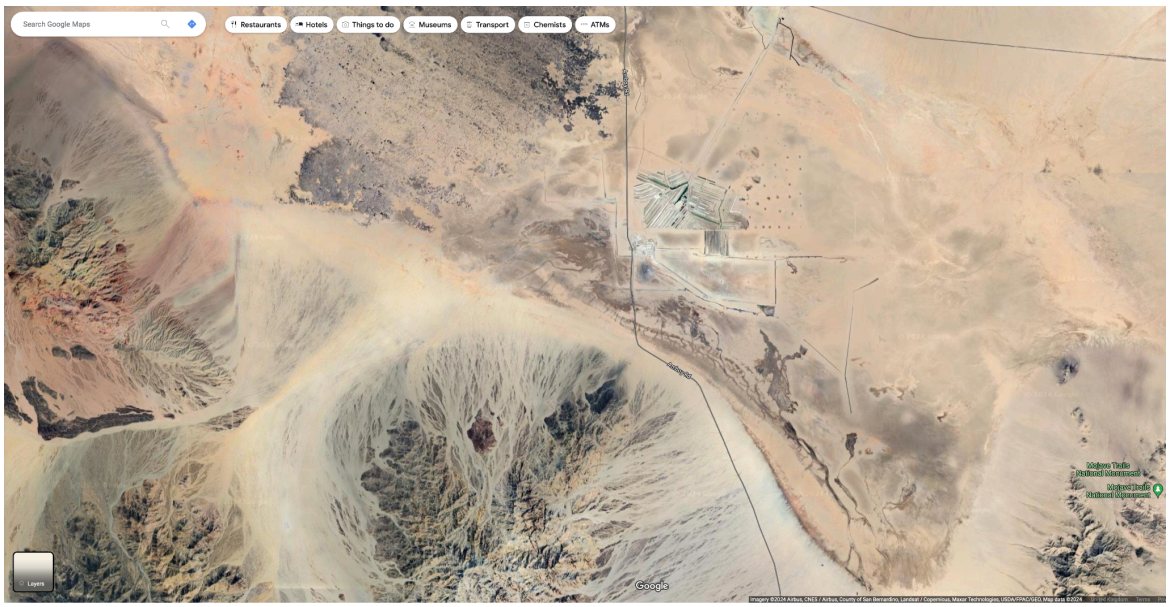
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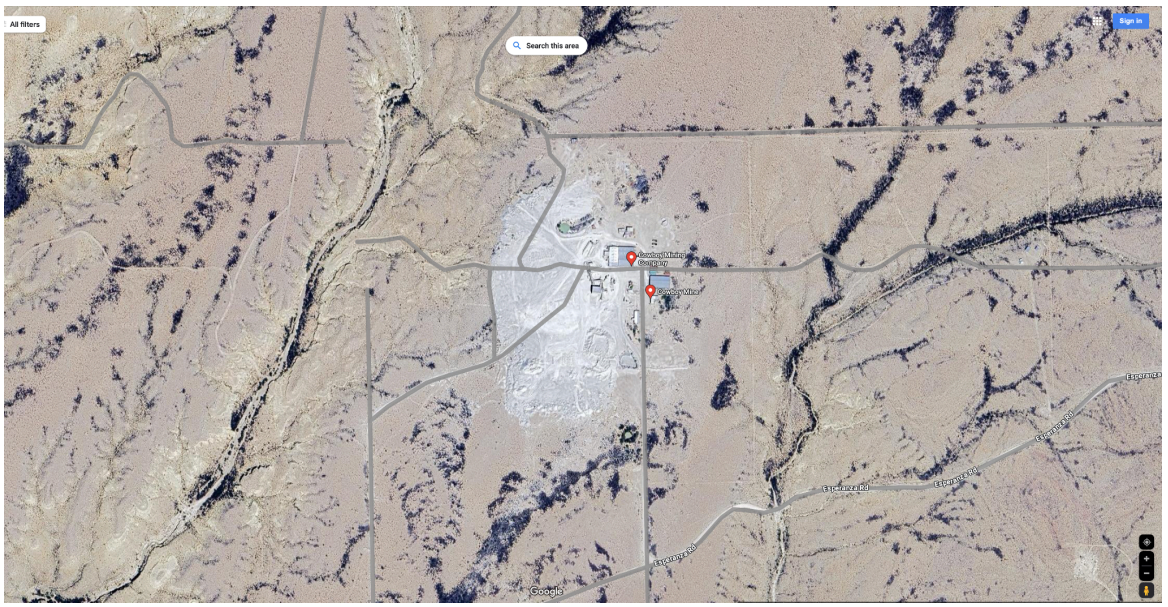
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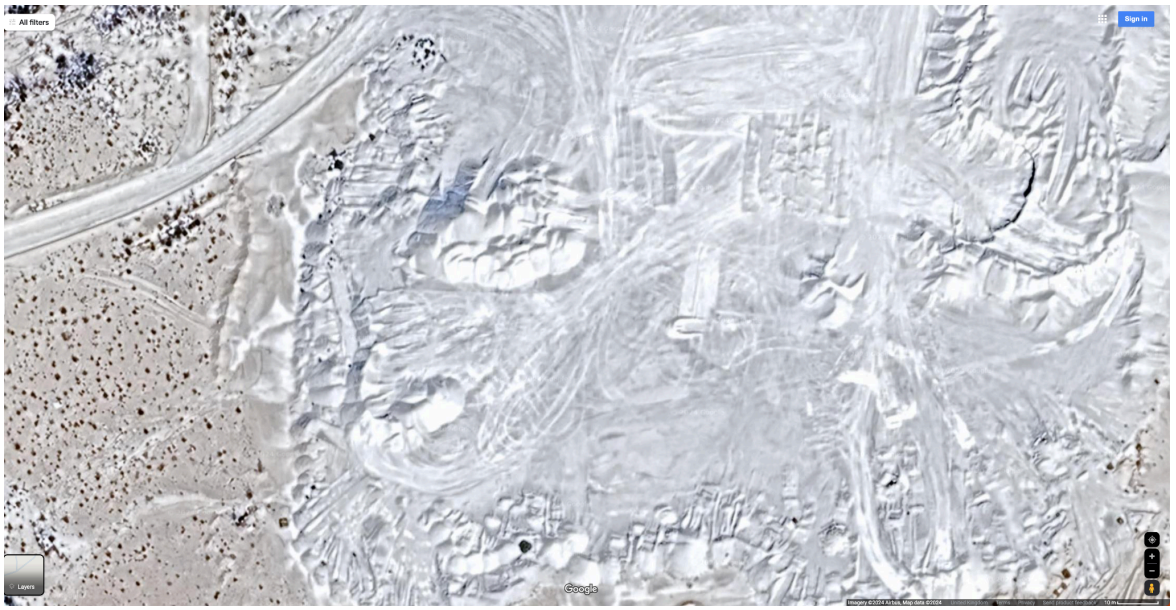
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Reservations, cities and industry are not special to the desert, they exist across the whole country. However, in the desert, where space appears alien, endless and empty, these human-constructed apparitions become both symbolic of and a real-life testament to frontier thinking that unmanaged or unoccupied land is void and can be taken, occupied and used, as a God-given right. Specifically, the First Nations have been displaced from their land and enclosed on separate reservations, their rights to governance of their land removed; resources (animals and land) have been successfully appropriated and managed for industry (food and mining); and settler populations (towns, cities and corporations) have expanded. Through site-writing I recorded my observations of human actions in the desert – the abject poverty, relentless extractivism, and the opulence. These scenes contrasted with the images captured by the site-writing I conducted on public land where disorientation was experienced (part one).

The observed industry, reservations and urban centres were not the only complements of Manifest Destiny. I also came across multiple restricted zones owned by the military (eg. Fig 1.15) and zones monitored by border control authorities. For example, in the Chihuahuan Desert I was regularly confronted by border patrol officers who had located me via ground sensors or TARS radar (which locals called 'the blimp').[94]

These controlled zones illustrate the enduring influence of historical colonial practices in shaping US territorial and global ambitions. Initially confined to domestic expansion, the United States' drive for influence has been propelled by interventionist policies – justified through narratives of security, democracy promotion, and economic interests.[95] This pursuit necessitates extensive backing from the military-industrial complex, which facilitates both direct military

[94] "The Tethered Aerostat Radar System (TARS) is [a] low-level airborne ground surveillance system that uses aerostats …as radar platforms. U.S. Customs and Border Protection, Air and Marine Operations use the TARS to provide persistent, long-range detection and monitoring (radar surveillance) capability for interdicting low-level air, maritime and surface smugglers and narcotics traffickers." US Customs & Border Protection. https://www.cbp.gov/sites/default/files/assets/documents/2021-Aug/TARS_508%20compliant.pdf

[95] On ideology and expansion, see: Howard Zinn, "The Empire and the People," in *A People's History of the United States* (New York: Harper Perennial, 2003), 297–320.

interventions and the establishment of overseas bases.[96] In the desert, this is evident in the development of training sites and military systems that have enabled the US to prepare for warfare abroad. Nuclear testing in the Nevada desert, for example, preceded the cataclysmic bombings of Hiroshima and Nagasaki in 1945 (see Fig 0.10). Data on the impact of military geographies in these deserts remains limited, though notable exceptions include Twentynine Palms and Fort Irwin, where soldiers train for international deployment (to be discussed shortly).

The destruction and the training are supported by the perception that open land is empty and thus void of significant collateral damage.[97] As Emily Scott writes of these deserts, "the fiction of emptiness is rehearsed again and again".[98] The flat landscape, dusty brown colours and arid conditions presuppose a lifeless land, allowing terrible assumptions – for example, that nuclear tests have no physical or ethical repercussions. Scott notes that the desert's "apparent blankness… is particularly prone to abstraction and projection".[99] The dangers of these assumptions reinforce the need to research new ways of understanding and interacting with open space, as Scott's analysis of military involvement in the desert provides a warning of how open space can be forever reshaped and abused:

> While the horizontal expanses of its flats served theatrical ends, as a result of radiation and the sheer heat and force of repeated blasts, the [Nevada Test Site] came to look more and more like a laboratory—clinical, bleached, and synthetic. The obliteration of any life forms in the vicinity of ground zero ironically lent an air of hygiene.[100]

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[96] The U.S has more military bases globally than any other country. Estimates vary due to differing definitions of what constitutes a 'base' and whether smaller facilities or temporary installations are included. See David Vine, *The United States of War: A Global History of America's Endless Conflicts, from Columbus to the Islamic State* (Oakland: University of California Press, 2020).

[97] "The Nevada Test Site nonetheless is where it is for good reason. Few areas of the continental United States are more ruggedly severe and as inhospitable to humans. The site and the immediate surrounding area have always been sparsely populated. Only once prior to 1950, and then very briefly, did more than a few hundred people call the site home. In most periods of habitation, far fewer have lived there. Although no locale can be said to be ideal or optimal for nuclear weapons testing, the Nevada Test Site was perhaps the best continental site available for avoiding collateral damage and radiation exposure to plants, animals, and, most importantly, human beings off site." United States Department of Energy, *Atmospheric Nuclear Weapons Testing 1951 – 1963,* 10.

[98] Emily Scott, "The Desert in Fine Grain." In *The Invention of the American Desert*, edited by Lyle Massey and James Nisbet, 145–164. Berkeley: University of California Press. 145. Also see FN 1.

[99] Emily Scott, 'Desert Ends', 69.

[100] Emily Scott, 'Desert Ends', 78. These desert sites have parallels with post-nuclear landscapes such as Chernobyl, Fukushima and the fictional *Stalker/Roadside Picnic*.

The impact of military testing in these desertscapes underscores the urgency of finding methods to challenge the assumption that space is empty and void. This can be achieved by revealing the potential of spatial complexity (explored in part one and revisited in part three).



Fig 1.15: Jurisdiction of NAVSEA (Naval Sea Systems Command), used for storage and maintenance of undersea mines, Veterans Memorial Highway, west of Hawthorne, Great Basin Desert, Nevada, 2022, © K. Yoland, all rights reserved.[101]

[101] See satellite images of the site in Appendix 1.3.

2.2 Fictions in the desert

Hollywood has also used the desert as a fantasy space to test out selective iterations of the past, present and future based on narratives of power. Films set in the desert revolve around repeating themes concerning control of open land through war (e.g. *The Alamo*), competition (e.g. *Death Race 2000,* 1975), horror (e.g. *Duel*, 1971 and *Twentynine Palms*, 2003), alien and more-than-human invasion (e.g. *Them!,* 1954, *Tremors,* 1990*,* and *Oblivion, 2013*), or occupation of other planets (e.g. *The Martian, 2015*).[102] These include distorted reenactments of the birth of a nation, such as Westerns. As noted by Jo Ann Conrad:

> The Myth of the West and by extension the Western is also an explicitly gendered and racist ideology whereby American identity is coded white, male, aggressive, and violent; one in which racial superiority is not only normalized but also provides the justification of conquest.[103]

From 1903 to the 1970s, Hollywood exported a vision of the desert, its indigenous population, and its nation-forming myths, which were unashamedly racist (see Appendix 1.4 and 1.5, previously depicted in paintings 1.6).

The fictional narratives used in military simulations and Hollywood productions have blurred with reality in the desert to crystallise an alternative reality. This is evident in the National Training Center (NTC, Fort Irwin) which has been supported technologically by design and engineering specialists from Disneyland, Hollywood and Silicon Valley.[104] Technicians from each of these domains have crafted their aesthetic of power which is then applied as a hybrid construct to isolated desert regions, without any public oversight. For example, Fort Irwin has worked with actor Carl Weathers (Apollo Creed in the 'Rocky' films, as well as other action films) to train

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[102] Films shot in the US deserts include: Greed (1924), Robinson Crusoe on Mars (1964), Death Race 2000 (1975), Close Encounters (1977), Damnation Alley (1977), The Right Stuff (1983), Tremors (1990), and Contact (1997). Various Westerns, American war films and science fiction – with US actors and US narratives (e.g. The Martian, 2015) – would later be filmed in deserts in other countries such as Spain and Jordan.

[103] Jo Ann Conrad. "Consuming Subjects: Making Sense of Post–World War II Westerns." *Narrative Culture 2*, no. 1 (2015): 71–116, 74. Also see: Julia Leyda. "Home on the Range: Space, Nation, and Mobility in The Searchers." in *American Mobilities: Geographies of Class, Race, and Gender in US Culture*, 2016: 191–216.

[104] Derian, *Virtuous Wars*, 58, 127, 240, 243. Also see the *Institute for Creative Technologies* (with the US Department of Defense) "DoD-sponsored University Affiliated Research Center". The university collaborates with *Natick Soldier Systems Center* and the *Army Research Laboratory*. The Pentagon and Hollywood collaborated on the forming of this university, as discussed in Derian xxxvii and 160-176.

US soldiers playing insurgents.[105] The actor, who has no military experience, became a teacher of martial skills merely because of the fact that his fictional character is perceived as a military expert. Here, fiction informs the realities that reach across the globe to have impacts on real conflict zones with real collateral damage. The past of Weathers' fictional characterisations impregnates the present and future of human time.

Additionally, military personnel and drone operators are regularly recruited from the ranks of experienced gamers at competitions.[106] Whilst my research does not look at video games or drone warfare, artists who have examined this field include Harun Farocki (*War at a Distance*, 2003; *Parallel I-IV*, 2012-2014; and *Serious Games I-IV*. 2009-2010) and Omar Fast (*5,000 Feet is the Best*, 2011).

It is no coincidence that spatial control is obsessively fine-tuned in the desert through military training and Hollywood fictions. The cognitive dissonance experienced by total immersion in the desert, as explored in part one (exposure to spatial complexity), makes the desert the ultimate space to overcome such lack of control. It is therefore ground zero for perfecting one particular political imaginary – the fantasy of total dominance. This involves a networked and choreographed control in which hospitality and spatial rights are irrelevant, and diverse pasts and futures are suppressed.

Furthermore, rooted in the assumption that land is void without the presence of God's chosen humans, it has become normalised that rugged open spaces are denied a code of ethical conduct.[107] Contemporary zones of exception are US national parks (e.g. Death Valley, Great Basin Desert; Joshua Tree, Mojave Desert; and Big Bend, Chihuahuan Desert). These are particular areas of 'nature' that are deemed worth saving for humans to experience and are protected by legislation

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[105] Weathers played the boxer Apollo Creed in Rocky I-IV, the special forces operative George Dillion in Predator, and more recently is known for being Greef Karga in Disney's The Mandalorian. Before acting he was a professional footballer. When Magelssen visited Fort Irwin in 2007, Weathers was known for training insurgents in stage combat and advised on the MILES laser-tag system. Magelssen, "Rehearsing the "Warrior Ethos", 50 & 66.
[106] Katie Lange, "Military Esports: How Gaming Is Changing Recruitment & Morale", *U.S. Department of Defense*, 13 December 2022; Rosa Schwartzburg," The US military is embedded in the gaming world. Its target: teen recruits", *Guardian,* February 14, 2024.
[107] Even in those areas where the land has been considered special and reserved for its beauty, e.g. Yosemite National Park, the indigenous people have been forcefully expelled in the pursuit of racial purity (e.g. 1929, under the charge of Superintendent Charles G. Thomson). See Solnit, *Savage Dreams*, 287-288.

and regulation.[108] Here 'nature' as a human construct becomes singled out, defined in certain ways so as to be sanitised and palatable for a colonial nation. Rebecca Solnit outlines the beginnings and consequences of such ring-fencing, both physically and psychologically:[109]

> "To say that Yosemite is Eden is to say that everywhere else is not. "This place shall we set aside and protect" implies "all other places shall we open up and use." So the national parks counterbalance and perhaps legitimize the national sacrifice areas, which … now has grown to include waste disposal and military-use areas and places drowned by dams."[110]

Such repercussions hinder an ecological thinking in which kinship grows between all bodies and across all space and times (as established in part one). Ecological thinking cannot be brought into legal practice if those in government uphold a colonial framework which defines space as valuable only if advantageous to humans. I will return to this proposition in part three which will examine the spatial disturbances provoked by movement through the desert, to show how creative strategies can harness learning from desert attributes – and how the learning can challenge an occupation-based conception of space.

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[108] There is significant literature focused on nature as a human construct. See for example: Eileen Crist, "Against the social construction of nature and wilderness". *Environmental Ethics* 26(1) (2004):5-24.

[109] Earlier examples of ring-fencing can be seen in England with *The Enclosure Act*: "between 1604 and 1914 over 5,200 enclosure Bills were enacted by Parliament which related to just over a fifth of the total area of England, amounting to some 6.8 million acres." Land holdings began (rented) in the twelfth century. In the mediaeval period, agriculture took place on land called "open fields". See Parliament UK.

[110] Solnit, *Savage Dreams*, 246. Solnit also points out that during the early establishment of national parks, 'religion, science and entertainment' were derived from the land (259). Watch points, telescopes and "picture-making devices" situated how nature was viewed and considered, e.g. the Watchtower on the southern rim of the Grand Canyon (262).



Fig 1.16 “BOY, HAVE WE GOT A VACATION FOR YOU...where robot men and women are programmed to serve you for ...ROMANCE ...VIOLENCE ...ANYTHING” & “The playcenter for sensation seekers, where robot men and women do anything for you. And nothing can possibly go worng.” © Warner Bros, all rights reserved.

2.3 Diverging imaginaries: Control vs Freedom

To better understand how the desert enables extreme violence in the face of alternatives such as kinship between diverse bodies, my research also examines how spatial complexity, as apparent in the desert, enables all possible futures to be built – even those based on spatial control.

The psychological relationship between violence and vulnerability in the desert is well illustrated in the 1973 science fiction film *Westworld* (Fig: 1.16) (and the 2016 television adaptation) in which the desert is the stage, backdrop and host for an extreme role-playing game as a Hollywood Western. Populated with robot characters who are bodies to be used and abused, Westworld is a power game on steroids, spread out at true scale across the desert, a no-expense-spared theme park, with no limits or rules – Disney-speak for toxic masculinity.[111] Designed as the 'Wild West' and redolent of Westward Expansion, it is one possible imaginary of desert living. At 40, 75 or 200 thousand dollars a day, wealthy players become cowboys who shoot, steal, rape and buy bodies and land.[112] For a particular flavour of player, this is what the desert offers them: the open space points to one dream, in which there is no law to prevent their fantasy of power and occupation. The scale, breadth and isolation of the desert allow anything to be imagined.

Part one of this chapter outlined how exposure to spatial complexity in the desert provides an opportunity to encounter a multitude of times. *Westworld*, as a simulation, encapsulates how a fixed and frozen time (in this case, the fiction of cowboys, ownership and conquest) can manifest, providing a looping storyline that is not supposed to shift. It is designed to give human bodies rights and storylines (with their own pasts, presents and futures) but it does not offer the robots bodies their own equal rights to forge pasts, presents and futures.[113]

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[111] *Westworld* is populated with AI-Robots performing the non-player characters (NPCs). Not knowing they are AI or toys for the rich, these bodies suffer the consequences of the role player's fantasy.
[112] The popularity of the simulation is based on lack of accountability. Everything that someone would be judged or imprisoned for doing in the 'real world' can be played out here.
[113] The question of whether robots should be included in the more-than-human remit is out of the scope of this research. In a wider investigation it could be considered whether they would be given the same rights and be considered part of the community as discussed in TEK.



Fig 1.17: *Billboard Premonition*, video and large scale photograph (part of a triptych) 2021, © K. Yoland, all rights reserved.

Whilst the openness of the desert can destabilise an *individual's* previously acquired sense of perspective (as discussed in part one), it is more complicated when whole systems of power encounter the desert and nest within it. As an embedded web of networks, ideology and political design, a system of power can be seen through the military, religious, industrial and corporate actors that are present. The system involves a discipline and conformity that Foucault talks of – where power does not require out-and-out violence to scaffold it, but moulds the psychological state in which space is controlled:

> To govern, in this sense, is to structure the possible field of action of others. The relationship proper to power would not therefore be sought on the side of violence or of struggle, nor on that of voluntary linking (all of which can, at best, only be the instruments of power), but rather in the area of the singular mode of action, neither warlike nor juridical, which is government.[114]

Once systems of power are nested, individual encounters with these far-ranging systems provide evidence of spatial control. For example, whilst travelling the desert, I witnessed pervasive manifestations of power – dispersed through miles of barbed wire fences, border patrol stops (stationed well within US territory, not on the border), endless billboards for God and Jesus, vast military zones and test sites, airborne surveillance 'blimps' (TARS), and holding facilities for illegal immigrants.[115] These instances are not all under the jurisdiction of one discrete authority or actor; rather they are diffused through roots that developed from Westward Expansion and the fears that white settler power could be taken away.[116]

Inside Westworld's simulation, action occurs across a scale of time defined and governed by an ideology of power, greed and dog-eat-dog individualism, and so appears to have no room for community, kinship or poetic reflection on one's existence within a complex ecosystem. Within this colonial framework of territorial representation, actions in open space are not informed or educated by the time of the planet (deep time) or other ideological and cultural times such as the past/present/future of oppressed peoples, including feminist, anti-racist and/or indigenous ecological ways of living. Instead, systems of power that enter the desert can choose to use methods of control or annihilation in response to the openness,

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[114] Michel Foucault, "The Subject and Power." *Critical Inquiry* 8, no. 4 (1982): 777–95, 790.
[115] I incorporate billboards into the research by working with glitches to disturb the representation and vision of the landscape. See Fig 1.17 and AM.5.
[116] Noam Chomsky, *Power Systems: Conversations with David Barsamian on Global Democratic Uprisings and the New Challenges to U.S. Empire* (London: Penguin, 2012).

scale, breadth and isolation of the desert which renders bodies (human or more-than-human) vulnerable and exposed.

Here, the possibility of desert hospitality (emerging from desert attributes and spatial complexity) is blocked, and instead the environment transforms into one that produces trauma. Upheld by a single fixed narrative and temporality in which the system of power operates, the environment suppresses the possibility of learning from all other stories and times.

This plays out fictionally in the film *Punishment Park* (Peter Watkins, 1971) in which the Mojave Desert is turned into an open-air prison where political activists are hunted down and killed as a form of death penalty for questioning power (Fig 1.18). Their personal stories and lived experiences are denied by a tribunal which is set up to recognise only one narrative – the narrative of power.

Similarly, in the film *Capricorn One* (Peter Hyams, 1979) the desert becomes an open-air killing field when three astronauts, who have been forced to fake a Mars landing for NASA, try to escape. Tracked by helicopters (which would now likely be remotely operated drones), bodies on land become targets for coordinated aerial attack. In a choreography of evasion, the three figures head west, south and north to increase their odds of one of them surviving, but all are found by their pursuers (Fig 1.19).

Although vulnerability and exile can produce an opportunity for desert hospitality to emerge, it does not preclude other systems using the desert for other means. The desert's scale, breadth and isolation appear to act as a gift that welcomes new ways of operating, whether peaceful or violent. Encounters through immersion allowed me to witness both extremes. For example, I witnessed celebrations of the reopening of a small border crossing on the US/Mexico border to Boquillas, which brought families together who had been separated by unresolved border legality issues for over ten years. However, in the same year I had a gun pointed at my head when an elderly rancher mistook me for a trespasser when I asked for directions (2013).

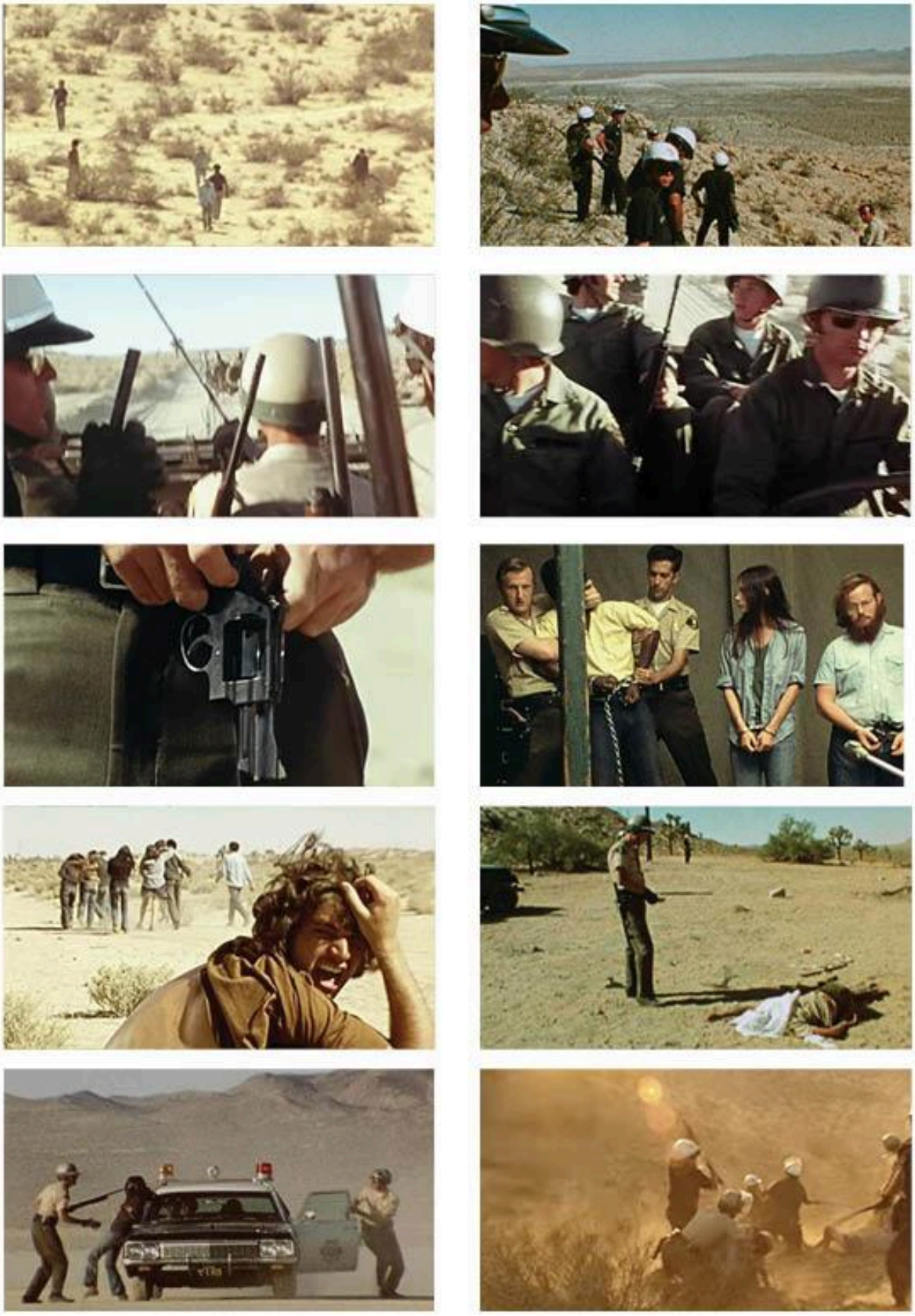

Fig 1.18: Punishment Park, Peter Watkins (director), Project X Distribution, 1971 (screen shots), © Peter Watkins, all rights reserved.

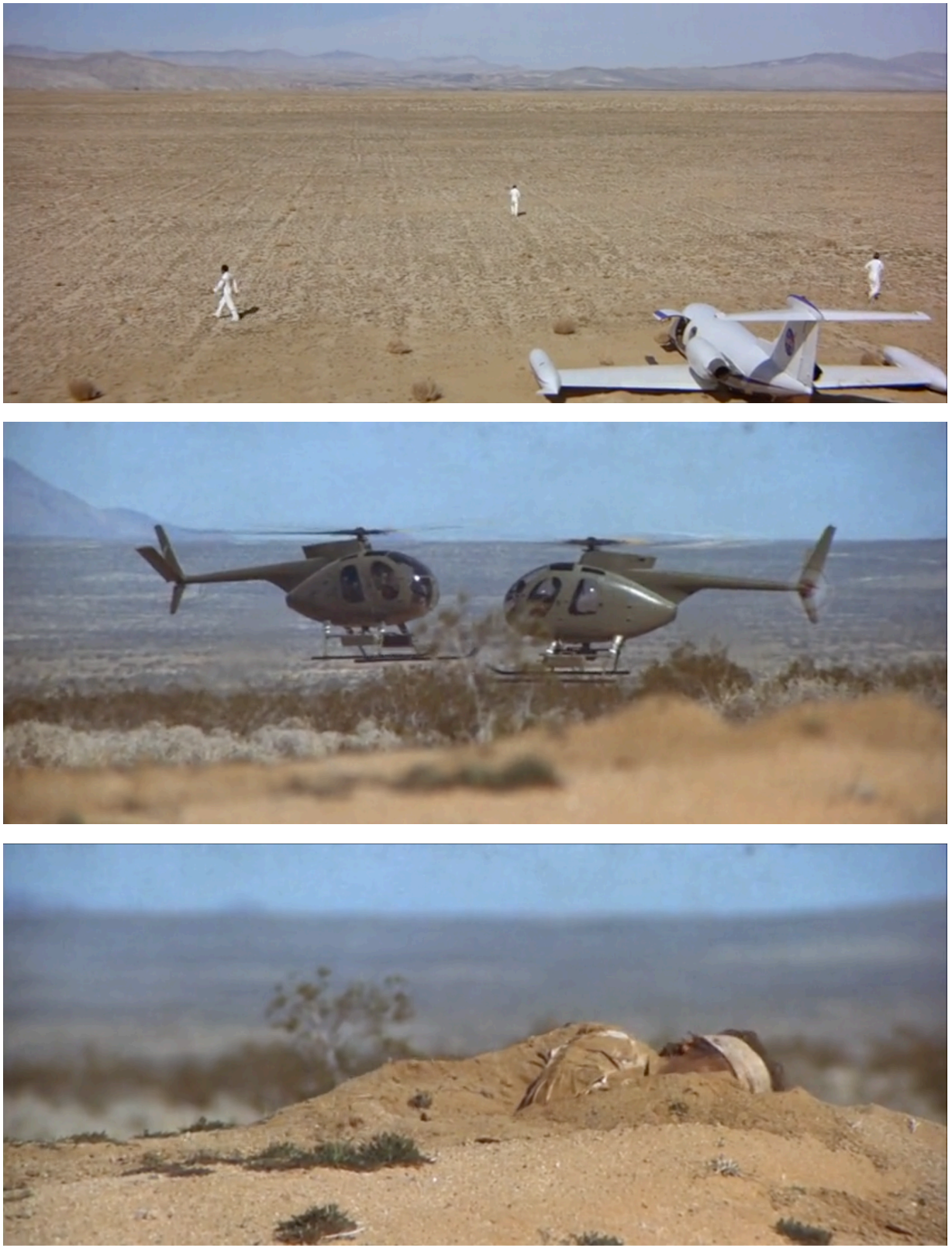

Fig 1.19: *Capricorn One*, Peter Hyams (director), 1978 (screen shots). © Warner Bros, all rights reserved.

Over the course of my desert journeys, I saw that desert attributes offered different things to different people. For example, working or meeting with ranchers, cowboys, animal hunters, oil riggers, the military (Fort Irwin), government officials, and people living off the grid, I understood that land was part of their identity. People used the land for resources (e.g. ranching, oil, hunting), or guarded it (border patrol) or isolated themselves with it (Slab City residents).

In these groups, most of the people I spoke to brought up politics without being prompted. They would tell me where their political affiliations lay or did not lie. More often than not, they didn't want any governing (libertarians) and seemed to be scanning me to see how I would respond. Sometimes people would discuss survival and I would regularly see 'preppers' (survivalists) at hardware or supermarket parking lots packing huge reserves into their trucks. Similarly, people who lived on remote ranch land needed to carry in big supplies. A former US Marine who was volunteering locally told me he liked to strategize the best spot to be when the end of the world or a civil war came.

In Marcel Maus' analysis of gift giving, that which can be exchanged is not always without problems.[117] Trauma can be passed through a gift. Similarly, the gift offered by desert attributes can have multiple ends, some of which are using the land for particular gains. For example, whilst the desert has offered people refuge and alternative ways of living (e.g. Slab City and other communal living) it also sustains military training and oil rigs. The trauma that might arise from some of these actions can double, echo, and fold over and over, embedding and nesting in the future. Peace *and* abuse are introduced across the exchanges within the collective hive state operating in the space of the desert: humans inherit the consequences of the passions and actions of each other.

For example, when I moved away from the Chihuahuan Desert, friends kept me updated on demonstrations against the Trans-Pecos Pipeline (TPP) gas sourced from fracking. On returning to the region, I found that the town of Balmorhea's 150-metre natural swimming pool had closed due to fracking pollution. During the pandemic, friends told me their evening activities had changed in order to avoid the drug cartels which had moved into abandoned buildings surrounding them

[117] Marcel Maus, *The Gift: The Form and Reason for Exchange in Archaic Societies* (London and New York: Routledge, 2002).

(Yucca Valley, Mojave Desert).[118] Many of these scenes are noted in the site-writing (see accompanying material, *Desert Diaries*).

Thanks to its attributes, the desert is a space of simultaneity where multiple states of existence are intertwined, prompting new realities to be conceived. Given this simultaneity, there is a fight for survival as conflicting imaginaries battle. Some imaginaries want to remain open (for example off-grid communities like Slab City which is next to Salvation Mountain Fig 1.20 – 1.22), whilst others want to restrict movement, for example 29 Palms Marine Base.[119] In Slab City – which consists of camper vans, tents, and self-made homes constructed from recycled materials – I was allowed to enter and wander around the community, and was even invited to return for what they called the monthly 'outsiders prom' – for anyone who had never had a high-school party or a good memory of their time in the school system. At 29 Palms Marine Base, by contrast, I applied for entry, was considered a candidate and then denied for unknown reasons, and the correspondence went silent.[120] Instead, I looked inside the base via Google satellite images (Appendix 1.7). While Slab City was wide open and in the process of creating new futures, the marine base was heavily restricted to outsiders and avoided change.



Fig 1.20: *Don't be a Dick*, Slab City map, 2022, K. Yoland.

[118] See: Loren Steffy, "How West Texas Became Woodstock for Frackers", Texas Monthly, January 2019.
[119] Slab City includes veterans, outsiders, libertarians, artists, activists and people who were previously homeless. Other nearby communities include Bombay Beach (Fig 1.23) and the monument Salvation Mountain (Fig 1.22).
[120] However, they did share links to media images of soldiers on the base showing a range of activities (see Appendix 1.8).



Fig 1.21: *Dog Food, Prayers, Water*, Slab City Garden and sign, 2022, © K. Yoland, all rights reserved.





Fig 1.22: Salvation Mountain, 2022, © K. Yoland, all rights reserved.





Fig 1.23: *Bombay Beach*, Mojave Desert, 2022, © K. Yoland, all rights reserved.

2.4. An environment of immersion and observation

In Fort Irwin, every day is war day. However, the war being fictional, there are no immediate casualties. Instead, the corresponding bloodshed occurs thousands of miles away on another continent. The relation between the local fictional conflict and the real conflict elsewhere is hard to standardise. The training attempts to reduce the harm to US soldiers when they are establishing and defending 'American interests' (resources) in present and future faraway sites of conflict (currently the Middle East).[121] Inside the simulation, the soldiers are meant to experience a near replication of what it will be like at war – in a foreign culture, in a challenging climate and with unknown adversaries. They must train despite fatigue, manufactured chaos, and diverse obstacles.

On each rotation day in Fort Irwin, Iraqi-born actors play a range of roles, including religious clerics, village mayors, ambulance drivers and shop owners, in diverse simulated scenarios. While an actor offers a soldier plastic fruit, an insurgent (played by a US soldier) might ambush from other parts of the set.[122] The simulation works as a closed circuit of constant conflict in which violence is looped.

Desert attributes of scale, breadth and isolation allow both the military and Hollywood designers to develop and construct a fully-formed fictional world. The site is paradoxically tucked away within the wide open space of the desert, remote and hidden from regular traffic and civilians. This means that the fictional world implanted in the Mojave Desert does not need to meet the 'real world' of California or nearby Nevada. The site appears only as a mirage-like reality on Google Satellite – diluted by the feeling of infinite space in the desert.

In the same way that dispossessed veterans and political outsiders can forge a new world in Slab City, so too the state can create its own world and war reality. However, the inhabitants of Slab City are not trying to conquer, defend or invade other

[121] See Appendix 1.9 for alterations to the desert training in 2007.
[122] As noted by Magelssen, who was allowed to interview the actors, the Iraqis' characters in the simulation included "civilians, civic leaders, police and military figures in the villages." (49). Iraqi actors mainly came from Detroit and San Diego and are both Muslim and Christian. When Magelssen visited in 2007 he met with a Kurdish-Iraqi actor who said her goal was "to help the US soldiers stay alive, and also to help Iraqi women.... by ensuring that they are treated properly by the U.S troops."(65). Magelssen, "Rehearsing the Warrior Ethos".

lands.[123] By contrast, Fort Irwin's tentacles reach out into multiple spaces and futures, extending the power structure in which it was built. Thus, although the desert provides space for many political imaginaries (e.g. Slab City, religious cults, artists' communes, UFO watch groups, apocalyptic survivalists and civil war preppers), the military systems (e.g. Fort Irwin and 29 Palms) remain the dominant forces because they grow multiple appendages.

Whilst desert attributes create opportunities for change (desert hospitality), they also spur systems of power to design mechanisms which can overcome or suppress this change. The general flatness of the land lends itself to great aerial perspectives, and presents itself to the unmediated individual in one way and to systems of power (and their networked technologies) in another.[124] For state actors, the desert is a space of monumentality, challenging the systems of power to maintain territory, resources and geopolitical positionality in what appears infinitely intangible and unreal. If the desert can symbolise a place of liberation, then power, ironically, uses that freedom to develop control.

Whilst my experience in open land was one of total immersion, in which I perceived myself as a tiny insignificant speck on the land, systems of power such as the military can appropriate the land for large-scale planning and networking – and in many ways step *back* while simultaneously stepping *into* the space. By creating full-size replicas of urban environments (e.g. Fort Irwin, 29 Palms Marine Base, Survival Town) or life-sized tests of weaponry (e.g. the Trinity bomb), state power can observe the impact of various forms of control. Soldiers immersed in these spaces become test subjects for curated zones of flattened space which operate according to one narrative and one temporality – thus precluding the multiple pasts, presents

[123] Note that there also exists conservative or religious desert communities whose members wish to live the imagined past 'freedom' or pilgrimages that Westerns can embody. For example, Monastery of Christ in the Desert (New Mexico) and the Redemptorist Renewal Center (Lady of the Desert Church, Tucson).

[124] Whilst individuals will have access to military technologies adapted for commercial purposes, poverty often precludes people owning the best equipment and it still remains possible to lose phone service in many parts of the desert (and run out of battery or malfunction due to high temperatures). It would still be advised to carry maps. In contrast, by arriving in the desert with helicopters, tanks and a team of specialists, less can go wrong. There would be greater protection from a range of high-tech back-ups.

and futures of the planet and other bodies (human and more-than-human).[125] This allows spatial control to be developed, studied and perfected for export elsewhere.



Fig 1.24: Surveillance building, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland, all rights reserved.

High on a hill in Fort Irwin, a building nicknamed 'Star Wars' houses surveillance equipment that reveals and records the inner mechanics of hostilities playing out across large distances.[126] When I visited, operators were preparing to watch soldiers' movements captured on cameras inserted into walls, tunnels and higher unknown locations (e.g. Fig 1.24). Soldiers are also observed by trainers who travel alongside them during all activities. When guiding me through the simulation, my military chaperone explained that soldiers are bombarded by artificial sounds and smells, including the noises of children playing, and the aromas of sweet Iraqi biscuits and burnt flesh. Soldiers I spoke to in the simulation village called Razish explained that insurgents hide in buildings, under floors and on roofs, preparing to ambush. I was guided underground via a steel rung ladder, moving between high-rise buildings, with minimal light. Sleep-deprived and living outside in extreme desert

[125] By "one narrative" I mean the narrative of Atropia and Denovia (see Appendix 0.1). That narrative doesn't change. There is no storyline in which the US are invaders and not welcome. However military planners could argue there is narrative change through the white, black and grey system which indicates if over the course of the 21 days training the troops have turned villages against them (black), for them (white) or neutral (grey). See Appendix 1.9. They should not turn anyone black. Turning black can be caused by the soldiers disrespecting people e.g. frisking a woman or in one case shooting (blanks) at an ambulance driver. So in that sense – the narrative is different each time – in one rotation the visiting soldiers might do better than another group who visit and the story ends a bit differently. But the overarching story is the same: the US come by request (not force) to help and save the day.

[126] Supported by radio connections on Tiefort Mountain and Star Wars (the nickname for the building where camera feeds are observed). Derian also describes this site in *Virtuous Wars*, 7, 18, 22.

temperatures, the soldiers manoeuvre and work together. Throughout the rotation, soldiers are analysed for their decisions and mistakes. Meanwhile, trainers deliver verdicts on injuries, problems or consequences when attacks are sustained (e.g. Fig 1.25). Their instructions influence how individuals and groups move and occupy the space.[127]

There are parallels with the simulation depicted in the fictional film, *The Truman Show* (1998). Both worlds have been crafted and certain characters have background roles – to facilitate a developing narrative and experience – whilst others, such as the soldiers at Fort Irwin, are navigating their own journey. Everyone lives the reality of this world and yet it is known to be fake. Apart from Truman Burbank (the central character who is duped by the fake world), the cameras and actors of *The Truman Show* echo Fort Irwin's simulation in which the soldier's body is guided inside a 'double space'. In both sets there is an outward impression of the space (visible) and a secondary function of the space (invisible – used for camera, strategy and simulation direction). The desert space appears to be free (open), but the built environment within it is designed to reward only certain behaviour (closed).

Although the soldiers know they are immersed in a simulation site inside a US desert, the implications of training at one site in order to travel to another country to conduct similar actions cannot be underestimated. The trauma absorbed from the conflict and freedom in the desert training potentially migrates further afield.

* * *

In summary, part two of this chapter has demonstrated how desert attributes are equally available to forces promoting spatial control as to those promoting hospitality. In contrast to spatial complexity and desert hospitality, forces such as Westward Expansion, industrial extractivism and the military attempt to close the open system of the desert. The military can become entrenched in the desert by both occupying and controlling land whilst they strategise the infinite futures of war. This is a process of flattening space into one time, a time in which territory is

[127] Klein's theory of scripted space as coercion and Sloterdijk's analysis of architecture as immersion (or architecture as totalitarian control) have supported the examination of the impact of simulation designs on the body of the player (soldier), especially their analysis of the space, decision-making and navigation.

fixed and unchangeable, locked down by the systems of power at play. Freedom in the desert folds into violence, which folds again into new freedoms for select groups.

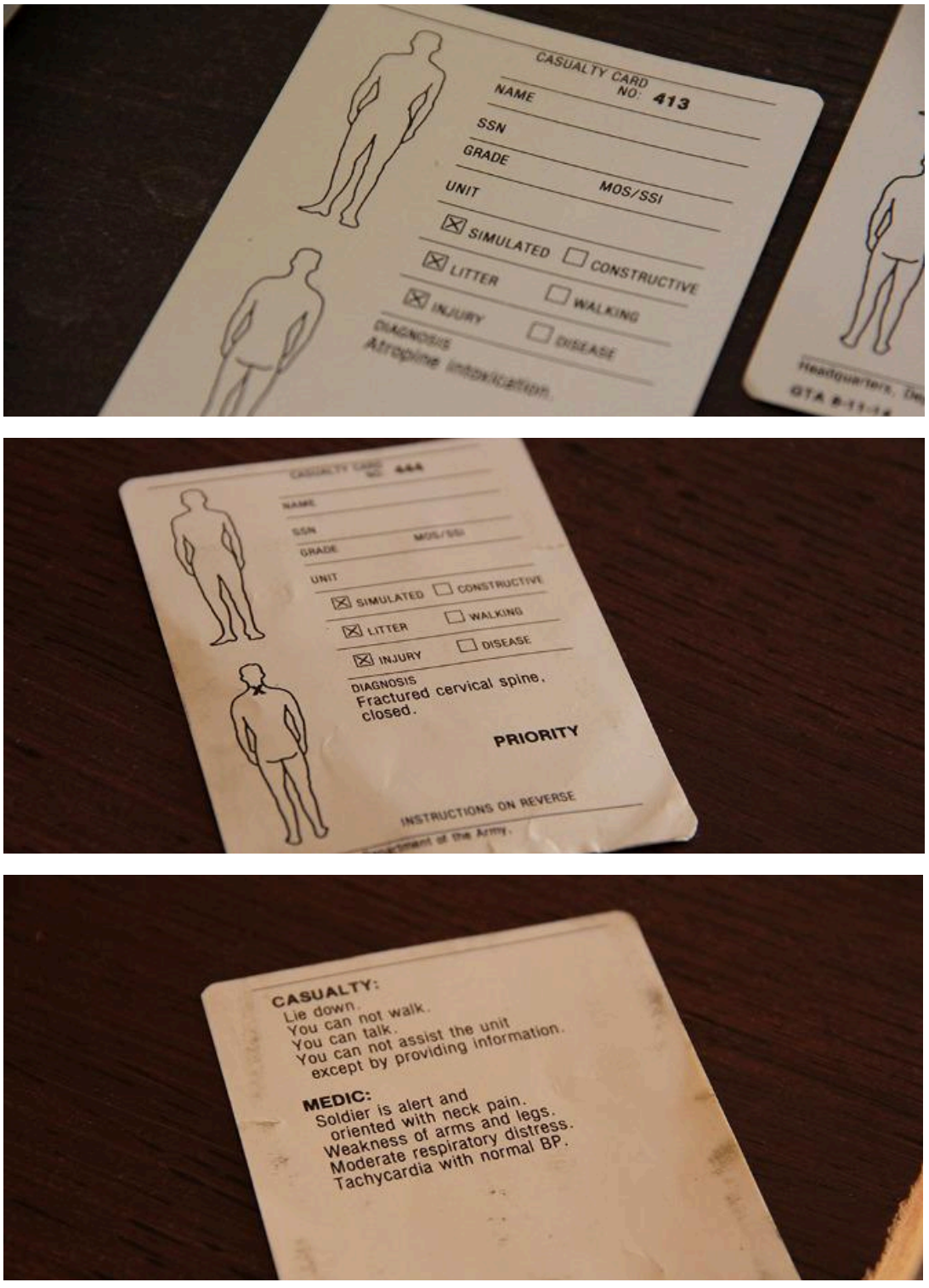

Fig 1.25: Casualty cards in Fort Irwin. Image courtesy of *Venue* and *The Atlantic*. Image credit: Nicola Twilley and Geoff Manaugh, all rights reserved.

Part III: Encounter through immersion: disruption and resistance

This chapter has focused on the first research question:

What does encounter through bodily immersion in the desert reveal and offer a site-specific art practice engaging with land, space-time interconnectivity and representations of territory?

Using encounter through immersion as the method to answer the question, I have travelled solo in the desert to observe variations in my own sense of im/mobility on land and to witness diverse activities on land (as discussed over parts one and two). Land, space-time, and representations of territory are the topics I have addressed for this question and the means of answering it. To this end, in part three, I will reflect on the importance of encounter through immersion by way of movement and navigation across desertscapes, and I will build on the observations I gathered on open land (part one) and closed zones (part two). More broadly, part three supports the subsequent chapters in describing the development of the practice-based methodology of site-specific engagement: encounter through on-site creative methods (desert-mapping) in chapter two; and encounter through off-site installations and creative-nonfiction (second-order desert-mapping) in chapter three. Immersion provides the initial data that enables these further creative encounters to take place.

3.1 Encounter through immersion with movement

To reiterate, in this research the encounters through immersion were activated by solo travel across the spaces of the desert, on foot and also by truck and bus. My attempts at navigation and movement through the desertscapes were pivotal to desert learning. Using myself/my body as a test case in this fieldwork was an empirical means of exploring how open and closed desert zones impact the human body, and in turn, how each zone exposes the body to spatial complexity and spatial control respectively. Additionally, the data emerging from my navigations has informed my understanding of how desert attributes and spatial complexity lead to the experience of bodily vulnerability and exile, which can be the basis for desert

hospitality. Furthermore, it enables an examination of the relationship between desert hospitality and territoriality (spatial control).[128]

Given that much of my work was conducted on foot and alone on open land, I could focus my attention fully on the environment. This mode of travel sharpened my sensory faculties and powers of observation. Walking allowed me to observe and note the changes in my perception (perspective and positionality in space) and the changes in my ability to understand my surroundings (recorded through site-writing). Additionally, it forced me to slow down, look outward and connect with the time of the desert and the more-than-humans encountered on the land. In Rebecca Solnit's analysis of walking, wandering and rambling, she writes that the kind of mobility that is offered by walking tends towards being outside and public. In the act of walking, the body surrenders to the environment, but the space also reciprocates. Solnit claims that it is through this experience that we learn about new possibilities.[129] On the flip side, when spatial control encroaches into a space (e.g. via surveillance, border stations, sale of public land, industrial activity) then it follows that acts of walking and travelling are forms of resistance to the removal of the right to use one's body to interact with and learn from the world.

In his discussion of moving through complex architecture, Adam Kaasa echoes Solnit's advocacy for the value of walking. He argues that complexity enables us "to learn how to imagine".[130] The complexity includes spatial encounters with "ambiguity, openness, unfinished spaces, occlusions, layers, and … emptiness".[131] Similarly, being and living within the complexities of the desert has enabled me to consider (i) how my body operated differently across open versus closed spaces; (ii) how it changed my thinking about land, territory, time, and other bodies; and (iii) how this could be integrated into an artistic practice as research. Parts one and two exposed different operations across land, showing how open land could stimulate free thinking and desert hospitality while closed land produced a battle of ideologies, territory, fictions and a sense of frozen time (making it hard to experience multiple temporalities outside the dominant systems of power enforced).

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[128] Off-site work with experimental forms of desert hospitality is the focus of chapter three.
[129] Rebecca Solnit, *Wanderlust: A history of walking* (New York: Penguin, 2002) 24-25 and 27.
[130] Solnit, *Wanderlust*, 66.
[131] Kaasa, "Against Porosity", 48.

Exposed to the elements and other beings around me, my movement across open land allowed me to learn about my own limits and the mutual limits of others across open space (part one). These realisations subverted representations of land as merely an area of territory. Instead, land appeared a space of possibility (albeit frightening) – anything was plausible, and in that lay both danger and a potential for cautious optimism. In spaces of control (e.g. private or restricted land, urban spaces and simulation sites at Fort Irwin), the challenges to movement meant that relationships to land were based on limited representations of land that pivot on binary thinking about land use and land rights.[132] The military might argue that they also develop relationships with land that are based on movement, such as troop movements. Whilst I recognise this, I would argue that these relationships continue to be limited to an understanding of how to control, manage or defend land. For example, training in warfare and the ecological work on site (compliance and conservation programs) remain human-centric and predicated on zoning. These characteristics are not always bad but the nature of the relationships is limiting and therefore less conducive to innovative thinking about learning from the land, other than its designation as a resource or legal obligation.

As chapter two will discuss more fully (see negotiation, part one), when I visited the training site I found that the systematic and pervasive observation and control of my body changed how I perceived the site and how I acted and felt within these zones.[133] Philippopoulos-Mihalopoulos' term 'atmospheres' (visible and invisible legalities that permeate space and prescribe how it is used) and Klein's scripted spaces (sites of special effects where design manipulates spatial navigation and choice) are pertinent here.[134] Fort Irwin appears to be an atmosphere and a scripted space – the controls operating at the simulation site are meant for soldiers (who accept them as a means to an end) but when I (as a civilian) step into the space, their rules impact my actions and the quality of my interactions with the land and bodies within.

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[132] This is because the act of moving through and with space does not fix oneself or one's objects permanently to one place. Neither is it bound up in exerting bodily power for extraction, acquisition, or financial gain from the land or bodies it encounters through movement.

[133] The surveillance and authority was similar to my experiences of other sites, albeit with different spatial designs, that I visited for this research, for example casinos (see site-writing).

[134] Fort Irwin certainly operated as an 'atmosphere' in which visible and invisible legalities were in place – keenly evident in the contract I signed (which included the possibility of accidental death) and the stipulation that I was not permitted to be unaccompanied at any time. (Philippopoulos-Mihalopoulos, Spatial Justice; Klein, The Vatican to Vegas.)

In summary, the value of encounter through immersion in the desert is tied to the bodily movement and navigation it requires. These actions brought exposure to open and closed land, which in turn has brought insights into spatial complexity (open land) and spatial control (representations of territory,) and their respective relations to time (multiple temporalities or frozen time), and desert hospitality (vulnerability and exile). The insights inform the discussion in subsequent chapters on how to alter perspective and positionality in respect of multiple space-times. This has given me a specific opportunity to use the methods of site-writing, lens-based processes, intervention and off-site installations to forge new ways of disrupting conventional representations of land and territory by recruiting the vulnerability and exile produced by spatial complexity. Immersion has therefore led me to realise that desert hospitality might be illuminated through site-specific art practice which disrupts perspective and positionality, echoing what occurs on open desert land.

3.2 Land – The value of desert learning for a site-specific methodology

Immersion in the desert provided first-hand exposure to the desert attributes of scale, breadth, isolation and multiple temporalities, as discussed in part one. These experiences served to reframe how I understood, navigated and survived on land. Moving alone on open land allowed me to come into contact with what I have called spatial complexity – multiple space-times – which plunged me into a vulnerable position. Exiled from my previous understanding of body-land relations, and without concrete perspective and positionality in this new space, the heightened form of spatial complexity encountered in the desert was fully exposed rather than hidden by human construction (as in urban settings). The humility that emerged from such encounters offered a means to bond with land and other beings – desert hospitality.

Hence, immersion in open land brought pause for reflection on how to conduct site-specific artwork and to what ends. I have reflected on the methods I have used in the past – performance and lens-based media – and altered my approach. As will be detailed in the next chapters, this involved: (i) the addition of site-writing and interventions to my creative process; (ii) developing a methodology that can provide encounters with spatial complexity; and (iii) designing that methodology so that the encounters produced by each method work meaningfully in combination as well as standing alone.

3.3 Space-time

Whilst the regimented movement choreographed by the military is aimed at spatial control, my methodology of desert-mapping involves testing movement and navigation. It has allowed me to form new encounters with land and other bodies (human or more-than-human) and their corresponding space-times. I have recorded these encounters through site-writing.

At this juncture, I would like to draw comparisons between writing whilst journeying and Walt Whitman's long-form poem, 'Leaves of Grass' (1855). Whitman uses movement as a means to encounter and connect with an ecosystem and then become materially and cognitively part of it, crossing paths and merging with diverse and often subjugated bodies.[135] Through his fictional and real journeys, he confronts segregation in his era, acknowledging the oppressed in their everyday lives (e.g. sex workers, slaves, indigenous peoples, women, workers and children).[136] For Whitman, the body in motion is an instrument for imagining the transcendence of structures of control and the boundaries of location, infrastructure and time.

There are echoes of Whitman's time-travel in my experience of moving through open and closed spaces of the desert. By traversing vast expanses of desert land, I became acquainted with multiple time scales and the traces of stories within those time scales. The lives, forces and lines in the sand became visible. This included my heightened awareness of the many bodies – I include bodies of water, mountains, and landmass – existing in the past, present and future. This experience felt like a connecting together of bodies, space and time, rather than disconnecting them through categorisation and segregation.

By thinking not only in terms of human time but also deep time or ecological time, Whitman's movement includes scale changes too. It allows him to reduce himself

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[135] Promoting "a plain public road" or "knoll" over a chair or church (53), Whitman's movement across land gives the reader wider access to the diverse conditions of humans and also the sights, smells and sounds of the earth. He depicts the singularity and universality of lives, bearing witness to the work and seasons of countless humans and animals. His moving through the world is a vehicle for appreciating that he is part of the universe and not separate or superior: "For every atom belonging to me as good belongs to you." (18). Walt Whitman, *Leaves of Grass* (New York: Oxford University Press, 1991).

[136] Living momentarily with and as them, Whitman's free transitioning becomes his argument that they are all one and no different than himself. Whitman's observation bears similarity to Derrida's observations of the cat and non-human animals (see chapter one, p.68).

to the molecular, becoming a plant or an animal or a sibling from any demographic. This movement through space-times, and the transformations and future possibilities it can create (new worlds), is also enabled by the desert attributes of scale, breadth and isolation. Bodily encounters with these conditions serve to destabilise previously understood ideas of physical positionality, fixed perspective, and proximity between body and land. Instead, connections become more fluid. The edges between body and land can blend. Movement in this context then brings the opportunity for new ideas. As the body struggles but also learns to be more fluid within its new, unfixed coordinates, it can imagine a porosity between the inside and outside of the body. This idea connects to philosopher Emmanuele Coccia and his ecological use of the term immersion (see glossary).[137] In his use of the term, humans and more-than-humans are all connected by being submerged in the space of the planet. This implies openings for connections in places that seem strictly controlled, segregated and closed to change.

Outside of the desert context, artists confronting systems of power have activated suppressed times as a mode of resistance. For example, in Xxavier Carter's *Sweet Jesus*, the artist, carrying a life-sized cross, stands in for Christ and forces Dallas citizens to understand how different times operate in the present moment. As he is witnessed walking across the city, Carter not only reimagines the history of Christ in another space-time but also highlights the history and parallels of violence towards African Americans in the city.[138]

Beverly Buchanan's sculptures, made of local organic materials with links to slavery, are used to reawaken the times which saw slaves forced to work on the rivers of the Southern United States (Appendix 0.3).[139] By providing no signage or maintenance, Buchanan allows histories to merge as the sculptures fall into disrepair, mirroring the regularly ignored stories of racial oppression. Simultaneously, the sculptures' presence and position on the land make them time-travelling witnesses to violence, the guardians of history, and future relics.

Echoing Carter and Buchanan's work, my research elicits encounters through bodily immersion in the desert and attempts to reveal the existence of multiple

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[137] Coccia, *The Life of Plants*.
[138]Jacob Vaughn, "Performance Artist Ventures 10 Miles Through Dallas for His Presentation 'Sweet Jesus,'" *Dallas Observer*, August 27, 2018.
[139]Andy Campbell, "We're Going to See Blood on Them Next: Beverly Buchanan's Georgia Ruins and Black Negativity," *Rhizomes: Cultural Studies in Emerging Knowledge* 29 (2016).

temporalities by disrupting what is understood as the present moment. But in contrast to Buchanan and Carter, the desert encounters operate to deconstruct the frozen times of spatial control – specifically, military simulation training (see chapter two). My research will also expand off-site to explore how installation-art can construct spaces in which time is always in the process of slipping and jumping between past, present, and future moments, and where perspective and positionality within space is equally fluid (chapter three). In this way, the experimental desert encounters not only reveal suppressed times of oppression (as Buchanan and Carter do), but they test what happens if encounters are built by weaving together multiple times, including those connected to systems of power.

As a solo body moving through the open desert landscapes as well as zones of danger and restriction, I encountered unfamiliar diversity, a multitude of coexisting histories (past, present, future). This desert journeying has similarity with the film *Stalker* (Andrei Tarkovsky, 1979), loosely based on the novel *Roadside Picnic* (Arkady and Boris Strugatsky, 1972), in which a restricted, uncharted and forbidden 'zone' is a space of excavation and discovery of other lives and times not understood by humans.

Entering the 'zone', or the desert, is an attempt to create new experiences which are in direct opposition to the flattening or concealment of dynamic time under spatial control. Desert learning with encounters through immersion brought me an understanding of spatial complexity which supported a challenge to representations of desert space as merely the surface of a barren land. As Massey argues, space is not about simple geographical coordinates but rather the physical, social and political relations between bodies:

> 'Space' is created out of the vast intricacies, the incredible complexities, of the interlocking and the non-interlocking, and the networks of relations at every scale from local to global.[140]

Likewise, Fox, in contemplating the Great Basin Desert, says:

> History is space, and space is history... events not only occur in space, but actually construct it, at least as far as our memories are concerned. "History takes place."[141]

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[140] Massey, *Space, Place and Gender*, 265.
[141] Fox, *The void,* 6. Also relevant: Yi-fu Tuan, *Space and Place: the perspective of experience* (London: Edward Arnold, 1977); Marc Augé, *Non-places* (London and New York: Verso, 2008); and Henri Lefebvre, *The Production of Space* (Oxford: Blackwell, 1991).

The desert holds many stories and histories, including the genocides of indigenous communities. None of this has vanished, although it might be ignored, hidden or suppressed. I use my experiences and observations of encounters through immersion to acknowledge the multiple stories. The methods of site-writing, lens-based processes and interventions involve encounter with multiple temporalities across space.

In opposition to the notion of space as stasis, Massey points out that most definitions of space deny its temporality and thus negate the political within the spatial.[142] Instead, Massey argues that space should be understood "as an open ongoing production" and has described space as "never finished; never closed", "always in the process of being made", and "under construction".[143] The next chapters address the unique temporal logics and layers existing within desert sites – aspects which were revealed through the use of desert-mapping in this research.

3.4 Representations of territory & their implications for developing art work

As part two laid out, the desert hosts diverse activities and ideologies in which spatial control plays a part. With beliefs rooted in Manifest Destiny and Westward Expansion, early settlers began constructing representations of land in which territory and hostility trump the potential for desert hospitality. As I travelled across the land, zigzagging between spatial complexity and spatial control, I became attuned to the impacts on my mobility across spaces that are subject to zoning, territory and privatisation.

The most prominent of the regimented spaces were the industrial sites and military training sites, and I focused on the latter. As discussed in part two, moving around inside Fort Irwin's training facilities and simulation villages allowed me to observe first-hand how time appeared altered, either frozen or cut off from all other stories occurring across space. This created an uncanny and eerie feeling. For research purposes, it has helped me understand how extreme instantiations of spatial control feel – maximum lockdown – and produced a stark juxtaposition with open terrain and spatial complexity.

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[142] Massey, *Space, Place, and Gender*, 251.
[143] Massey, *For Space*, 55; subsequent quotes: Doreen Massey, "Doreen Massey on Space", *Social Science Space*, January 2, 2013.

Bodily immersion in the military desert site afforded me a ground-level view of a space that is highly restricted and rarely explored by non-military personnel. It required negotiation of access permission as well as oversight of my movements at every step. The logistics and red tape involved in gaining and maintaining rights of access to a restricted zone became part of the research (discussed in chapter two). My reflections on the experience of being an outsider at the site, as well as the impact on my mobility or immobility, have been useful in subsequent off-site work to test how small adjustments can change the designs and perspectives of territory.

* * *

Summary

What does encounter through bodily immersion in the desert reveal and offer a site-specific art practice engaging with land, space-time interconnectivity and representations of territory?

This chapter has focused on how immersion in the desert impacts the human body. My travels across open and closed land have exposed the heightened forms of spatial complexity and spatial control existing in the desert. I have found that while spatial complexity can destabilise the human body to produce the potential for what I am calling desert hospitality, spatial control can also operate in desert spaces – but for territorial endeavours which begin to shut down experiences of multiple temporalities and cognitive dissonance.

I have formed an understanding of desert hospitality not only from first-hand field research but from existing theories of hospitality, supported by critical race studies and principles of radical kinship in ecological thinking. The site-specific desert encounters that I have developed and which I explore through practice over the next two chapters develop a new framework for how space and land can be understood. These methods of desert encounters lend themselves to non-violent acts of resistance to flattening space.

Exposure to spatial complexity offers humans the shock of monumental scale, breadth, isolation and multiple times which disrupts perception and creates cognitive dissonance and vulnerability. It stimulates new ways of thinking about

space, land and bodies which I have called desert hospitality, with potential for imaginaries of peaceful coexistence. However, as discussed in part two of this chapter, desert attributes can also let violent imaginaries emerge, which can mutate and produce further traumas (such as the bombing of Hiroshima and Nagasaki). The military utilises the very same desert attributes – scale and isolation – to test, rehearse and evolve spatial imaginaries focused on future control, invasion and defence of territory. This manner of operating works to flatten space, close down freedom of movement, and thwart understanding of multiple temporalities. The implications of such an approach involve no hospitality at all. The purpose of this chapter has been to lay out what desert learning can offer humans in terms of peaceful and equitable sharing of space through desert hospitality. Additionally, I have pointed to the alternatives that already exist in the desert (military training) and why it is urgent to find new ways of operating and understanding space, land and human's fluid position within.

CHAPTER 2

Land, borders and Fort Irwin:

Creative encounters with spatial control and spatial complexity



Fig 2.0: Razish, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland, all rights reserved.

Overview

In this chapter I will address the second research question:

How do creative encounters with movement, mapping and spatial control inform understanding of open and closed desertscapes?

To answer this question, I build on chapter one's initial theoretical framework for understanding the impact of spatial complexity and spatial control on the human body across desertscapes. Creative encounters are therefore informed by the previous *desert learning,* which uncovered themes of land, space-time interconnectivity and representations of territory. Additionally, the creative methods I discuss here are informed by the concept of desert hospitality which framed the specific findings of vulnerability and exile in chapter one.

With this in mind, to answer the second research question, I developed four methods for creative encounters with territory, mobility and space, as a means of exposing the diverse histories and in/justice(s) that Massey and Soja argue are interwoven into everything that is spatial. Continuing with solo journeys across public and private desertscapes, my site-specific practice-based methodology for *desert learning includes:* (i) negotiations with military agency across space, (ii) site-writing during journeys across public and private desert terrain, (iii) lens-based processes, and (iv) mirror interventions (experimental mapping techniques) which engage with space and place, henceforth collectively called *desert-mapping*.

Each of these types of desert encounter allows the next type to emerge; for example, negotiations with the military, informed and are included in the site-writing. Once these four methods are mobilised, they continue to inform each other and work in unison. The results of these desert encounters can also be arranged and rearranged off-site to enable a fifth method for encounters, which is installation-making with correspondence to the site, explored in chapter three.

Additionally, my on-site and off-site works benefit from a dialogue which was able to develop as I returned periodically to the site in between off-site activities. This chapter explores the first four methods for desert encounters as on-site research and *desert learning* processes.

Encounter as method

> Our typical ways of being in the world are challenged, our systems of knowledge disrupted. We are forced to thought. The encounter then operates as a rupture in our habitual modes of being and thus in our habitual subjectivities. It produces a cut, a crack. However this is not the end of the story, for the rupturing encounter also contains a moment of affirmation, the affirmation of a new world, in fact a way of seeing and thinking this world differently. This is the creative moment of the encounter that obliges us to think otherwise.[144]

Rather than defining an encounter as a physical meeting of people, places or objects, an encounter is understood here as a process in which new thought and being can emerge.[145] My research pivots on creative acts of encounter in open desertscape and restricted desert zones, to disrupt conventional representations of space and land as void or territory. I used negotiations with military agency across space, site-writing, lens-based processes and mirror interventions to examine the outcomes of such spatial interactions. I found that such acts provide new insights into spatial complexity and spatial control, by expanding my understanding of space and land, and opening the way to alternatives (see parts i-iv). Where previously the roles of land, bodies and the military were defined to fit particularly restrictive spatial dynamics, the desert encounters developed in my research serve to rupture these representations and force a reassessment of past, present and future ways of thinking.[146]

Encounter as rupture

As acts of intervention, the desert encounters resonate with Gilles Deleuze's understanding of what he calls the image of thought: "Something in the world forces us to think. This something is an object not of recognition but of a fundamental encounter."[147] As elaborated below, the notion of *recognition* corresponds to internal representation and therefore reinforces a belief that has already been accepted, whereas an *encounter* is unplanned and creates an opening

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[144] O'Sullivan, *Art Encounters Deleuze and Guattari: Thought Beyond Representation* (New York: Palgrave Macmillan, 2006) 1.
[145] This is informed by Deleuze's writing on the encounter and the image of thought, and O'Sullivan's analysis of such a Deleuzian encounter in the context of creative strategies, which he calls an expanded art practice beyond representation (to be discussed shortly).
[146] For example, they rupture the colonial and capitalist representations of land, space and territory.
[147] Deleuze, *Difference and Repetition*, 139.

for change. This also aligns with Johnny Golding's conception of encounter: "a non-intentional moment of cohesion that enables meaning to take shape and to take place".[148]

Regarding representation, Fort Irwin's simulated villages, complete with mosques and the sound of the call to prayer, are designed on the basis of representations – fixed ideas – of what the Middle East is (un-Christian, other, and a war zone).[149] Importantly, because the design of these villages is contingent on recognition of this fixed representation, the set does not evolve with those who inhabit the space. For example, neither the Iraqi refugees who play the civilians, nor the soldiers who visit for training, make significant changes to the simulation design (which has fixed objectives focused on occupation, defence and territorial zones). However, the simulation set does get chipped and damaged and Fort Irwin does not seem to do significant repairs. There is no live ammunition or explosives inside the simulation.

Regarding meaning, encounter requires new thought and challenges previously accepted norms. For soldiers training in Fort Irwin's simulation, this kind of encounter is not likely to occur. However, it could arise if creative acts were to disrupt the set via experiments on- or off-site. For this reason, my research examines what emerges when the different spaces, actions and times inside the simulation are modified and reorientated with respect to perspective, position and proximity. Provoking experimental encounters with this goal in mind is supported by David O'Sullivan's theories of creative encounter:

> Art, in breaking one world and creating another, brings these two moments into conjunction. Art then is the name of the object of an encounter, but also the name of the encounter itself, and indeed of that which is produced by the encounter. Art is this complex event that brings about the possibility of something new.[150]

Agnes Denes' *Wheatfield – A Confrontation* (1982) is an example of such a complex configuration of encounter (Fig 0.7).[151] Denes' work juxtaposes the discordant spaces

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[148] Golding, "Courage to matter", 476.
[149] See FN 23
[150] Arguably all art would have a connection to encounter – i.e. the viewer completes the work, which then disrupts their perceptions. O'Sullivan, *Art Encounters*, 256.
[151] Wheatfield involved four months preparing, planting and harvesting 1000 pounds of wheat. Denes describes the act of sowing, harvesting and challenging the capitalscape in Agnes Denes "The Dream", *Critical 4 Inquiry*, The University of Chicago Press, 16(4), (1990): 928-930. After harvest, Denes found ways for the work to seed new spaces and time by sharing the wheat across the country and burying audience questionnaires (microfilm) for excavation in 2979 (http://www.agnesdenesstudio.com/works7.html).

of earth and finance. The titular field of wheat was planted on the Battery Park landfill site (New York City) which had taken fill from excavations for the building of the World Trade Center. No matter the viewer's vantage point on the wheatfield, the view afforded the foregrounding or backgrounding of multiple socio-political spatial realities and relationships. The subversive power of the work lies in two essential aspects emerging from encounter as a creative process. Firstly, the logistical needs of Denes' project (collaborative and legal) expose the challenges and dynamics which obstruct a more holistic system from evolving. Secondly, the shock of seeing the wheatfield on the city's horizon opens viewers' individual and collective imaginations in new directions. These forms of encounter seed futures that many had not thought were possible.

My desert research aligns with the creative encounters that emerged between Denes' open fieldscape and the capitalscape, in that it ruptures the border between the open desertscape and the embedded military simulationscape. For example, the format of the site-writing – short accounts of sites and events all jutted up against each other on the page (to be described more in part two) – allow the space-times of open and controlled spaces to be juxtaposed and then bleed into each other (see also *Electric Desert (Fig 0.9-0.12),* and *Desert Diaries* (AM.1 e.g. p.8-9)). It is possible to imagine how the activities or existence of each space-time might impact another – negatively or positively. That is to say that desert encounters with public and private land operate to reveal the im/mobility of bodies, which in turn exposes the existence of multiple space-time realities (to be discussed below).

Such desert encounters disturb the colonial framework which still implicitly governs open land, and they alter the navigation of the flattened spaces of the military training sites. By working back and forth between open land (spatial complexity) and military simulations (spatial control), as well as weaving them together, my creative encounters insert glitches into spatial control (operating through borders, surveillance and mapping) and subvert the normalisation of power in the region. If the loop between the desert and military control can be unlocked, then human encounters with space, in general, might germinate new compassionate futures.

Part I: Encounter as negotiation

Negotiations with space, place, strangers and systems of power are integral to a process of testing im/mobility on public land and restricted land. They bring the body into direct contact with spatial complexity and spatial control. In my research, negotiations started with attempts to contact and access the Fort Irwin military simulation site. Subsequent negotiations stemmed from the emerging interactions that occurred during my travels to and on the site. Through these negotiations, I experienced the mechanics of control first-hand, generating new insights which informed subsequent desert encounters. For example, the im/mobility my body experienced on-site could be contrasted with what I had experienced when immersed in open land. On open land I felt disorientation (cognitive dissonance) which could oscillate between a dream state which was either transcendental (new perspectives thanks to immense scale and breadth) or a nightmare (due to the extreme temperatures and isolation), whereas inside the military site I felt tracked and at risk of making the wrong movements within the invisible lines in the sand.

This aligns with my broader explorations of fieldwork-thinking, including that found in the compendium 'Fieldwork for Future Ecologies'. Therein, the contributors think of fieldwork as navigating an ever-changing and shifting landscape: "The experimental work that artist-researchers do in the field recognises the 'field' itself as something that is forever undergoing processes of change and formation."[152]

In my research, the negotiations required with Fort Irwin provided an opportunity for me to explore spatial control – to test the dynamics between the human body, land and the military complex itself. Of all the frameworks for desert encounters, negotiation most significantly builds on chapter one, because in the process of journeying solo far from home, the stranger submits to chance encounters with hospitality or hostility. The encounter-as-negotiation requires bodily movement inside zones of spatial control, in order to witness or feel the spatial quality of its restrictions. Similar to Tehching Hsieh's year-long action work while living outside in New York City (1981), the creative process of negotiation in my research was

[152] Crone et al., *Fieldwork*, 9.

informed by direct physical engagement with land, borders and territory.[153] The artist-researcher must experience and survive spatial control in order to deconstruct it. To this end, negotiation facilitates a back-and-forth between communicating with spatial control and learning from it. Based on the tests and interventions arising from my negotiations, I iteratively developed tools for site-writing, desert-mapping and installation-making.

Im/mobility inside Fort Irwin

My first-hand experience of spatial control across Fort Irwin emerged through the testing of mobility and navigation via a series of negotiations. The outsider travelling into and within a controlled zone is like a catalyst, prompting the systems of power to react according to their principles of control. To enter the restricted zone for example, the outsider must request and be granted permission to enter, knowing that otherwise their entry will be met with hostility. In my case, unauthorised entry to military territory could lead to death or imprisonment. At Fort Irwin, visitors must sign an acknowledgement of the risk of potential death on the site and submit to background security checks. Therefore, access is conditional. If the stranger passes these entry requirements, they then confront a system at the site designed to constrain how they can move through what otherwise appears to be open and sparsely populated terrain – there are no fences.

When I visited Fort Irwin, I was accompanied by a military chaperone who politely indicated which actions I could and could not engage in: movement in specific directions, conversations with certain people, photography and filming only of certain land, infrastructure, equipment. From these choreographed interactions emerged a sense of bodily risk and looping observation: I observed the site dynamics, and the site dynamics observed me (via chaperone, surveillance cameras, satellite and documentation).

In contrast to the flattening of space, which is achieved through simulation set dressing (see parts two and three), my experience of negotiating mobility (and the impact of immobility) mirrored the spatial complexity I experienced in open

[153] Hsieh's *One Year Performance* involved the artist never entering any interior spaces for twelve months. The impacts of the performance – both psychological and physical – were captured in an archive of first-hand experiences of the challenges a body encounters when rejected from interior spaces and subjected to challenging exterior environments. To live this reality was a political statement – of survival, endurance and resistance to acts of visible and invisible expulsion of certain bodies.

desertscapes. That is to say that the macro and micro conditions of power (e.g. surveillance, legality, chaperone) that simultaneously impact on me as the visiting body operated to confuse any stable ideas of perspective, position and proximity to land and other bodies. For example, the land looked open and easily accessible, but if I had acted on that appearance alone, and just walked off, I could have been blown up by an invisible mine or imprisoned for breaking the laws I had agreed to comply with. The visitor/stranger who accesses and observes the land, knowing that their body is being watched by a system that operates from the ground (zoning) and the air (surveillance/satellite) – like a hive state with its own ecology – enters into the past, present and future of the military complex. That stranger is volunteering to enter an engine of control, and then inadvertently becomes a specific object of scrutiny, no longer an anonymous member of the public.

Although there are no fences in Fort Irwin, invisible surveillance creates a precision framework for seeing and acting across this large site. The framework reduces space to points of longitude and latitude, as well as zones of control. To move forward to point (x, y) equals death, and to move backwards to point (x, y) equals safety. During my five-day visit, my chaperone made GPS calls to an intelligence officer to get clearance for us to move us from one location to another. He would confirm we were leaving one set of coordinates and inform the officer of the set at the next destination. (The US military designed the GPS (Global Positioning System) which is now ubiquitous worldwide.[154]) Within Fort Irwin, we could not move any significant distance without conducting these GPS calls. These communications were to prevent us from being killed accidentally by colliding with lethal artillery, and from exploring zones for which I had no authority.

Even though the phone calls were primarily meant for my protection as a visitor, they also reminded me of the consequences of going rogue. The calls created a sense of the body as points on a map being plotted and controlled. Quantification of spatial positions thus aligns with objectification of bodies. Human or more-than-human, they are no longer individuals but categories, classes and numbers. Kevin Walker has discussed this in relation to Artificial Intelligence – a system of control developed in the US military: “The idea of abstracting the qualities

[154] Invented in the 1960s, the first satellite was installed in 1978. US soldiers in the first Gulf War (1991) made use of GPS. In 1996 President Clinton announced free GPS for public use and in 2000 stopped enforcing degradation of the signal, optimising the service to increase accurate locations for public use. For more information on the history of GPS see Hoffman-Wellenhof, B., H. Lichtenegger, and J. Collins, *Global positioning system: theory and practice* (New York, Springer-Verlag, 1992) 36.

of things in order to put them into categories is exactly what contemporary AI systems do. Classification involves discrimination (between classes), and hierarchy."[155] This process of being observed at the site, and having to seek an unseen observer's permission to move, led me to consider how further desert encounters in my research might develop an alternative mapping system for land and the body (see part three: desert-mapping). In essence, it was my physical encounter with observation, tracking and control that informed my subsequent creative actions.

My interactions on-site for extended periods of time allowed me to experience the day-to-day spatial control which acts on bodies habituated to the site's rules. For example, eating in the military canteen, I observed that my tray was an unusual shape which allowed it to slot into the trays of others so that no table space was wasted. This careful design contrasted with the poor amenities at the cheap motel I slept in each night, 45 miles from Fort Irwin in Barstow. There, the plastic cutlery often broke and the design of most things was shoddy, rarely functioning as advertised. The decision to stay at this motel was based on budget constraints, but it also offered the research a useful and stark contrast with the billion-dollar industry that is the military complex. Therefore, I witnessed and negotiated the impact of both poverty and power on the spatial and built environment daily. It is a poignant coincidence that *Fear and Loathing in Las Vegas* (Hunter S. Thompson) opens with Raoul Duke and attorney, Doctor Gonzo, driving through Barstow – drugs aside, the narrative offers contrasts between the American dream and civil rights abuses, echoing the gap between ideological dreams of a nation's military and the state of real life in the desert (often very poor).[156]

Partially visible infrastructures and partially invisible legalities lead to variation in use, access and rights to space as well as the mobility and choreography of bodies acting within space. My desert research required immersive, bodily negotiations in space so that the body gains direct experience of how space functions differently depending on how infrastructure and navigation are designed. This embodied understanding provided the launch pad for other creative strategies for desert encounters to disrupt such design. For example, whilst navigating through both the

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[155] Kevin Walker, "The secret computational life of things: Can objects program people?" *Increasingly Unclear,* February 10, 2024, 7. See also his section on "Secret Agents" 10-11. Walker's PhD research also found evidence of people being perceived as physical obstacles, not subjective bodies.
[156] Hunter S. Thompson, *Fear and Loathing in Las Vegas* (London: Paladin, 1977).

desertscape and simulation sites, I used site-writing to react to those experiences and to compare and contrast visions of the site, as detailed next.

Part II: Encounter as site-writing

> Site-writings have the potential to reconfigure the relations between spatial theories, poetics, and practices, in ways that are ethical and aesthetic.[157]

The encounters emerging from my negotiated movement across the desertscape and military base stimulated material for the process of site-writing. For my research, I kept a log of short-form nonfiction entries to record my experiences of navigating the land, infrastructure and other bodies (e.g. javelinas, coyotes, civilians, soldiers) on-site.

Three findings emerged from creative encounters via the method of site-writing in the desert: (i) the process of recording these stories whilst travelling altered my perspective and awareness of my travelling body. For example, writing on-site changed how I thought about place, space and people, and affected how the observations and journey evolved. (ii) off-site, rearranging the order of my documented site interactions exposed connections between different places and times (emerging from the methods of second-order site-writing; see chapter three, section 1.1). Through the cutting up of site-writing, written observations jump between space and time, refusing chronology and becoming a form of creative nonfiction.[158] (iii) off-site, positioning the site-writing alongside images or within videos created further connections between multiple temporalities.

The first set of encounters showed site-writing to be a method of developing research on-site, informing subsequent action and negotiation. The second and third sets of encounters then wove the site-writing into an ongoing artistic practice, serving as off-site research. Collectively, as a methodology, it has application and resonance for other sites and spatial theory in general. Whilst this chapter is mainly

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[157] Jane Rendel, *Site-Writing*, https://site-writing.co.uk/.
[158] Creative nonfiction was coined by Lee Gutkind (founding the *Creative Nonfiction* literary magazine, 1993). The genre has similarities with parajournalism and literary journalism. Capote, Joan Didion, and Hunter S. Thompson have been described as working within the genre. See Michael Lennon "This 'bastard form': How creative nonfiction stormed the gates of academia", *Times Literary Supplement*, March 15 2024.

focused on the first set of encounters, the mechanics and impact of the second and third sets are elaborated in chapter three.[159]

The acts of site-writing generated a constellation of new positions and perspectives on the desertscape which opened, rather than flattened, my experiences of space.[160] Whilst the site-writing recorded my negotiations and lay bare some invisible consequences of travelling alone, it also became a form of *subverted surveillance* as I tracked my own bodily movement through public and private sites to learn about spatial control, which then led to a process of desert-mapping (see part three).[161]

This type of site-writing is similar to a long tradition of political and environmental writing fuelled by solo journeying (e.g. Baldwin, Didion, Kerouac, and Shepherd).[162] In the course of these journeys, the lone traveller allows themselves to be a vulnerable stranger and a curious oddity in the eyes of others and the system. The exposure of the lone travelling body and the subversiveness of its actions help to reveal the invisible restrictions and the infrastructure of power operating in space, which welcomes some bodies and excludes others. Site-writing engages with other humans, as well as more-than-humans (e.g. coyotes, snakes and javelinas) and the site's spatial dynamics, to counteract representations of sites as singular and fixed realities for all.[163] Instead, carefully honed observations open the site to its plurality. In other words, site-writing forges an intimacy with the multitude of histories, bodies and scales of time that coexist and confront each other in diverse ways on-site.

Whilst journeying through the desert, I was subjected both to vivid experiences and mundane repetition. This pendulum-like polarity either focuses the mind or lets it wander, with many questions and ideas percolating in both states. As the

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[159] See chapter three, 1.1. *Second-order site-writing processes*.
[160] There is similarity with Jane Rendell's writing "To Miss the Desert" which looks at safety and danger through the lenses of home, refuge, security, borders and architecture. Rendell plays with spatial concerns, memories and the positionality of the reader, switching from third to first person. Jane Rendell, *Site-Writing The Architecture of Art Criticism* (London & New York: I.B.Tauris & Co Ltd 2010) 75-86.
[161] This makes it relevant to the subsequent section on mapping and surveillance. The site-writing will be discussed as one component of various creative encounters which form a post-map of a site. This is neither a map for navigation nor a map of territory, but instead a map of spatial complexity.
[162] North American writers who have approached the immense scale of the United States with its conflicting ideologies, violent roots and outsider characters. For example, Nobody Knows My Name: More Notes of a Native Son (Baldwin), South and West (Didion), Days out of Days (Shepherd). These are developed from direct experience of place, space and culture – walking, travelling and ecologies within a space (be they human or more-than-human).
[163] Also called "flat spaces" in the research (see glossary).

site-writing logged these alternating positions, many stories co-existing across time and space emerged. Thus, the method enables the research to connect with the multitude of micro-ecologies (human or more-than-human) in the desert, countering the idea of the desert as empty, null or void (see *Desert Diaries, AM.1*). As discussed in chapter one, section 1.1, desert scale poses a challenge to human perception, but site-writing enables the desert to be revealed as a network of visible and invisible interweaving narratives. Furthermore, the technique expands an understanding of spatial complexity through the multitude of co-existing narratives. Slowly, an alternative map emerges from site-writing, one which engages with the simultaneity of a place's past, present and future (see AM.1 e.g. p.8-9).

Travelling through the Southwest deserts, I observed the remnants of Manifest Destiny and a Wild West mentality in the forms of loud, brash and polarising ideologies that punctuated the otherwise more-than-human space.[164] For example, signs for Trump, God, brothels, casinos and guns dance above the land where poverty-stricken communities try to survive the opioid epidemic and unaffordable health care.

Through site-writing, an archive of trace visions emerges, comprised of people, events, locations and infrastructures observed in the desert. The visions become the material to build choreographic positions, which test power and territory.[165] Driving and walking unknown routes allowed me as the site-writer to gather chance observations in which memories in space and of space expose real-world intertwined stories. Logging the notes is a way to mark out those traces. In so doing, it offers a new mapping process, one which circumvents the visual conventions of mapping which fix perspective. Similar to the work of Jane Rendell, the research operates on the premise that site-writing supports analysis of the dynamic relationship between site and spatial theory. This chapter (and the next) enables me to reflect on the practice of site-writing and to connect it with theory.

Therefore, the site-writing echoes the vulnerability and exile felt while being immersed in the open desert, by revealing the multiple temporalities existing there (e.g. a family of javelinas tracking through the land, free water test kits in Walmart to check for toxins from military testing in another era, and a series of tunnels linking the empty buildings of a fake desert town (Fort Irwin simulation). In this way,

[164] These stakes for power and territory are often religious, political, corporate, military and economic.
[165] Evolved through second-order desert-mapping methods e.g. installations (chapter three).

site-writing stimulates desert hospitality by using the attributes of spatial complexity within a creative process (i.e. the site-writing incorporates scale, breadth, isolation and multiple temporalities through the observations and stories disclosed).

Negotiating access to land and travelling across extensive terrain often involves moving in and out of private and public zones. The site-writing method observes these segregated spaces, accords them equal relevance, and brings the zones into contact with each other. For example, the public space in which Walmart sells toxic-water testing kits, and the restricted military zones where soldiers' actions are usually invisible or unknown, can meet as paragraphs on the page and so can permeate the reader's imagination (see AM.1 e.g. p.14). In such ways, the site-writing disrupts edges across a virtual realm and allows new connections to grow between people, places and times.

These disruptions and connections exemplify how my research methods produce echoes of spatial complexity and reveal a vulnerability and sense of exile in the journey of the stranger (in this case me) and the reader. In this way, the research connects the lives and ecologies of many things, rather than excluding lives and ecologies through frozen time. Thus, my methodology has the potential for producing desert hospitality. Hence the site-writing contributes new knowledge of how spatial complexity can be brought into a site-specific and practice-based methodology, and how a methodology focused on desert learning can develop its own desert hospitality.

The spatial layout of the site-writing takes the form of short paragraphs, in quick succession, recording observations about the site (the briefest being two sentences and the longest being two paragraphs). The format attempts to echo spatial complexity where multiple space-times coexist and correlate. On the page, the textual accumulation of the observations and embodied experiences helps to *unfix* position, perspective and time, creating new encounters between the disparate instances. It is important to note that site-writing can subsequently be read by a reader who need not transgress a physical border or risk their life.

As an act of fictioning (further discussed in chapter three), the site-writing changes the rules of engagement with space, place and bodies. As the site-writer, I am influencing the site that I am observing and the site is influencing me. For example, my presence, and my past experiences, interact with the site's spatio-temporal

dynamics, crisscrossing and joining the other entangled threads of space-times. I become a marker for one subset of time (the time of one human) which runs through all the site-writing. This time intertwines with the multiple times of what is observed, i.e. the land, built environment, and other bodies. It is therefore essential to acknowledge that my experiences become voices (e.g. witness, stranger, Greek chorus) within the site-writing. In turn, this allows one body's time (individual time) to integrate with ecological, political and human time throughout the sites.

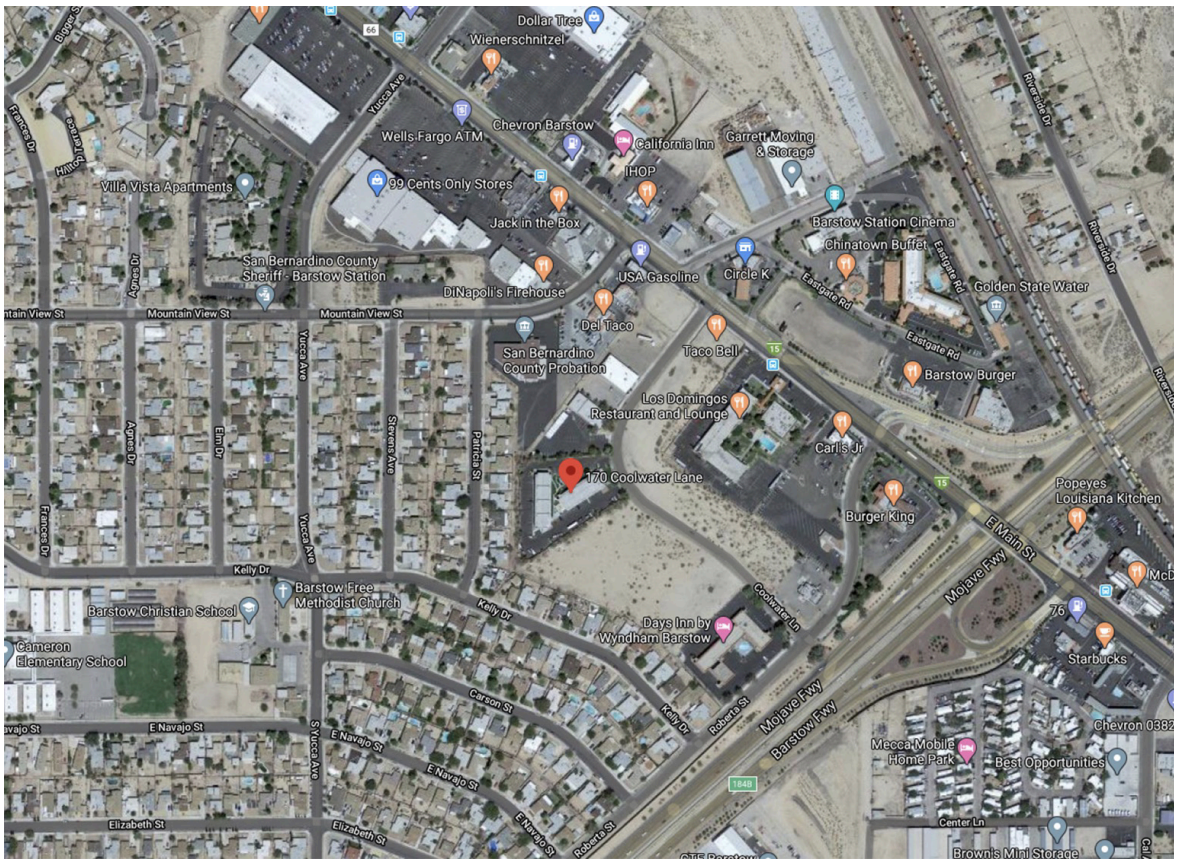



Fig 2.1 (Top): *Tracking myself: Location of Barstow motel whilst visiting Fort Irwin*, Google maps, K. Yoland; Fig 2.2 (Bottom): *Tracking myself:* Route to Fort Irwin, Google maps, © K. Yoland, all rights reserved.

Part III: Encounter as desert-mapping

My on-site and off-site research in the Southwest desertscapes involved the interweaving of existing cartographic tools – topographical maps, road maps, Google Maps (e.g. Fig 2.1, 2.2, 2.3, 2.4) and GPS – with experimental forms of mapping developed from bodily movement, camera techniques and installation works. Combined, they form a practice method for desert-mapping. The method considers and responds to the Cartesian referencing of points in space, the surveillance of land and bodies, and the structural and aesthetic designs of restricted zones (such as the Fort Irwin simulation). To test and disrupt these colonial and military mapping devices, I used artistic research to enable multi-perspective positioning of bodies in space and time, as detailed below and in chapter three.

3.1. The urgency of alternative cartographic systems

My research revealed that investigations of spatial control are informed by understanding how existing mapping techniques affect how space is seen and used. Alberto Toscano and Jeff Kinkle explore the aesthetic exploitation of mapping through an examination of 'capital's colonial projection', with reference to Frederic Jameson's cognitive mapping and critique of representations of imperial world systems.[166] In their probing of the aesthetics of representation and visibility – historically with imperialism and today with capitalism – they assert that "a kind of political and economic invisibility undergirds a representational order which is in its turn both registered and transfigured at the aesthetic level."[167]

Desert-mapping aligns with the concerns of Jameson, Toscano and Kinkle by seeking to find an aesthetic which can render the invisible visible whilst also destabilising any rigid representational matrix. Desert-mapping is intended to shift

[166] For more on the argument that mapping is focused on information as capital, see Alberto Toscano and Jeff Kinkle, *Cartographies of the Absolute* (London: Zero Books, 2015) (for reference to capital's colonial projection, see page 8). See "Chapter 1: Capitalism and Panorama" (33 onwards) for diagrams and imaging around economy, and the relation between economic representations and political representations. See also: Fredric Jameson, *The Geopolitical Aesthetic: Cinema and Space in the World System* (London/Bloomington: BFI/Indiana University Press, 1995).
[167] Toscano and Kinkle, *Cartographies of the Absolute*, 10. Also see Jacques Rancière, *The politics of aesthetics: the distribution of the sensible* (London: Bloomsbury Academic, 2014).

and rupture the aesthetics of the imperial world's mapping systems and today's ever-evolving surveillance capitalism.[168] Therefore, as a mode of resistance to spatial control, desert-mapping renders the colonised visible again (land, bodies and ecology). To achieve this, the alternative cartographic techniques exploit the prevailing mechanics of surveillance, mapping systems and image-making to subvert the power of these aesthetics of representation and also to reveal them (see *ReScaled series, AM.5*).

Desert-mapping research can usefully heed existing interdisciplinary and collaborative approaches to mapping.[169] For example, *Trigger Point: Lisbon*, a series of speculative guides to the city, examines conflict, economy, environmental disasters, marginalised voices, and ghosts of the past.[170] Likewise, the compendium *Diagrams of Power* is relevant to alternative mapping strategies used in historical, activist and artistic circles. These include *Subjective Atlas of Palestine* and *An Atlas of Radical Cartography*: *ten pairs of politically engaged maps and texts* with activist practices.[171] For example, one map in the latter compendium depicts CIA rendition routes spanning 2001 to 2006.[172]

What is important to my research is that all these new and experimental mapping methods reveal diverse – and often previously excluded – information about space, land and human actions. The very existence of alternative cartographic strategies highlights the limitations and potential dangers of standard maps which fix a particular reality even if they are based on distorted realities (e.g. colonialism and Manifest Destiny) or other constructed systems of power (e.g. capitalism):

> Map and territory cannot ultimately be separated. Cultural mappings play a central role in establishing the territories we inhabit and experience as real, whatever their

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[168] Shoshana Zuboff, *The Age of Surveillance Capitalism* (London: Profile Books, 2019).
[169] For more on creative cartographic approaches see: Karen O'Rourke, *Walking and Mapping: Artists as Cartographers* (Boston: The MIT Press, 2016); Nancy Duxbury, W.F. Garrett-Petts, Alys Longley, eds., *Artistic Approaches to Cultural Mapping: Activating Imaginaries and Means of Knowing* (London: Routledge, 2020); and Alexander Kent, Peter Vujakovic, eds., *The Routledge Handbook of Mapping and Cartography* (London: Routledge, 2020).
[170] Jaspar Joseph-Lester, Susanne Prinz, et al., eds., *Trigger Point: Lisbon*, (Maja and Berlin: Gráfica Maladouro and Spree Druck, 2017).
[171] Annelys de Vet ed., *Subjective Atlas of Palestine* (Rotterdam: 010 Publishers, 2007); Alexis Bhagat and Lize Mogel, "An Atlas of Radical Cartography (Revisited)" in Dávila, ed., *Diagrams of Power*, 188-203; and Forensic Architecture, "El Caso de Ayotzinapa" in the same compendium 204-213.
[172] Trevor Paglen and John Emerson, *CIA Rendition Flights,* 2006.

> ontological status. The power to draw or redraw the map is a considerable one, involving as it does the power to define what is or is not real.[173]

While maps might include or exclude information based on necessity (e.g. a London Underground map doesn't include a map of all the trees in London) it can also lead to a belief that the systems which are mapped exist in isolation. This can lead to exploitation of the land and environment in ways that privilege certain groups and disadvantage others.

Various artists have critiqued ideas and practices of representation, visibility and territory to create works that inform and support my argument for desert-mapping. For example, Dennis Oppenheim's *Annual Rings* (1968) uses bodily intervention to envelop the map-as-territory inside the map-as-time. Shovelling snow lines across the US/Canadian border, Oppenheim mimics the rings of tree growth, a standard for counting years, to map human time and national borders. This work indicates how space and time fold into themselves. The international border becomes confined/embedded within time, highlighting and questioning the systems we work within.

Other relevant works include Trevor Paglen's *Limit Telephotography* (US deserts, 2007-2010) and Harun Farocki's *Eye/Machine* I, II and III (2001-2003). Like Oppenheim, they each create a unique aesthetic of representation to disturb standard representations of land, bodies and power. For example, *Limit Telephotography* documents remote military sites in the US desert via a telephoto zoom.[174] The resulting blurred images, which cannot be resolved or understood, point to the power of invisibility and the danger of representation of the visible. Farocki's trilogy uses the imagery of targeting and surveillance in war to reveal the mapper, disrupt the target, and examine the image as a process. My desert-mapping has parallel concerns but different objectives to those of Paglen and Farocki: it strives to repeatedly build and unbuild representations of territory and occupation by using the existing mapping and surveillance systems to multiply

[173] For a critique of the history of mapping see Geoff King, *Mapping reality: An Exploration of Cultural Cartographies* (New York: Palgrave Macmillan, 1996) 16.
[174] Trevor Paglen worked across the US deserts of Utah, Arizona, California, Nevada and New Mexico for this work. The sites are combat training operations or 'black' facilities. The restricted sites are too far away for a regular citizen's naked eye to see them. Blurred and with little detail or action, Paglen's telephoto images seem to reveal nothing but the act of making and analysing each image is part of Paglen's resistance. For more on Paglen's Limit Telephotography as an act of political resistance, see Gary Kafer, "Documenting the Invisible Political Agency in Trevor Paglen's Limit Telephotography", *Agency in Motion,* Vol 5, No 1 (2016).

the perspectives. Additionally, my desert research works to build a methodology that learns from the unique spatial dynamics in the desert so that the methodology can have application beyond desert sites.

3.2. Road maps and satellite surveillance

During my desert fieldwork, there was regularly no phone service to facilitate GPS. For safety in such situations, physical maps are relied on. Navigating desert sites involves road and hiking maps for the region, and in-advance exploration using Google Maps (satellite view, e.g. Fig 2.4). Google satellite view provides clear visuals of locations or details that are unmarked on physical maps. I chose routes and locations before setting off, but these were revised throughout the journey as new points of interest accumulated. Strangers and specialists suggested places to consider.

In conjunction with my site-writing, the standard maps support memory after the journey, indicating the routes taken and the places visited (e.g. fig 2.3). As an integral part of my field practice, engagement with standard maps allows for comparisons between the two-dimensional maps (paper and screen), the three-dimensional mapping of Fort Irwin's simulation sets, and desert-mapping's more experimental artistic techniques for exploring the complexity of sites and space.

During the fieldwork, the sites and interventions were documented with photography or video. Afterwards, I retraced my journey on Google Maps, marking my various positions along the way (Fig 2.5). These altered satellite-based maps became part of the creative working process: they were later displayed as hanging prints (on paper or transparent acrylic) within a three-dimensional installation and printed onto a carpet (see Fig 2.6 and chapter three, section 2.1).

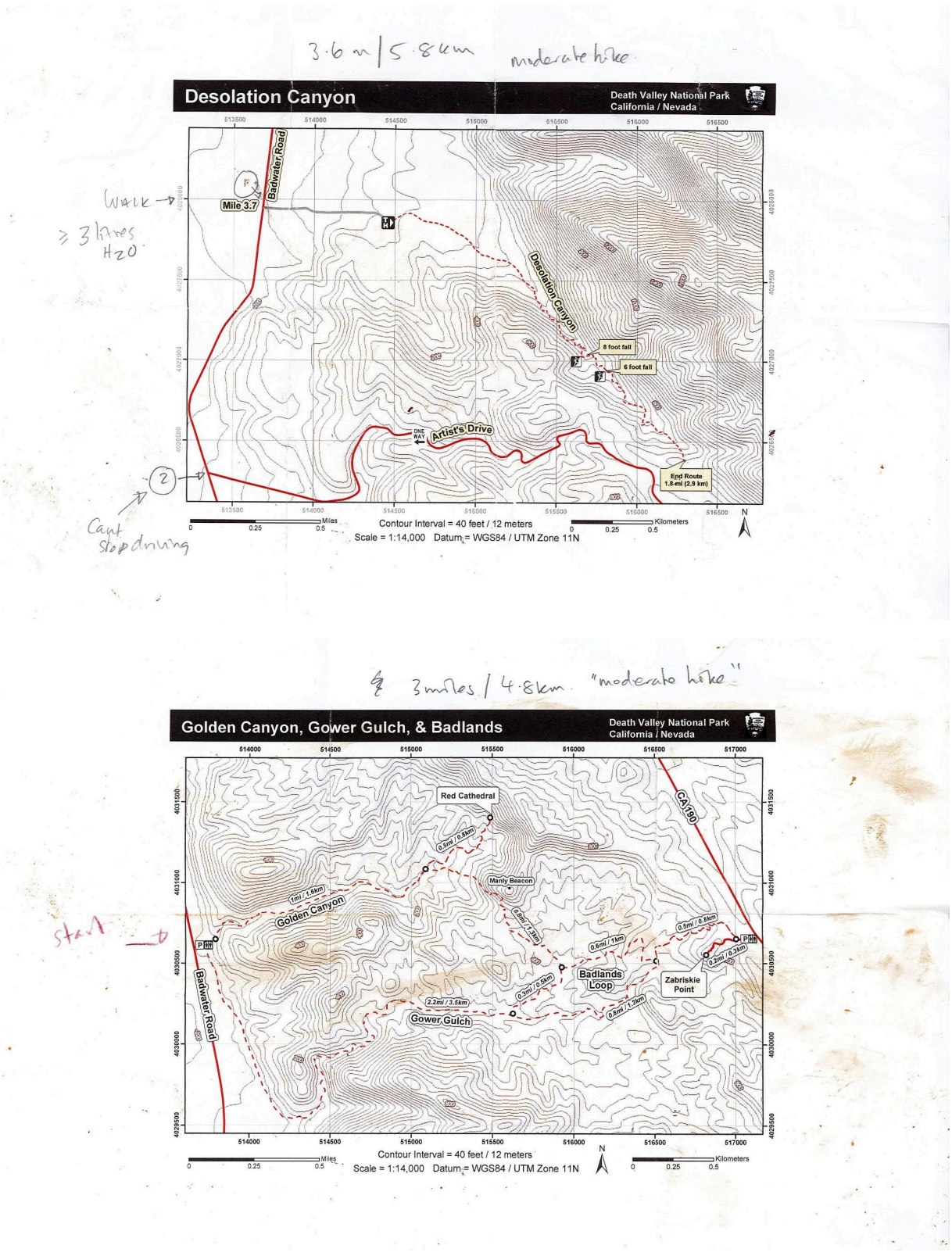

Fig 2.3: Example maps I used for hiking, travelling or planning in Death Valley, 2022. Maps courtesy of Death Valley National State Park, all rights reserved.



Fig 2.4: Troops in Fort Irwin NTC on the edge of a simulation site and screengrab from Google Maps of the same location 2019, © K. Yoland, all rights reserved.

Documenting the coordinates of the travelling body therefore became its own desert-mapping process, tracing the body's time, history, memory and action. What emerges is a record of the embodied experience of mapping land/space and simultaneously the experience of mapping one's own body in the space. The mapper becomes mapped (Fig 2.5).

As part of desert-mapping, this method of self-observation offers a means to expose processes of surveillance, control and territory that have become the norm. For example, whilst physical and virtual maps are useful for getting from A to B, many are artefacts of systems originally developed by the military (e.g. GPS) with objectives to track or/and control movement. By using Google Maps to observe myself, the work reflects on what have become pervasive tools for moving and interacting across terrain, as well as the norm for representing territory and zones of interest.

Other artists have also used Google Maps and Google Earth to probe questions of surveillance. Josh Begley has deployed satellite images to document, map and reveal US military and prison sites.[175] He subverts surveillance tools simply by turning them towards the locus of surveillance and restriction of movement. Ai Wei Wei has worked with self-surveillance as both a means to understand the processes of surveillance and to reveal the experience. For example, 'The Artist surveilling himself' (2012) involved four cameras networked to produce a live feed to the internet for all to watch.[176]

[175]See Begley's website: http://joshbegley.com/ and Dávila, ed., *Diagrams of Power* 58-65.
[176] 'The Artist surveilling himself' was made in response to Ai Wei Wei's house arrest by the Chinese Government, and a means to expand his confinement and observation. See: Eric Banks ed., *Astro Noise: A Survival Guide for Living Under Total Surveillance* (New Haven: Yale University Press, 2016) 76-77.



Fig 2.5: *On the map*, Razish (simulation village), Fort Irwin NTC, Mojave Desert, 2021, © K. Yoland, all rights reserved.



Fig 2.6: *On the Map*, altered GoogleMap printed onto carpet, 2023 © K. Yoland (photographs courtesy of Voloshyn Gallery, Kyiv & Miami), all rights reserved. Also see AM.5.

From an aerial perspective, satellite imagery tracks the body through positions and zones of territory, while the human body with a ground-level perspective moves through diverse space-times, including individual time, political time and the deep time of the site. The combination of these two vantage points in desert-mapping allows the method to complicate the encounters between body, land and borders. It ruptures the flatness of standard maps by changing positions, perspectives and scales. Territorial maps outwardly indicate divisions of space, but they are merely a flattened conception of space – points, sets of coordinates and locations.

Fort Irwin replicates the same challenges presented by road and satellite maps. They all provide one fixed reality. Their fixed reality has some validity in context: they faithfully adhere to their representational schema of the world (even if based on a fiction). However, they ignore all the other ongoing realities. As King says, "It is not a matter of choosing simply between these two perspectives, the view from above or immersion at ground level. If one produces a reductive or totalising map, the other offers only another illusion."[177] The single map presents a binary reality rather than a dynamic, layered, shifting multi-reality. For example, the Fort Irwin simulation site is 'accurate' in that there are hotels, mosques, markets and people in the Middle East. But, crucially, how these dynamic elements interact and evolve is of course much more complex and varied than can be captured by the simulation. If Fort Irwin functions as a three-dimensional map of a war zone, it provides only limited ways to navigate it.

3.3. Camera as mapping device

Encounter-as-mapping also employs visual recording devices on the ground – SLR and GoPro cameras. What the desert-mapper chooses to record and how it is framed are both factors that shape desert-mapping's interaction with the desert. Whereas a standard cartographer uses specialist measuring equipment and adheres to rigid principles of legibility and scale to reveal specific information (e.g. elevation, longitude and latitude, public footpaths, highways or international borders), the artist can take a different approach. The artistic methods used in my research, including intervention, video-editing and installation-making, make possible a three-dimensional mapping in which spatial control and spatial complexity can emerge.

[177] Geoff King, *Mapping reality,* 15.




Fig 2.7 & 2.8: *Mosque View I, Mosque View II*, Ujen, Fort Irwin NTC, Mojave Desert, 2019. © K. Yoland, all rights reserved.

Inside Fort Irwin, my desert-mapping process constructed images using both wide and tight frames. Different framing choices allowed variations of perspective, proximity and position relative to the military simulation, which is understood as a three-dimensional map due to its representational qualities. Therefore, the artist's camera here is a device for mapping another map.

Unlike 360°-mapping software which stitches together multiple site images to create seamless navigation, desert-mapping takes many pictures of the same site to disrupt navigation through three forms/methods of creative encounters, one produced on-site and two produced off-site: (i) *encounters via multiple camera framing*, producing multiple encounters with the artificiality of the simulation set;[178] (ii) *encounters between images*, created by arranging the different framed images together off-site and requiring the human eye to analyse details, oddities and repetitions in the set from multiple perspectives and positions; (iii) *encounters by rescaling images and cutting them up* off-site, creating encounters between the simulation set's construction and the reconfigured and fragmented images (see the *ReScaled* series, chapter three section 1.2).

An example of *(i) encounters by framing* is the series of images of a mosque inside the simulation (Fig 2.7–2.10). Each frame foregrounds a different part of the mosque and the site, and characterises the desert as the nondescript stage of fantasy.

[178] The simulation's fake village has no history or time associated with it beyond its recent history as a war set. It functions within a fake or fictional time which has entered the physical world but does not operate or function outside the training parameters. For example, the village hotel is only perceived as a hotel when it is activated by the game. There are no real owners or guests. Only players who act roles momentarily activate the space as a hotel.

Whether the mosque is shot with or without the desert terrain in the background, the simulation emerges as flat and eerie. The flatness and stillness of the set arises partially from the set's disconnection from space-times. The sets have had a fake-history crafted into them; see for example the fake exposed brick work and graffiti in Fig 2.9 & 2.10, which has some resemblance to Las Vegas and Disneyland. As set-dressing, the aesthetic representation hangs in limbo with no apparent past or future.[179] The set is a stand-in for a mosque, but it never functions as such. Although the mosque is a symbol of culture and faith, inside Fort Irwin it remains empty and fictional (or a symbol of otherness and a threat where insurgents could be hiding), built by Hollywood set-makers. Wide shots and tight shots of the simulation set reveal the micro and the macro conditions that operate – the specific objects to be navigated (e.g. a place of worship) and their artificial placement as a group on desert land.

Turning to *(ii) encounters between images*, and (iii) *encounters by rescaling*, these arise through the off-site presentation of numerous images together. As methods of reconstruction and dislocation they contribute new creative encounters with surveillance, tracking and territorial representations. Constructed off-site, these multiple and repetitive encounters expose the aesthetics of the simulation's representational framework as a construct – flat, artificial but effective. They also resist an image-making process that perpetuates unquestioning representations of the lives and worlds of others. Through multiple perspectives and montage, I therefore attempt to avoid the criticism Susan Sontag makes:

> To photograph is to appropriate the thing photographed. It means putting oneself into a certain relation to the world that feels like knowledge—and, therefore, like power.[180]

At the same time, the images do attempt to understand the space that has been designed by the military. They therefore contribute an understanding of how the military trainees encounter the simulation set in its entirety – spatial control (frozen time), as the product of the set design and the actions of organised military systems. It is through the complexity injected by creative methods of encounter that the possibility to disturb or rupture frozen time is offered. Chapter three will examine in more detail how these off-site artistic works produce a mode of

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[179] See section 3.1. *The urgency...cartographic systems*. (Toscano, Kindle, *Jameson on aesthetics of visibility and invisibility in imperial and capitalist mapping*).
[180] Susan Sontag, "On Photography" in Crowley, David (ed), *Image Technologies and the Emergence of Mass Society* (Boston: Allyn and Bacon, 2003) 166.

resistance to the aesthetics of spatial control (representational territoriality) and how they can spur new ecological thinking.[181]




Fig 2.9 & 2.10: *Mosque View III, Mosque View IV,* Ujen, Fort Irwin NTC, Mojave Desert, 2019, © K. Yoland, all rights reserved.

The use of diverse camera framings to capture the site and its set pieces helps to challenge the totalising effect of the site in training mode. Image-making serves to witness the site and also to mimic the surveillance and design systems acting on the trainees, such as the fake mosques, fake food, surveillance cameras, speakers and smell machines (Fig 2.7 – 2.12) which all operate together to train the soldier's body in space, using sight, sound and smell.[182] However, trainees are not expected to encounter these things as distinct and individual details. Up close, nothing holds to scrutiny; it is all a device of operational surveillance/control. To fixate on any one design detail might slow down a trainee's tactical decision-making, thus compromising the purpose of the site's 3-D map of a conflict zone. A soldier should not wonder why the fake fruit hasn't been repainted or who designed the audio cues. The focus should be on threat: soldiers are expected to check under carpets for tunnels and consider whether insurgents are hiding amongst children playing games. The trainees are meant to engage with the simulation as a whole system, a model of a generic Middle Eastern town, so that their mental model can be applied when they are deployed to the real Middle East.

However, mapping the simulation's disparate parts through varied camera framings brings forth an alternative map. These continual shifts in framing make for a staccato rather than fluid surface interaction with the site. As the site is repeatedly

[181] See chapter three, section 1.2. *Image Reconstruction*.
[182] Sound and smell machines create a purposefully disorientating experience for training, allowing soldiers to become accustomed to sensory bombardment.

documented from different angles, pastiche-like qualities are exposed in the design of the simulation. The pastiche is magnified, revealing incongruous details and ambiguous goals. In this way, desert-mapping highlights problems with representational models and reveals the inner mechanics of the spatial control on the site.[183]




Fig 2.11 & 2.12: *Surveillance unit* (left) and fake meat in market stall (right), *Razish market*, Fort Irwin NTC, Mojave Desert, 2019, K. Yoland.

In addition to the still photography, I filmed with a GoPro when I walked around the simulation and moved through active rehearsals. This video camera captures its operator's point-of-view (POV) to provide the appearance of bodily navigation through the site. However, the equipment was selected because of the moderate lag in the gimbal, the handheld stabilisation unit.[184] During movement, the lag produces a vision of the surroundings that is disrupted by the mechanism of seeing and navigating. The movement might be that of a human walking or a form of technological, artificial or automated activity (such as a drone). The resulting footage thus has an unreal or uncanny feel that resembles the motion experienced in video games (also used extensively in military training). The lagging movement ruptures any smooth encounter with the set and calls into question the position and proximity to any mapped reality.

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[183] From within the simulation, desert-mapping attempts a deeper forensic investigation of the set so that choices are seen and magnified. This is because even a war simulation raises similar issues (sterilisation of collateral damage). As Borrie highlights with Disney sites: "...within this cleanliness lies a sanitised and unrealistic view of the world. In Disney there is no sign of decay, crime, confusion, discontent, pain, poverty, or struggle (Van Mannen, 1992). There is no sign of the blood, sweat and sacrifice that was required to construct the world (Rapping, 1995)." William T. Borrie, "Disneyland and Disney World", *Society and Leisure*, 22(1), (1999): 74.

[184] A gimbal is a hand-held stabilisation unit that holds the camera and floats it smoothly while the operator moves. It compensates for any jerky changes in direction.

This POV navigational footage – with no direct engagement with other people or the conflict – makes it possible to imagine a new perspective and journey through the simulation site. From this atypical point of view, the camera stands for the outsider, witness or rogue walker inside a restricted zone (or perhaps a soldier with a bodycam who is engaged in low-key surveillance). The journey appears to be aimless, without goals or plot points. This echoes my experience of moving around the simulation towns – taking new directions at random. In the mapping process, slowing down my movement through the site helped to counter the initial sense that the military training town had no explicit design agenda. In fact, the site bears comparisons to the deceptively oblique queueing systems inside Disney sites: the endpoint and the journey to reach one's goal are regularly obscured, shifting the reality of time and distance.[185] This also relates to Norman Klein's concept of scripted space – carefully designed zones of control which give a false sense of free navigation and choice (he focuses on casinos, places of worship and shopping malls).[186]

On-site, the 'real' simulation of unreal towns produces an uncanny sensation for the navigator. Lacking history or authentic lives, the space and time of the sets appear to be distant, disjointed, frozen, dream-like, simultaneously familiar and yet intangible. Movement through the largely empty stage sets feels indeed like arriving in a video game, a sensation amplified by the aforementioned camera lag. The camera/gamer waits for action and in the meantime seeks to learn about the environment. A ghost town emerges, with cameos by occasional non-player characters (NPCs) – soldiers, insurgents (played by the 11th Armored Cavalry Regiment), citizens of Atropia (Iraqi refugees), military trainers, and pyrotechnicians. Mostly they ignore the POV camera. They are preoccupied, preparing for something.

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[185] For more details on Disney's spatial design for visitor experience, including the spatial psychology of queueing, see Ellen C. Daniels, "Theme Park Queue Line Perception", *International Journal of Cultural Heritage*, Volume 2 (2017):105-118; and William T. Borrie, "Disneyland and Disney World: Designing and prescribing the recreational experience", Loisir et societe / Society and Leisure, 22(1), (1999): 71-82.

[186] Klein, The Vatican to Vegas. In his 2008 essay, Klein briefly examines scripted space in relation to Fort Irwin. He notes the military referees and elements of manufactured paranoia and terror in the slip sliding of an imaginary war and the theater of war, which are overshadowed by a constant overseeing paternalistic surveillance and 'power as game'. He argues that this supports his previous conclusions that "Scripted spaces offer the illusion of free will in a world of absolute predestination" (68). Klein, "Another Future of Forgetting: The Mouth of the Belmont Tunnel in Los Angeles" in Beech, Amanda et al., (eds), *Episode: Pleasure and Persuasion in Lens-Based Media* (London: Art Words Press, 2008) 61–72.

Suddenly a fight breaks out without warning. Afterwards, the set returns to what it was before: silent, and a space of preparation This is similar to the aforementioned *Westworld* (film and TV series) in which damage to the set and the robots, inflicted with unspeakable repeated violence, is repaired and 'cleaned up' overnight. The rambling quality of my camera's navigation contrasts with the soldier's experience of navigating the site on clear directives. The non-military perspective (the camera's site journey) suggests that alternative experiences are possible. Within those alternatives lie the ambiguous nature of the simulation design. The slow and aimless POV navigation calls into question the function and objectives of the set for training, as well as its aesthetic representation of the Middle East. In this sense, the footage – as an expanded map of the site – changes the experience, revealing the broader mechanics of the site, and questioning its impact.

In summary, I have worked with lens-based processes to multiply and diversify the observer's positions, proximities and perspectives on the military simulation as well as the surrounding desert. I explained how the encounters and their material outputs inject new times into the site (the time inhabited by the research and the artefacts created) and expose small details in the set revealing the mechanics of control (e.g. surveillance and set dressing). The range of techniques chosen, including partial views and fragmentation in post-production (see off-site work, chapter three) allows creative encounters with the representation of the site to produce its own spatial complexity. This means that although the space appears frozen in time (by spatial control), the lens-based processes reintroduce different perspectives (new space-times) into the space, akin to the cognitive dissonance experienced by desert scale, breadth, isolation and multiple temporalities.

3.4. Mirrors as mapping device

As previously discussed, the embodied encounters with spatial control in my research involved the negotiation of mobility and surveillance inside Fort Irwin's restricted zones. In response to these experiences, which included being denied entry to one military zone, a new intervention developed – one that uses mirrors to explore sightlines in the desertscape. When reflective surfaces such as mirrors are introduced to an interior space, they create semi-camouflaged walls which bend and shift space. When positioned across land, they challenge standard techniques for targeting and mapping bodies, place and space, eliciting an alternative map of space.

My use of mirrors as a mapping device contributes to answering my second research question by (i) creating encounters with a new alternative map of the space while physically inside the space, and with an alternative map of the space through photographic documentation; (ii) disturbing and fragmenting the zones and borders placed on land by spatial control (making inside outside and outside inside); and (iii) creating ever-changing visions of land (in terms of perspective, positionality and proximity) produced by encounters between movement and land via the mirror insertions. All three findings provide an alternative map and vision of space which is fluid and constantly changing and enveloping new information. These outcomes reveal spatial complexity and spatial control (learning through immersion: chapter one) and give rise to the vulnerability and exile which can promote desert hospitality.

By disrupting the singular perspective on the site or subject, mirror interventions align with the broader objective of desert-mapping. This is to say the multi-perspectives challenge Cartesian mapping systems which assign two fixed reference points (x, y) to every position on the ground. Cartesian coordinates are static and immutable. As a way of mapping space, this framework strictly limits and controls how the map reader experiences and understands land.[187] By contrast, mirrors introduce more complicated spatial dynamics, suggesting multi-dimensional movement through space.

[187] Cartesian mapping arbitrarily fixes what these coordinates relate to. For example, in imperial-influenced maps, Britain was positioned at the centre, creating the illusion that it was at the centre of the world. Another example of fixing focus is the Mercator projection of 1956, the proportions of which made Britain appear larger than it is, and the continents of Africa and South America appeared smaller than they are.



Fig 2.13: *Sightlines*, near Split Rock, Mojave Desert, 2022, © K. Yoland, all rights reserved.



Fig 2.14: *Sightlines*, Amboy Rd, near National Chloride Company of America, Mojave Desert, 2022,
© K. Yoland, all rights reserved.

Applied in the desertscape, mirror interventions operate first to be seen on-site – allowing the human body to move around them and see visions and land shift together. The mirrors also reflect back the body of the viewer, projecting them into space at various positions and distances to the point at which the viewer believes they are standing. The mirrors also appear to fold and repeat spaces outside the camera frame, as if creating a dynamic portal (as can be seen in Fig. 2.13 – 2.16 and AM.4). This mode of intervention aligns with the writings of Foucault and the work of Smithson for whom mirrors also feature as important vehicles for anti-Cartesian representations (see Appendix 2.0 for Smithson's mirror displacements). In discussing his Yucatan mirror displacements, Smithson writes:

> To reconstruct what the eyes see in words in an 'ideal language,' is vain exploit. Why not reconstruct one's inability to see? Let us give passing shape to the unconsolidated views that surround a work of art, and develop a type of 'anti-vision' or negative seeing.[188]

Anti-vision for Smithson is what desert-mapping is for my research. Although the methods and media differ and vary, both approaches aim to displace, fragment and disrupt previously established understandings of space and land.

For Foucault, mirrors are the perfect 'other' and therefore one form of *heterotopia*:

> The mirror is, after all, a utopia, since it is a placeless place.
>
> The mirror functions as a heterotopia in this respect: it makes this place that I occupy at the moment when I look at myself in the glass at once absolutely real, connected with all the space that surrounds it, and absolutely unreal, since in order to be perceived it has to pass through this virtual point which is over there.[189]

While my use of mirror interventions has a different origin, the impact of the mirrors in my research echoes what attracted Foucault and Smithson. For example, the mirror interventions show that 'inside' can be thrown 'outside' by a mirror, such as the one obstructing the central position in Fig 2.9. 'Outside' can be sucked 'inside' by a mirror if its placement reflects what is behind the camera, as in Fig 2.13 – 2.16. The mirror technique causes light to bounce, producing confusing and unexpected sightlines, and letting new ways of seeing space emerge. The new perspective does

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[188] Smithson "Yucatan Mirror Displacements (1-9)", *The Writings of Robert Smithson*, 130.
[189] Michel Foucault. "Of Other Spaces: Utopias and Heterotopias" *Architecture/Mouvement/Continuité*, October, no. 5 (1984): 49.

not present space as fixed points (typical of Cartesian mapping) or distinct zones. Instead, the disrupted sightlines blur the edges of what is inside and outside, making space seem more slippery. Under these conditions, the human eye is coaxed to construct a new awareness of the spatial field. Events and details in space become multi-located in and across everything – simultaneously travelling in all directions, inseparable no matter the geographic distance.[190]

Mapping with mirrors, as a visual intervention used here to highlight the complexity of space, aligns with the approach of Buckminster Fuller, who introduced new terms for spatial interaction so as to rethink our human bodily placement and action within it. For example, Fuller substituted the words 'upstairs' and 'downstairs' with 'outstairs' and 'instairs' to better align language with the physics of bodies and movement with respect to 'Spaceship Earth'. For Fuller, humans needed a new language to understand new spatial planes, which would bring us closer to a 'real reality' and harmony within it.[191] Both the mirror interventions and Fuller's lexical terms provide ways of understanding how the human body is intertwined with its spatial surroundings, rather than independent of them.

My mirror interventions are also captured by photography as a means to better understand spatial complexity. Photographic images, like standard maps, are static interpretations of space. Once the image is fixed, it becomes one depiction or interpretation of reality. With the exception of experimental photography (such as in Surrealism), standard photographic practices (e.g. in reportage, news, tourism, nature, family, and sports) involve the production of a final image which purports to represent a singular or limited number of perspectives on the activities/stories/times occurring in front of the camera.[192]

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[190] This is not meant to undercut the importance of dividing space in order to interpret information for safety/survival (for example moving towards a cliff edge). Nevertheless, the conceptual ability to understand the complexity of shared space is valuable for shifting away from conflict and isolationist politics which create an "us versus them" mentality.
[191] Scharmen, *Space Settlements,* 41.
[192] This is not a criticism of this form of image-making. It can be used to focus on a perspective that is usually hidden or unknown. For example, the photojournalist Weegee documented and revealed the underbelly of crime in his city, as well as nightlife and the realities of poverty. He did not focus on all aspects of the city.



Fig 2.15: *Sightlines*, Joshua Tree, Mojave Desert, 2022, © K. Yoland, all rights reserved.

In her writings on photography, Sontag asserts that photographic images give the viewer an 'imaginary possession of a past that is unreal' and help them 'take possession of space in which they are insecure'. She highlights the 'event' of the photographic encounter as one that involves interference – a notion that aligns with the lens-based interventions of this research:

> A photograph is not just the result of an encounter between an event and a photographer; picture-taking is an event in itself, and one with ever more peremptory rights-to interfere with, to invade, or to ignore whatever is going on.[193]

With this in mind, the insertion of mirrors inside the frame instigates a spatial interference which refuses photographic conquest or occupation. Instead, the photographic image is forced to reveal hidden perspectives and multiplies the relevance of surrounding spatial information (even that which is hidden from view or behind the camera). I will return to image-making with mirror interventions in chapter three (mirrors in photographic images and within installations).

Other artists who have worked with mirrors and shifted or opened the viewer's understanding of a space, or how the body inhabits space, include Olafur Eliasson's mirrored ceiling in *How do we live together?* (2019) and Alyson Shotz's *Mirror Fence*

[193] Sontag, "On Photography", 177 and 178 respectively.

(2014) placed in a New York sculpture park.[194] Mirrors have been employed for political purposes by artists such as Cannupa Hanska Luger's *Mirror Shield Project* with Standing Rock Sioux Tribe Reservation, in the context of the *Dakota Access Pipeline*. Here, protestors carried human-length mirrors in front of themselves to reflect the larger environment, including the industrial workers and security forces opposing them. The mirrors became shields but ones that forced the demonstrators' opponents to be faced with themselves and their own actions.[195]

Like these artists, I use mirrors to reflect, fold and/or create dialogue within space. By working with desert attributes, my research uses mirrors in these ways to map spatial complexity and therefore develop a more nuanced understanding of land. Additionally, as an artistic method for echoing spatial complexity, mirror interventions are a form of resistance to spatial control because they complicate representations of land and territory by creating an ever-changing vision of space, land and bodies.

[194] Also see Dan Graham (chapter three, section 2.1. p.171) and Abedinirad and Torelli's work in Appendix 2.1.
[195] For responses to the Mirror Shield Project, see Melissa Nesrallah, "The Mirrored Shield as Indigenous Fugitivity and Radical Glitchfrastructure," *Society & Space*, October 10, 2017.



Fig 2.16: Sightlines, Joshua Tree, Mojave Desert, 2022, © K. Yoland, all rights reserved.

* * *

Summary

Returning to the research question:

How do creative encounters with movement, mapping and spatial control inform understanding of open and closed desertscapes?

Collectively, as processes of desert learning, the methods of *negotiation, site-writing, lens-based processes* and *mirror interventions* have produced creative encounters with closed spaces of territory (spatial control), open space (spatial complexity) and movement (im/mobility). Together, they form a desert-mapping approach which learns from existing mapping and surveillance systems in the desert to generate new configurations and images of space and place which alter the positionality in observation and the perception of spatial dynamics. Desert-mapping as a process of encounter thereby disrupts previous

representations which flatten space and land. It does this by rupturing the visible and invisible mechanisms impacting bodily movement and navigation.

As discussed in this chapter and seen in the accompanying practice works, *negotiating* movement across controlled land allowed me to experience surveillance and frozen times inside spaces that are currently understood and managed as property for systems of power. From this, I gained insights into how bodies (including my own) are managed across a flattened space as coordinates and positions in respect of zones of interest. I used these findings to look for and test other positions which introduce alternative relationships to space by revealing the spatial complexity on-site and disrupt representations of territory. These new approaches became desert-mapping.

Site-writing was informed by my first-hand experiences negotiating movement, which involved diverse encounters with open and closed land, territory, military and bodies (e.g. soldiers, citizens, more-than-humans). These encounters allowed the site-writing to reveal the different stories (multiple temporalities) at play across the land. Hence, site-writing became a method for engaging with spatial complexity by exposing multiple perspectives, positions and realities across land – past, present and future. By doing so, it created the means to disturb spatial control by exposing multiple temporalities everywhere and refusing a flattened and fixed view of the world.

Lens-based processes engaged techniques which multiplied positions, proximities and perspectives on land and bodies (including architecture) by diversifying and multiplying the camera framing and positioning with respect to the simulation set. The process of repeatedly capturing the set from many angles and distances became a means of exposing the artificiality of the set – the construction of space as flattened representation. The multiple images are akin to a memory archive of an unreal-but-real space. As a group, the images highlight the invisible lines in the sand between open space (in a process of becoming) and closed space (being flattened, fixed space). This approach develops in full through off-site work (montage and juxtaposition) discussed in the next chapter.

In contrast to encounters with the simulation set via lens-based processes, the *interventions with mirrors* worked on open land to disrupt representations of land and territory. Encounters between land and mirrors opened visions of space by

complicating the framing of land. Combined with the movement of the observer around the mirrors, the mirror interventions worked to expand viewpoints rather than fix vision to one direction or perspective. This method, like site-writing and lens-based work, engages with spatial complexity by disturbing the representation of space and the actions within it. Off-site mirror interventions offer a means to disrupt spatial control.

The encounters which produce desert-mapping (negotiations, site-writing, lens-based work (e.g. framing and steadicam movement) and mirror interventions) were initiated to yield fluid rather than concrete/permanent/fixed outputs for seeing and acting across the spatial field. Combined, they can be seen as tools for resisting spatial control (surveillance/zoning/tracking) and understanding the value of spatial complexity. Fluidity is achieved by the diverse positioning processes required for desert-mapping. Constant changes in position allow the desert-mapping process to be forever evolving as a system. Furthermore, the technique of incorporating changing positions lets the reality of space emerge as open (complex) rather than closed (controlled). For space to be closed, there must be actions which close it. The mapping process resists colonial cartographic frameworks which impose territory as legal or immutable realities (e.g. international borders, military zones and industry/corporate activity).

The methodology of desert-mapping is interdisciplinary and collaborative in nature, involving multiple media and formats of dissemination. Whilst desert-mapping on-site enables direct encounters with the land and simulation set, off-site creative processes can extend the products of such (re)mapping into three-dimensional structures for envisioning spatial complexity and spatial control. In my research, installation-making and second-order desert-mapping are the approaches used to repurpose those materials produced on-site, in an effort to build new understanding of the desertscape, simulation sites, and more generally how the land is managed, space is represented, and bodies are restricted. This is the focus of the next chapter.

CHAPTER 3

New ways of seeing and behaving across space



Fig 3.0: *The road to Death Valley*, Nevada, 2022, © K. Yoland, all rights reserved.

Overview

Drawing on my findings on spatial complexity and desert hospitality (chapter one) and desert journeys and desert-mapping (chapter two), this chapter explores how on-site desert encounters can evolve off the site to produce alternative ways of seeing and behaving in space. In particular, this chapter addresses my third research question:

Working off-site, how might creative encounters with on-site desert-mapping outputs influence understanding of spatial relations between bodies and land?

The off-site work builds on my methods of on-site desert-mapping (site-writing, lens-based processes, mirror interventions) in order to develop a second phase involving rearrangement of the material, which I call *second-order desert-mapping*. Examples from this second phase include the non-chronological reordering of site-writing (in document or installation format) and the recontextualising of mirror and design interventions within off-site installations.

Informed by the work of Simon O'Sullivan and David Burroughs, these reconfigurations are considered through the lens of *fictioning*. The research secondarily probes whether the art-making process reciprocates the site with its own spatial complexity. The off-site work re-samples the material – perspectives, positions and scales – produced by on-site first-order desert-mapping encounters in open (land) and closed zones (military simulations). In developing an iterative process for reconfiguring encounters in the off-site installation space, the research applies the specific techniques of *fragmentation* and *reconstruction* (detailed below), within the method of second-order desert-mapping, to disrupt the representations and controls on space which impact land, movement and bodies.

Part I: Disrupting and connecting space-times

Off-site practice methods weave various inputs together in an installation format that is aligned with a process of fictioning. As described by O'Sullivan and Burroughs, fictioning allows the artist to hack the existing code of a system and to recycle, reference and reorder its elements. Through additions and edits, the artist's fiction is woven into accepted reality:

> Fictioning inserts itself into the real… into the world as-it-is (indeed, it collapses the so-called real and the fictional), but, in so doing, it necessarily changes our reality.[196]

The 'change' in our reality is a consequence of generating spatio-temporal layers that did not previously exist. The new layers are spatial because a new fiction cultivates its own volume, occupying space. They are temporal because anything that exists in space has its own relational time – the time in which it exists and the interwoven connection with past times and its impact on future times.

In the case of my desert and military site work, second-order desert-mapping can defy the cartographic norms which commonly flatten space, by sampling and reframing representations of space, then fragmenting, reordering and glitching them.[197] Desert-mapping becomes a launch pad for fictioning – but from within the parameters of surveillance and Cartesian cartography – to stir a new engagement with space and force an awareness of its temporality. Each time desert-mapping evolves on-site (first-order) or is resampled off-site (second-order), the process constructs new ways of seeing space and, therefore, opens new dimensions. This process is the mirror image of spatial complexity. Given that spatial complexity often goes unrecognised in places under spatial control, desert-mapping offers a method for revealing it.

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[196] Simon O'Sullivan, "Myth-Science and the Fictioning of Reality", *Paragrana 25,* 2(2016): 86.

[197] For example, the structural permanence is seen in the diagrams of Deutinger's *Handbook of Tyranny*, documenting countless iterations of walls and barriers to keep "illegal" migrants out of exclusion zones, e.g. international borders (see Appendix 3.0). These physical borders can be subverted in an artistic practice which reshapes or reformats their construction and perspective through installation and fragmented imagery (See Fig 4.0). Using similar materials, the walls and their entrenched violence can become something different altogether, inventing new space-times that can be imagined in the place of control. The installations experimentally iterate from aerial perspectives as well as simulation structures at ground level to create something that is sometimes unrecognisable and sometimes resembles a detective's evidence board.

1.1. Second-order site-writing processes

Site-writing in the desert has supported encounters between the travelling human body (in this case me, as artist-researcher) and the environment by honing a sensitivity to navigating spatial control amid challenging conditions. Second-order site-writing is the process of editing the accumulated written texts to further develop awareness of spatial complexity. As part of the desert-mapping process, second-order site-writing purposefully disturbs chronology and geographic proximity in order to seed new spatio-temporal encounters between bodies, land, and space-times. The texts had three modes of output: printed in book format, titled *Desert Diaries*; appearing on a loop on an abandoned teleprompter inside an installation; and spoken in a live performance. Through these forms, the second-order site-writing inserts the space-times of the desert into the space-times of the reader's/viewer's/listener's imagination.

The chronological remixing of second-order site-writing is a conscious reconfiguration of the spatial layout. The approach – and its impact – has similarities to William Burroughs' 'cut-up' method in which he slices up and reorders text, film and audio, creating new meanings and realities.[198] As a desert-mapping method, the approach resists segregating individual experiences and geographical locales. Rather, altering the temporal order of the site-writing texts has the effect of shunting disparate space-times together. For example, the past actions on a site can be positioned directly after its future. Or, to give a more vivid illustration, a busy military site in the summer might be juxtaposed with a winter scene of a traveller (myself) walking through blood on the streets of Reno. With these arrangements, the writing forces new spatio-temporal connections across the textual entries. One site is understood in relation to another site, or one community's struggles are understood next to the actions occurring elsewhere in the desert. The start and end of each textual entry can be seen as a gateway, joining space-times together. Each jump between locations or dates forces encounters that might normally go unnoticed if it weren't for the spatial quality of the formatting. Thus, the second-order site-writing points to the spatial complexity of open-scale terrain by highlighting the interconnectedness of multiple space-times that were activated by the movement of the traveller.

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[198] O'Sullivan and Burrows describe Burroughs' technique as a resistance to control. For more on the cut-up method, see: Burrows & O'Sullivan, *Fictioning,* 35-38; Simon O'Sullivan, "Fictioning as a Pilgrimage" 400-401, in Crone et al., *Fieldwork*.

The new thinking that emerges from disordering a journey's chronology of events is a new political imaginary. This is because altering the order of events disrupts temporal linearity and connects all space-times. Such an interrelatedness between past, present, and future challenges colonial conventions which segregate space from the multiple times that exist within.[199] Cutting up the site-writing texts emphasises the different scales of time which operate across space. For example, the individual time of the traveller (and characters met on the journey) slips and slides over the sovereign/political time of land use which occurs across the desertscape which, over the course of deep time, has formed into a state in which the action now unfolds. In other words, the scenes described in the site-writing entries are impacted by numerous scales of time, which are revealed by disturbing the linearity of the entries (echoing spatial complexity). Jump-cuts between scenes/paragraphs force new connections to emerge.

As an act of fictioning, the second-order site-writing format thus changes the engrained code of colonial frameworks which partition space into zones and adhere to the monochronic time which suits the overarching system of power. Writers such as Mathias Enard (*Zone*) and, in sharp contrast, James Ellroy (*The Cold Six Thousand*) have also used textual style to reframe scenes.[200] Enard's whole chapters without a full stop, and Ellroy's lack of paragraphs (just very short sentences) both force the reader to re-code previous ways of understanding a scene, the passage of time, and the interactions between bodies and space. Both writers push the reader into a relentless pace in which change becomes normal, either through lack of punctuation or copious punctuation.

In the case of *Desert Diaries*, the constraints on rights to inhabit and navigate space/land are subverted on the page by requiring the reader to make connections between entries (usually paragraphs). The fluidity and unboundedness that the site-writing embraces – where one land's or one body's story meets another's –

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[199] Matamua discusses how western systems of time (monochronic) are a form of "European expansion and colonisation" of indigenous conceptions of time (polychronic). Matamua, "Decolonisation of time", 65. Also relevant is Anna Lowenhaupt Tsing's work with ecological thinking, which includes an exploration of multi-species and ecological times, and how the Anthropocene period – as it relates to stages and ideologies framing capitalism – acts to control and exclude other times (and the co-existing multiple temporalities): *The mushroom at the end of the world on the possibility of life in capitalist ruin,* New Jersey: Princeton University Press, 2015).

[200] James Ellroy, *The Cold Six Thousand* (London: Arrow Books, 2002); and Mathias Énard, *Zone*, (London: Fitzcarraldo Press, 2008).

mirrors the ever-expanding scale, breadth and multiple temporalities of the desert experience. As Jean Baudrillard notes on the desert in North America:

> …the crucial moment is that brutal instant which reveals that the journey has no end, that there is no longer any reason for it to come to an end. Beyond a certain point, it is movement itself that changes. Movement which moves through space of its own volition changes into an absorption by space itself – end of resistance, end of the scene of the journey as such.[201]

The site-writing is therefore like an endless journey, with no beginning or middle or end, which attempts to echo the desert expanse in the proliferation of stories found on any one journey – examined up close and slowly as well as from the road at high speed.[202] In a landscape as remote and spread out as the desert, this form of writing-whilst-travelling provides a means to cut through great distances and scales (of time and matter). It helps the traveller (and reader) to understand the macro and the micro of space-times as intertwined. The separateness of the stories is ruptured, and each reader is invited to make their own connections. Through such narrative slippage, site-writing creates its own ecology which mimics the spatial complexity of the desert.

In book format, site-writing can be read in the order printed or in any order (as the first page explains). This lets the reader rearrange the entries themselves and so encounter the fluidity of living, moving and acting through space. Each reader's journey will be different. The book as a medium extends Burrough's cut-up method by offering more cuts at the choice of the reader/performer. Furthermore, the invitation to work through the site-writing (by finishing texts in the mind, time-travelling with texts, or reordering texts) allows the reader to rethink proximity and position to other spaces and bodies explored in the writing. It is a step towards ecological thinking because the spatial complexity of the second-order site-writing allows the reader to reimagine diverse lived realities and future possibilities for the

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[201] Jean Baudrillard, *America* (London & New York: Verso, 1988) 10.

[202] The non-chronology of the second-order site-writing engages with an absurd grouping of oddities, banalities, tragedies and serenities which allow the spatialised reformation of the writing to mimic the fear and violence which surrounds a journey through spatial control. The abundance of violent ghost traces alluded to through the fragmented site-writing aligns with what Hal Foster describes as traumatic mime in Dada performance. Farce which speaks to control and power. Working the texts into the installations via abandoned teleprompters (which allow the text to flow as if waiting for someone to read them aloud) lets the absurdity of the tragedy take root. The placement of photographs and maps alongside complementary blocks of text serves to juxtapose the surveillance of the site (from the eye of the camera) with the intimacy of the lived experience (stories of body or land). Hal Foster, "Dada Mime", *October* (Summer) Vol. 105, Dada (Summer, 2003), Boston: The MIT Press, 169.

land, bodies, and their ecosystem. The reader is invited to do their own second-order fieldwork relating to the sites.

In summary, second-order site-writing has enabled me to reconfigure the original journey and first-order site-writing to echo the multiple space-times exposed by spatial complexity in the open desert. This process disrupts the spatial control found on location (for example in the military simulation) which otherwise flattens space (severing it from other places and histories). By placing multiple space-times together and in random orders (subject to reader or performer's choice), the work exiles the reader/listener/traveller from the centre of time and place and provokes a vulnerability on land which mirrors desert hospitality. Thus, second-order site-writing offers the possibility of rethinking one's place and position in space and across land – a form of ecological thinking which decentres the human (or systems of power) and instead recognises the times and stories of all diverse peoples, bodies and land.



Fig 3.1: *REscaled*, details from photographic installation, 2023, © K. Yoland, all rights reserved.

1.2. Image reconstruction: fragmentation and scale changes

Each off-site medium used for desert-mapping enables new perspectives on space by disrupting, fragmenting and/or layering imagery of land and action. These second-order methods, as part of my practice methodology, seed a new cartography – a new system of mapping – in which points in space are neither stationary nor bound to each other. For example, in the photographic and installation series titled *ReScaled*, land and bodies (human and inanimate) are examined at different levels of magnitude, as if observed through a telephoto lens (Fig 3.1).[203] The process involves cropping the original image into a high-resolution image – *sampling* and *reframing* – and then aligning the fragments together – *reordering* (Fig 3.2). The new arrangement produced through fragmentation and scale changes allows details within the original image to meet in new ways – creating *glitches* that disrupt perspective. For example, the cropped image of a wedge (the object that keeps a tank from moving) is seen next to a closeup of the hands of unknown uniformed men walking the site, which are seen next to an image of three rocks which are in fact situated at a great distance (Fig 3.1).

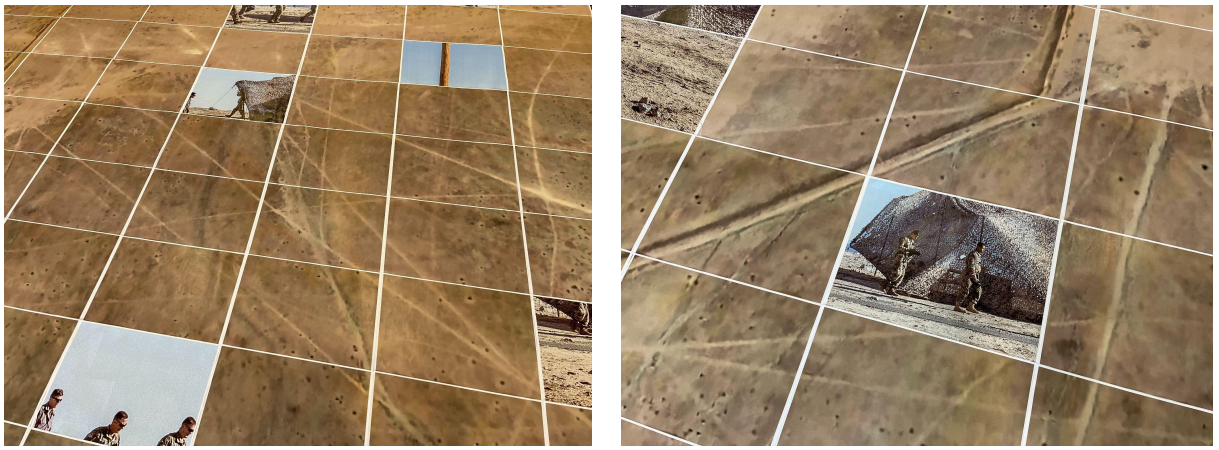

Fig 3.2: Details of installation (A3 adhesive images on the floor, to be viewed from ground level and balcony above) 2023, © K. Yoland, all rights reserved.

In some cases, two or more images are cut up and reassembled together, such as aerial and ground-level projections of the same site (e.g. Fig 3.2). The act of cutting up (fragmenting) and reconfiguring images together disturbs accepted ways of

[203] In an installation format, the architecture of the room brings its own perspectives. For example, one iteration of *ReScaled* was stuck to the floor (six metres in length) and could be observed at ground level (if the viewer stands next to the image) or could be seen from the floor above and viewed as an aerial work.

framing, visioning and mapping land. The works refer to more than one position, scale and plane simultaneously.

This, in turn, impacts how open space and bodily actions across land might be understood. Here, the creative practice of image reconstruction cultivates a fictioned space in which numerous spaces-times and positions are revealed: the events governed by sovereign/political time (e.g. US state actors and the military-industrial complex) are no more in/visible than the time of one individual body (e.g. a soldier inside the simulation) and ecological/deep time (e.g. desertscape).

Although my research was developed specifically in response to military actions on land, this process of cutting up and magnifying components of images has broader applications. This is because second-order desert-mapping techniques operate as space-time forensics – working with scales of past/present/future spaces-times.[204] Image fragmentation and scale changes aim to germinate ecological thinking by decentring the human in land-based encounters.

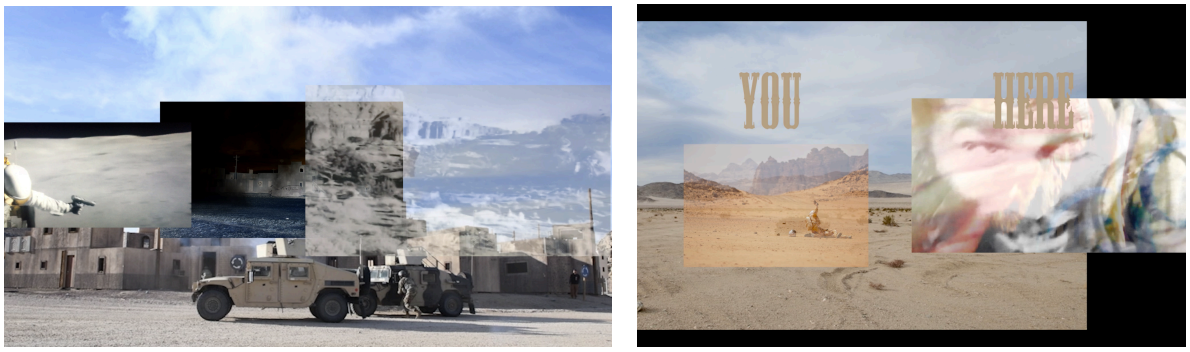

Fig 3.3: *Desert Invasion Saga* (video stills) 2021, © K. Yoland, all rights reserved.

Alongside these practice methods of photographic deconstruction (*ReScaled* series), the methods of video-editing (e.g Fig 3.3) and installation-making also support second-order desert-mapping to probe and shift how bodies and places are made legible in space. For example, the video work *Desert Invasion Saga* was edited to include multiple sliding frames of video (including military training fictions alongside Hollywood desert fictions) and text (sampled from the

[204] This has parallels with the *Forensic Architecture* group who engage "cutting-edge techniques in spatial analysis and digital modelling to reconstruct incidents of state violence and human rights violations" using "interactive cartographies, 'remote sensing' and satellite image analysis, fluid dynamics simulation, and 'situated testimony'". Examples of their recent work include studying the destruction of medical infrastructure in Gaza (2023-currently ongoing) and the Russian Strike on Kyiv TV tower (2022). (Quotes: https://forensic-architecture.org/about/agency)

site-writing). These were placed within a larger frame of view to enable a layering of spaces, histories and territorial narratives.[205] Such processes allow a new system of mapping for the desert to emerge, one in which many space-times co-exist. The outcomes present multiple open visions of space rather than closed representations of space.

Similarly with temporality: Sometimes the editing process weaves together a site's past and present times or the times of different places. An example of this is the video work *Sliding Walls* (Fig 3.4 & AM.8) which incorporates audio from the Moon landing (the audio clip pertains to Neil Armstrong and Buzz Aldrin attempting to photograph the moon, with instructions from Houston). The video work layers multiple images of half-constructed military simulation buildings onto one another. Each image slides across the video screen, from right to left, creating encounters between multiple walls, seemingly closing in on each other.

These video works are not conventional maps because they do not help humans navigate from A to B. However, just like navigation and data maps, second-order desert-mapping fosters an understanding of the reality of a place based on certain parameters. The works contribute to an expanded understanding of the dynamic reality of spatial complexity, even when systems of power have exerted spatial control. These creative encounters aim to generate a new experience of reality which is fluid, evolving, dynamic and layered. The process rejects simplicity and reduction, which enforce binary representations of space. Instead, second-order desert-mapping techniques impel the human body to experience each space in ways that are mutually vulnerable and constantly ruptured by changing information.[206]

In summary, the methods of image reconstruction through photo montage (e.g. *ReScaled*) and layering in video works (e.g. *Sliding Walls*) act to disrupt a flattened representation of territory (e.g. simulation site) by expanding how land, space and the activities of humans are perceived. The recycling and fragmenting of the

[205] The off-site installations (to be discussed in the next section) reconfigure simulation training by integrating new experimental surveillance techniques (mirrors, cameras and time delay).
[206] The second-order mapping process has parallels to Bertolt Brecht's active rather than passive viewing (breaking the fourth wall and talking directly to the audience), rupturing the illusion of the fictional world and requesting analysis of its mechanics. By creating mapping devices which destabilise previous representations of space, the viewer/spectator must learn how to engage with the imagery, mapping and simulation of the desertscape and question how it is constructed. See Bertolt Brecht, *Brecht on Theatre: The development of an aesthetic*, (New Delhi: Radha Krishna, 1978) (Chapter 20: "Theatre for Pleasure or Theatre for Instruction") 69.

imagery made on site (e.g. through scale changes, layers or repetition) multiplies the perspectives, positions and proximity to the subject (land, bodies, action), which echoes spatial complexity. Therefore, like second-order site-writing and mirror interventions, image-based off-site encounters seed their own space-times in relation to site and weave their own form of spatial complexity. As part of desert-mapping, the multiple alterations and reframings of the simulation set disrupt the representation of space in which spatial control fixes and imposes certain activities. Thus, the disturbed representation of territory makes for a vulnerable new position where Cartesian representations of land and the temporality of the military are decentred. Exiled from a single position of fixed perspective, and therefore truth, humans can experience space in a way that mimics the vulnerability which leads to desert hospitality. From this position, I propose that ecological thinking emerges – in which space is shared, not owned by humans or systems of power.

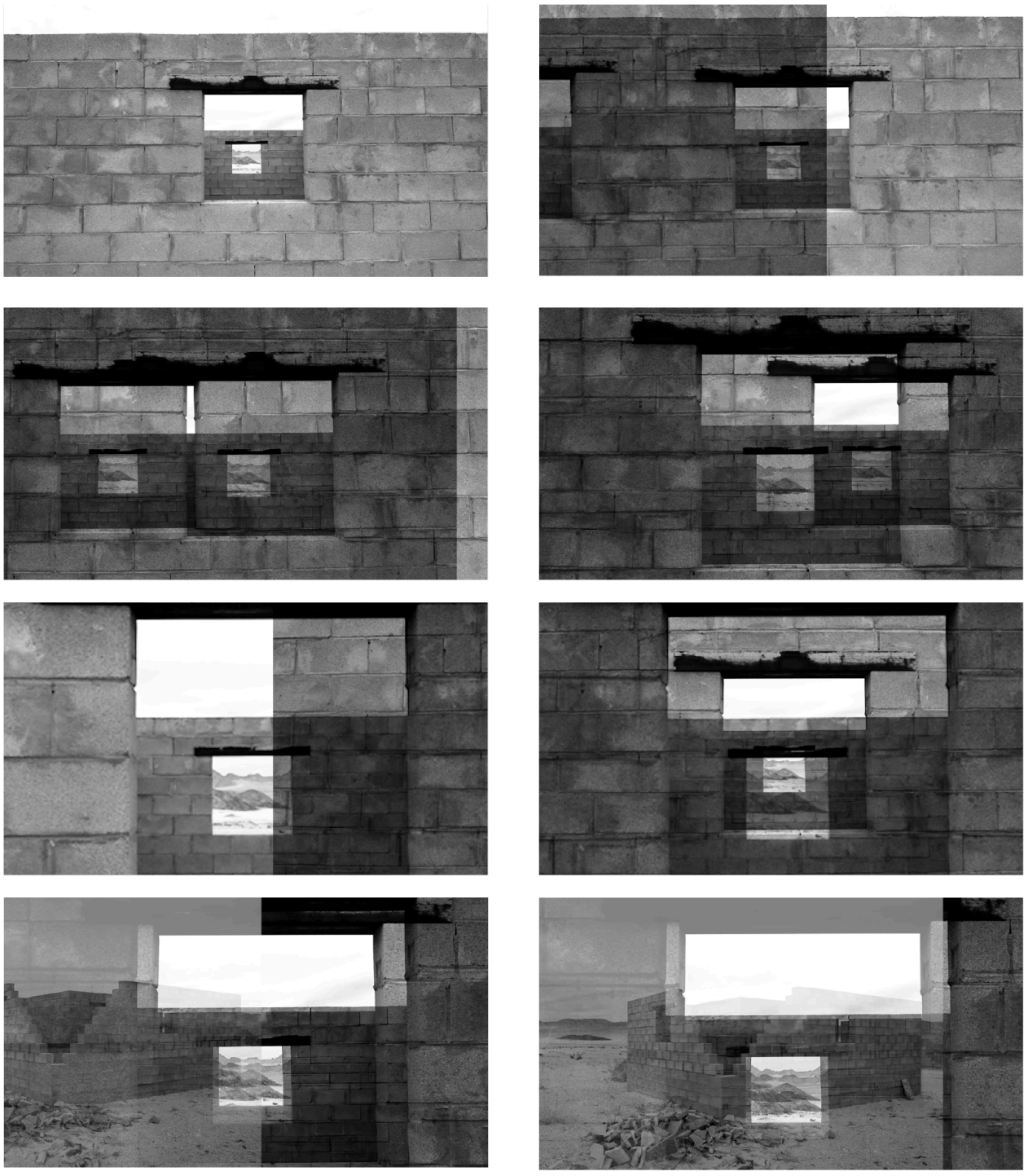

Fig 3.4: *Sliding walls*, video, 2021, © K. Yoland, all rights reserved.

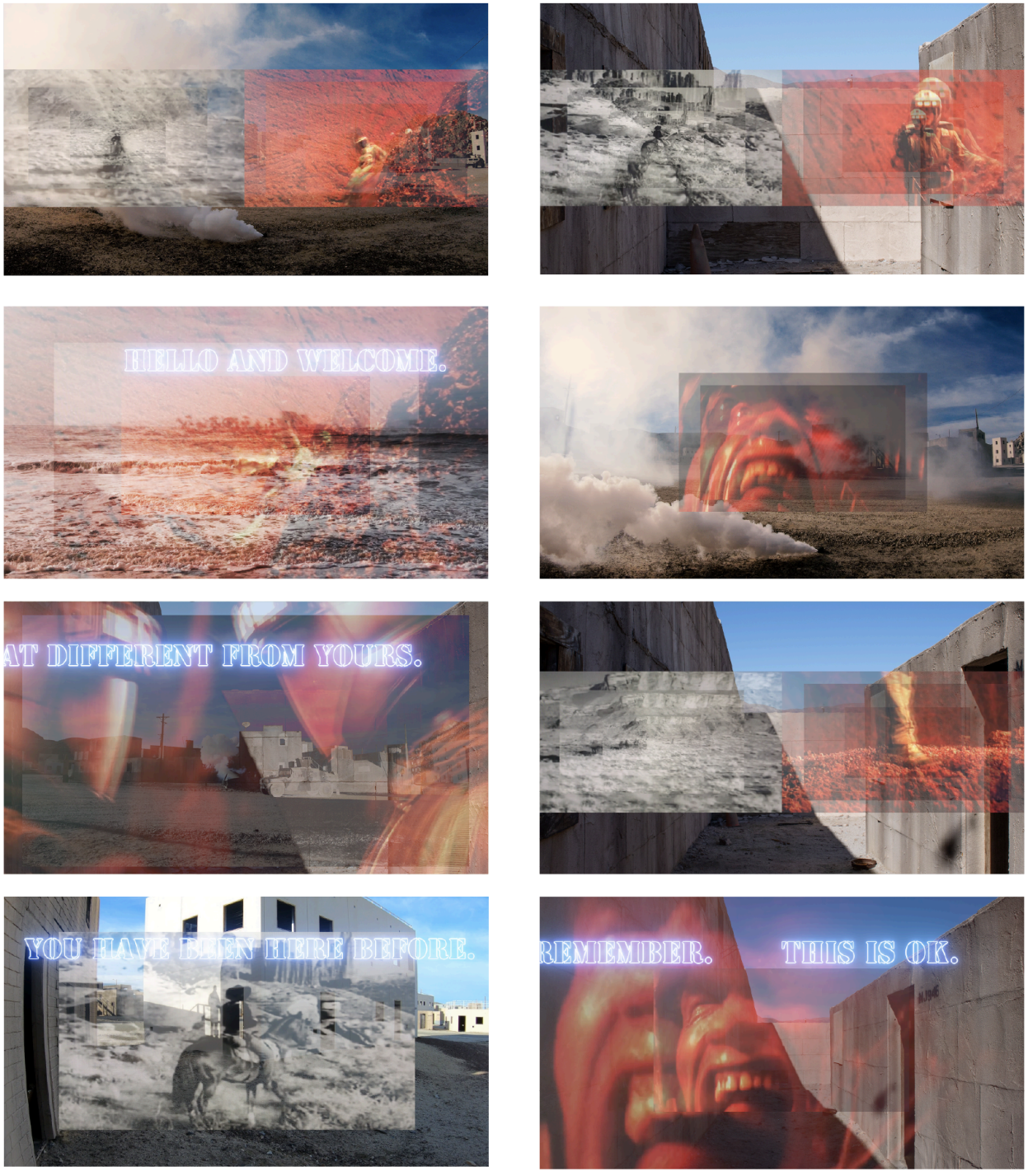

Fig 3.5: *Wormhole*, 2021, © K. Yoland, all rights reserved.

Part II: Encounter as off-site installations





Fig 3.6 (Left): Performance within the installation *REconfigured II*, 2021, © K. Yoland, all rights reserved; Fig 3.7 (Right): *REconfigured IV*, 2022, © K. Yoland, all rights reserved.

Installation-making explores how the material collected on-site can be reorganised into a three-dimensional encounter with desert-mapping. It addresses the third research question by testing on a larger and more immersive scale how different permutations of the creative desert encounters can alter relations between bodies and land. By considering these relations in terms of spatial complexity and spatial control, the installations act to reveal and test the mechanics of spatial control found on-site (e.g. during exploration of simulation sets, mapping and surveillance) and to expand understanding of and engagement with spatial complexity.

The installation elements are arranged in various ways to create sets which multiply position and expand perspective for the visitor/performer. They become a stage/platform on which to perform spatial interactions where the performance involves the configuration of objects, visitor, performer, and/or camera (Fig 3.6 – 3.9 & AM.5).[207] The installation's core components are mirrors, cameras and maps supported by standard stainless-steel photographic studio equipment. Their arrangement together reveals how spatial representations can be staged and

[207] Note that "perform" (or performance) refers to a performer, a visitor or the components inside an installation. In each iteration of the series, the set-up of the components changes. I perceive this as choreographic (aligning with William Forsythe's work with "Choreographic Objects"). The activation of the installation happens through a performer, visitor, or the installation's configuration of performing inanimate objects. This means that performance has a dual meaning: theatrical performance as well as the achievement of a goal – the latter being the more military/technical definition. Eva Respini (ed), *William Forsythe: Choreographic Objects* (New York: DelMonico Books, 2019).

observed or expanded and disrupted. Installation-making in this way is therefore a method for creating open-ended and fluctuating perspectives on space, exposing existing controls and rendering them less inevitable.

In the series (titled *REconfigured*), the installation elements reference desert spaces, desert memories, desert simulations, and desert surveillance. Through repetition and iteration, the series re-presents, complicates and re-maps aspects of the simulation site and land.[208] The reordering puts the space in flux, thus defying spatial control which would otherwise fix positional relations in space so as to prevent any changes that do not support the system of control.

The works of *Reconfigured* are staged in a white room – resembling a gallery space or large open interior space with no discerning features. The room itself is not supposed to draw attention, unless to be understood as a futuristic laboratory, so that the installation's interiors pull focus like the operating table of a surgery. Together, the installations function as a set of different but related puzzles assembled from similar pieces. The installation elements, seen in multiple combinations, become performing bodies themselves – fluid, glitchy and intertwined. Cross-referencing each other as well as multiple spaces (both desert spaces and their corresponding off-site spaces), they operate as a past/present/future archive of the spaces and the times within them (echoing spatial complexity).

The *REconfigured* installations specifically interrogate what happens in the fictional space of Razish, one military simulation village inside Fort Irwin. They expose various parts of the military training through the materiality and functionality of different media within the installation (detailed in the next section). These disparate installation components either huddle together, clash, or combine to form a complex and labyrinthine vision of site mechanics. The installations can be loosely imagined as a game, similar to chess, involving movement and strategy. Each set-up presents one troubling perspective. However, the perspectives multiply if a body – for example, a performer, visitor or drone – enters the installation and interacts with the set from various

[208] Some installations have evolved to incorporate imagery from other real or fictional sites that are connected to themes of territory, occupation, mapping formats and/or surveillance. See AM.5 and Appendix 3.1.

angles.[209] As revealed by the photographic documentation for the *REconfigured* series (see accompanying works), the same installation components can be shifted, added or subtracted in the space to create a new three-dimensional map of spatial perspectives. Each arrangement contains its own encounters between components, revealing the camera, visitors and/or performer through mirrors and surveillance (e.g. Fig 3.8 – 3.9).

2.1. Installation Components: Maps, Equipment and Mirrors

Hanging maps, which flip an aerial view from the horizontal plane to the vertical plane, are the first component of the installation format.[210] The maps are large-scale screenshots from Google Earth and display an aerial view of Razish (Fig 2.5).[211] Maps are printed in strips, on paper and transparent acrylic, and then arranged in various orders or layers. Many of the maps contain red and orange dots indicating where I once stood (red) and where I might have stood (orange). The dots are in effect an archive of ground-level positions noted from above. They represent firstly the position of one body in the streets of Razish and secondly the position where surveillance/mapping occurred (with my camera). Initially, the maps functioned as an *aide-memoire* for events. However, the dots also double as points of surveillance or targets.

The maps were printed at various scales, considering whether they could function at billboard proportions, advertising tracked movement inside a restricted zone. Hung inside the *REconfigured* installations, the map resembles a wall or curtain and inherits a particular materiality. With the heaviness of a large object, it imposes itself as a framework for reading the stage it occupies. It serves to emphasise that the installations function as ground and aerial maps simultaneously, similarly to previous desert-mapping devices (e.g. in *REscaled*). Additionally, I printed maps (Fig 2.5) onto a carpet which performers and visitors can walk and sit on (Fig 2.6). In this case, changing the medium allowed for an additional encounter with territory and im/mobility – one which was mediated by the map alone. The encounter is between the human body (e.g. visitor) and the representation of place, space and land (carpet). Having converted the digital Google Map (which also echoes virtual

[209] I had envisaged performance tests with drones. However, due to budgetary and space restrictions, the research I had choreographed for drones cannot be performed yet.
[210] Shifting the view of the map from the horizontal to the vertical plane acts to disrupt standard colonial perspective and positionality towards maps. It aligns with the desert-mapping strategies started in chapter two, part three, *Encounter as desert mapping*.
[211] See chapter two, section *3.2. Road maps and satellite surveillance*.

spaces of surveillance and tracking) into soft furnishings, the territory and narrative on the map becomes the new ground for the human body.

Mirrors are inserted into the *REconfigured* installations to fold the camera, performer, visitor and studio into the installation (e.g. Fig 3.8 – 3.9). The introduction of mirrors here is influenced by the mirror interventions on-site (e.g. Fig 2.13). Two types of reflective surface are used in the installations: Mylar, which allows distortions and moments of transparency, and mirrored acrylic/glass, which provides a rigid surface that serves to invert parts of the installation and/or studio. In the course of testing and comparing these materials inside the installation, the Mylar conveyed an intangible, ethereal quality – an alternative space-time reality in which vision bends and doubles. It contrasted with the materiality of the acrylic/glass mirror, which functioned as a device of camouflaged mimicry. The Mylar generates alternative visions, whereas the acrylic/glass mirror reflects the existing reality of the staging and surveillance.

The installations are built with and supported by photographic studio equipment which is purposely visible and lays bare the mechanics and staging of the installation. Century stands (C-stands), boom arms, grip heads, sandbags, monitors (for live-feed), green screen, and tripods either secure or provide the staging for the maps, mirrors and cameras (e.g. Fig 3.8 – 3.9).[212] The decision to use standard photographic and film equipment acknowledges the artifice of the installation. There is a parallel with military infrastructure and equipment (e.g. simulation set and military arsenal) which is utilitarian and durable by design. In this way, the installation reveals the artist's and the military's 'kit' as having similar functionality baked into the design: both emphasise operational utility – they are a means to an end.

[212] Feedback monitors and green screens are not in all installations. The green screen, typically used to enable a background to vanish on camera, is also used in this work to remain visible – revealing the possibility for trickery (see AM.5).



Fig 3.8: *REconfigured II*, Installation, 2022, © K. Yoland, all rights reserved.



Fig 3.9: Detail from *REconfigured II*, Installation & performance, 2022, © K. Yoland, all rights reserved.

In addition to maps, mirrors and photographic equipment, cameras and monitor screens are used to expose the surveillance of the installation and highlight the staging through on-screen framing. Inside certain installations, the camera is revealed twice, by a central mirror and a side mirror (e.g Fig 3.8). When a monitor features in the work, the camera's perspective is shown on the monitor either as live action or with a three-second delay. In the latter case, when a performer or visitor moves through the installation, the monitor reveals their past position. This enables two times to interact within the installation.[213]

The use of mirrors, cameras and photographic equipment in the *REconfigured* series builds a dialogue with Dan Graham's early pavilions and constructed rooms.

[213] The camera/monitor are not meant to normalise surveillance, as some works have been critiqued for. Instead, the monitor or mirror reflection of the camera is intended to draw awareness of more than one perspective, which all impacts the site. For example, the camera observing the scene, and a performer inside the space, have different positions and perspectives. Revealing the camera and monitor is meant to highlight differing systems and times at play and the possibility of control.

Graham's works combine mirrors, reflective glass, and video monitors in partially or completely enclosed spaces. Like *REconfigured's* three-dimensional desert-mapping, which distorts perspectives of body and objects in space and interrogates the architecture of control, Graham's works provoke uncanny spatial disruptions but within an expanded field of sight.[214] Graham's installations present spectators with folding perspectives (through surface reflections and camera angles) requiring a reconsideration of positionality, architecture and space.

Whilst Graham's works often involve bodily enclosure (resembling abstracted urban constructions), the desert-mapping of *REconfigured* operates across an open space. This is because the *REconfigured* elements are meant to communicate as separate bodies and as shifting markers across large-scale terrain. The installation's components are easily moved and are mainly utilitarian (camera kit) or inexpensive (Mylar/second-hand mirror/photocopied images). In contrast, Graham's work operates with highly contained, rigid and high-end constructions which the spectator cannot change or move.

Whereas Graham's installations mirror residential or corporate buildings, *REconfigured* mirrors rapidly assembled and mobile military actions. However, the involvement of cameras or surveillance inside *REconfigured* makes it possible to be trapped by an unknown gaze. Likewise, as noted by Assche, Graham's use of video monitors means that the position of "the spectator is studied and staged".[215] In both Graham's works and the *REconfigured* series, the spectator witnesses their own presence (via mirrors) and their own surveillance (via cameras). Inevitably, the immersion of the spectator's body in the installation functions as a component or completion of the work and forces the spectator to be aware of the impact of their body inside an open or constructed space.

Similar to *REconfigured*, the sightlines in Graham's work operate to rupture how space is understood and simultaneously to affirm the existence of its expanded field. Given Graham's choice of materials, the rupture is a reminder of the potential contraction within constructed spaces, through the architecture which absorbs the body.[216] This principle is relevant to the surveillance that takes place inside the

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[214] Tim Head's *Displacements* (1975–6) are also of interest but they do not integrate nor surround the spectator/viewer as completely as Graham's installations.
[215] Christine van Assche, "Dan Graham", in Gloria Moure, ed., *Dan Graham* (Barcelona: Fundació Antoni Tàpies, 1998) 19.
[216] See FN 220.

military training simulation.[217] Both the simulation and the trainees are observed by military personnel, and the learning from this surveillance informs corrections and improvements to spatial control at the desired level.

Acting as an anti-surveillance or anti-Cartesian device – by exposing all artifice – the installations reveal that off-site encounters with on-site material can resist the flattening of space by complicating the set design and reformulating how the site is observed and thus understood. Therefore, through installation-making, one response to the third research question is that encounters with reconfigured surveillance and mapping devices rupture spatial control by injecting spatial complexity into spatial interactions. This disrupts fixed perspectives and echoes the circumstances needed for desert hospitality – in the sense that encounters are vulnerable because they are decentred and ever-changing. Rethinking space and territory this way thus challenges territorial representations (spatial control) and therefore the relations between human body and land (past, present and future).

2.2. Disturbing the Simulation Representations

With the addition of reflective materials (mirror and Mylar), the installations are able to capture the camera, drone, performers and/or visitors. The installation bears witness not only to Razish – its first objective – but also to itself as a staged installation. The camera becomes both a surveillance and desert-mapping device, framing the perspective.[218] The presence of a camera provokes the question of whether the installation is made merely to be captured and reproduced as fact.[219] Equally, the visitor cannot avoid their own image; the installation witnesses their entrance and movement too. If visitors want to see the work up close, they are immediately part of the site dynamics: everything finds itself momentarily

[217] It is also relevant to the contrasting bordered infrastructures which repel bodies in the desert, for example the security around TRIC (Nevada). I toured the exterior of the compounds in February 2022 to see the variety of architecture and design for the different companies' enclosures.
[218] This is an example of how technologies can be dual-use – used for good or bad. Other examples are videogames and nuclear power.
[219] It is also possible that the visitor takes their own photographs, as is common in a smartphone society. However, each image taken will be different because it will include different visitors and different angles onto the installation. No one picture can reveal the same space or perspective. In this sense the installation continues to disrupt representations of space or territory as fixed. Although the visitors might be willingly participating in a self-surveillance culture (foreseen by Foucault) – no image taken depicts any space other than spatial imaginaries. Michel Foucault, *Discipline and punish: the birth of the prison* (London: Allen & Un, 1977).

absorbed into the installation. Absorption becomes a form of responsibility as well as looping surveillance.[220]

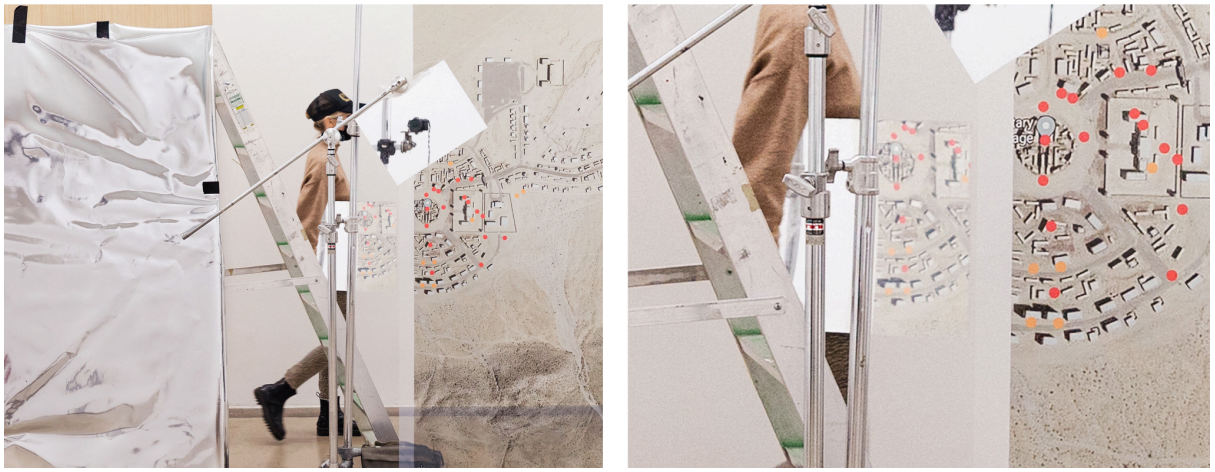

Fig 3.10: Details from performance inside *REConfigured III*, 2022, © K. Yoland, all rights reserved.

Through the mirror's folding and doubling of imagery, the installation breaks down and multiplies perspectives on Razish within the space, resisting any simple depiction of the simulation village. The components stretch, fold and shift the experience of time and space on and off-site. This reveals and echoes what is already occurring in Razish: the village is a fiction threaded through the desert site, repeating and looping with each training rotation to inform future wars and future training. The folding and doubling of imagery inside the installation (and then again in the *REconfigured* series) further demonstrates that the staging of the art installation is another fiction in itself and the role of the visitor or performer is part of – or implicit in – the installation's system. In this sense, the work is a form of fictioning which acts to reveal its own trickery or mechanics in order to expose and question the invisible mechanics of other forms of spatial staging e.g. simulations.

In their own architecture and aesthetics, the *REconfigured* installations are informed by Norman Klein's examination of special effects and scripted space in architectural design. In his case studies (shopping malls, casinos and the Vatican), he argues that power is disguised by spatial design which seemingly allows open-ended navigation through interior space, in order to obscure the site's objectives. For example, Klein describes how casinos always contain building works to suggest that the space is still under construction. He argues that this invokes a

[220] This is also relevant to Sloterdijk's discussion of bodily immersion experienced inside interior architecture, which he likens to a controlling force which the body must yield to. Sloterdijk, "Architecture", 105-109.

milder and more benign image of the casino – one which has nothing to hide and is subservient to the casino player (navigator).[221] It lulls the navigator into a false sense of autonomy in discovery and self-control whilst journeying through the site. However, the site is designed to influence the navigator's decisions and entice them to take more risks.

Similarly, *REconfigured* explores the function of spatial design across simulation sites such as Razish. Learning from the GoPro navigation of these sites and the multiple recordings of set pieces from different vantage points, the installation counters the flattening of perspective, positionality and proximity by complicating the vantage points into the installation (e.g. with the insertion of mirrors). By exposing the design and surveillance operating in Razish, the installations aim to awaken an understanding of the governing mechanics in spatial design – and of the implications (spatial control). This awakening is intended for the visitor (the audience), as well as for me as the artist-researcher in order to answer the research questions and to carry forward this method for understanding more spatial interactions.

Razish bears only the most basic resemblance to reality. It does not create a perfect image for the trainee soldiers, only an approximation with which to imagine the 'other' space (Afghanistan or Iraq, in this case). In order to test the stagecraft of Razish, the REconfigured installations seek to echo the military staging in a utilitarian fashion, revealing its own construction, as described above. In this way, the assemblages represent the infrastructures and rough edges of Razish. It enables the installation to highlight the mechanics of power in Razish and how that might include its outward resemblance to a work-in-progress or obvious stage set. For example, when Razish's fake eggs or meat start to look worn or cracked, they are not repainted. There is an uncanny similarity to Klein's description of casino set dressing. The installation series critiques the staging and design of the military simulation by exposing and monitoring the framing of the installation, the surveillance operator and the spectator (voyeur or witness). The installation makes the machinery of artifice obvious. It exposes the controls (e.g. camera, C-stands, sandbags and tripods) which support the representation and observation of the abstract restaging of Fort Irwin.

[221] Norman Klein, *Vatican to Vegas,* 321.

The almost limitless interactions and iterations that are possible between the installation's stage parts, camera, and observer/spectator, serve to emphasise how folds, doubles and glitches can challenge fixed perspectives to provide alternative mapping of site. By stimulating the imagination in this way, the installation functions as a conceptual lens for resistance and optimism. It subtly builds awareness of spatial complexity as a means of forging future ecologies.

2.3. Creative encounters across site and off-site

To address my third research question (*Working off-site, how might creative encounters with on-site desert-mapping outputs influence understanding of spatial relations between bodies and land?*), I consider how the learning from on-site investigations in the desertscapes/Fort Irwin and off-site studio installations intertwines. Informed by off-site interpretations of site actions, the research critiques simulated conflict training (occurring on-site) and also develops new modes of resistance to spatial control in general (representations of territory). The non-site's interpretation of the site provokes questions and challenges Fort Irwin's interpretation of the Middle East. Fort Irwin attempts to map Iraq and Afghanistan in a condensed format, becoming the military's non-site for the Middle East. Likewise, the studio installations are non-site interpretations of Fort Irwin. Although they both function as forms of simulation, Fort Irwin is closer to programmed choreography of soldiers' actions, while *REconfigured* is provoking design disturbances which disrupt uniform navigation. As a desert-mapping device, *REconfigured* can also be understood as an anti-map. It does not of course provide a functioning map for navigating Fort Irwin but instead an alternative map to probe spatial design – a theoretical navigation of disruptive mapping. So, the non-site installations recruit their own complex dynamics of perspective and multiple reconstructions to engage with spatial complexity and control of the site.

In this research, the assessment of what emerges from the site/off-site correspondence is informed by Robert Smithson's work. Known for dialectical site/non-site works, Smithson engaged with land and gallery spaces. His off-site installations reference faraway spaces, indicated via maps, dislocated raw materials

and documentation through materiality (e.g. *Lines of Wreckage*).[222] The viewing of the combined fragments of the site, reconfigured off-site, suggests the artwork is only a constituent idea of the wider work outside (based on action, movement and raw earth). Smithson's work experiments with scale and spatio-temporal uncertainties, embracing ambiguity between what is inside and outside any given space.[223]

For example, *Yucatan Mirror Displacements* (1–9) (1969) achieves a collapse between ground and sky through square mirrors positioned on the earth. Smithson's interventions have the capacity to generate confusion regarding what the camera sees, where the visual information is coming from (direction) and how the eye can take in such a double perspective. Similarly, the non-site art installations in my *REconfigured* series disrupt an understanding of the military site (simulation set). On a visitor's first encounter with the off-site installation, the Mylar and acrylic mirrors create multiple views which collapse forwards and backwards. The collapse in perspective echoes Smithson's own description of "sight turned away from its own looking".[224] My research resonates with Smithson's projects by working to expand rather than simplify visions of space, allowing physical interventions to become multidimensional – that is, suggesting a quantum elasticity in perspective:

> A point on a map expands to the size of the land mass. A land mass contracts into a point. Is the Site a reflection of the Non-site (mirror), or is it the other way around?[225]

Smithson's line of inquiry refuses fixed spatial perspectives and affirms a different type of embodiment with space. It contrasts with Fort Irwin, which trains soldiers through one fixed way of seeing and navigating. The *REconfigured* series experiments with non-site disruptions of perspective – doubling, folding and disturbing lines of sight – as techniques to challenge notions of territoriality and occupation of corresponding sites.[226] Whilst Smithson was not attempting to shift

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[222] *Line of Wreckage* (New Jersey, 1968), photographs and a map of Bayonne, positioned next to a steel cage containing concrete from a bulldozed highway – a site that is now non-existent in this form. A triple back-and-forth occurs: between the map and images as indicators of location; the concrete as material referent; and the rearrangement in the gallery (understanding another place through the reconstituting off-site in an entirely new format).
[223] Smithson discusses scale, uncertainty and viewer position in his 1972 essay "The Spiral Jetty" (147) and in his 1969 essay "Incidents of mirror-travel in the Yucatan" (169). Smithson, *Smithson the Collected Writings*.
[224] Smithson, "Incidents of mirror-travel", *Smithson the Collected Writings*, 129.
[225] Smithson, "Incidents of mirror-travel", *Smithson the Collected Writings*, 153.
[226] Sarah Sze's *Triple Point (Pendulum)* 2013, is also an example of disrupting perspective and lines of sight through technology and recycled materials (Appendix 3.2).

political conceptions of how people occupy and control land, if approaches similar to his are applied towards this objective, there is potential for a different matrix for understanding and acting in space.

* * *

Summary

In summary, this chapter has examined the results of off-site encounters with on-site material gathered through first-order desert-mapping, to answer the third research question:

Working off-site, how might creative encounters with on-site desert-mapping outputs influence understanding of spatial relations between bodies and land?

The on-site material produced in site-writing and lens-based processes was fragmented and reconstructed off-site in the studio, using techniques of sampling, glitching, reframing, and reordering. This developed into non-chronological site-writing, photomontage, photo installations and sculptural installations. The result is the method of second-order desert-mapping – the use of more than one artistic medium as a means of echoing the spatial complexity experienced across desertscapes. Working with only one medium would have risked restricting the visions of space to the aesthetics of that one medium. Instead, each medium used (text, image, installation components) has a unique way of interacting with multiple space-times, keeping the research and the audience open to variation and the rupturing of standard representations of space (as void) and land (as territory). In combination, the different media create multiple entries and options for interacting with space-times and expand the means for humans to think about how they act within and across space.

The creative encounters of second-order desert-mapping (using site-writing, image montage, and installation) illuminate a desert perspective of space-time (spatial complexity). As discussed, these methods disrupt the navigation of military simulation design and the Cartesian mapping of land, with its fixed zones, points and coordinates. The alternative mappings exposed by the creative encounters have fluid perspectives and positionalities, such as in the conjunction of aerial

imaging and ground projections (*REconfigured*, *Rescaled* and *Sightlines*). Here, space is reconfigured as fragments, using mapping techniques in two dimensions (photographic works) and three dimensions (installations). The works challenge rigidity of perspective by virtue of being in flux and referring to more than one spatio-temporal plane (unlike their individual component parts).[227] The multiple space-times arising in the works – spatial complexity – produce interactions between body and space which are vulnerable to continual change. The creative methods resist framing space as flat and instead they explore the ambiguity and fluidity of space. It is in this ambiguity that new ecological thought is produced and becomes a contribution of this research.

The emergence of a sense of vulnerability and exile (from previously known coordinates and representations of space/land) in the installation work is a key outcome and contribution. It reveals that the installations succeed in building on the findings of desert hospitality (chapter one) by developing new encounters from the previous encounters with spatial control (in this case, simulation training; chapter two). Thus, second-order desert-mapping is a cross-medium dialogue for exposing spatial complexity even in controlled zones. It offers itself as a method for my expanding conversation with the desertscapes and as a means to disrupt im/mobility controlled by representations of territory. As a mode of resistance to spatial control, the new visions supplied by the installations expand the understanding of space rather than locking it down as void or occupied. This provides new ways of thinking and acting in space which must acknowledge that multiple temporalities exist – multiple lives, times and paths, all equally valid.

The desert, which is burdened by the colonial misconception that it is empty and void, is arguably the best place to start this new ecological thinking. If the desert can be understood as dynamic, then it follows that denser spaces also have dynamism and flux.

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[227] *2001: A space odyssey,* (Kubrick, 1968) is an example of a narrative connecting space over various times – prehistoric to science fiction futures. It ends with time jumps, uncontrollable glitches within the same space, in which the same body (Dr. Bowman, or "Dave", the main protagonist in the film) moves between birth and death. The work starts in the desert and embraces prehistoric time, individual time, sovereign time and future time. Human consciousness, technology and violence is explored via the relationship to bodies in space and the future times they impact.

CONCLUSION

Contributions and outcomes



Fig 4.0: One perspective on *ReConfigured: The Time For War*, exhibited at Copeland Gallery, London, 2023, © K. Yoland, all rights reserved. (The installation has a second layer in front of the wall work, which includes acrylic maps, mylar mirror, video work and large-format photography of experimental reconstruction).

Overview

Across the three core chapters I have contributed a practice-based methodology called desert-mapping. Focused on desert learning, findings have enabled a rethinking of representations of land, space and territory. Through solo travelling across open and closed desert zones I have examined (i) encounter through immersion, (ii) encounter through on-site creative methods (first-order desert-mapping) and (iii) encounter through off-site installations and creative-nonfiction (second-order desert-mapping). Desert research has enabled me to contribute new insights into the mechanics of spatial control and the impact of spatial complexity – insights that are relevant to spatial theory. Emerging from encounters through desert immersion (chapter one), I find that exposure to spatial complexity can produce vulnerability and spatial exile that gives rise to desert hospitality. Subsequently, I have used creative methods of encounter (on- and off-site) to provoke a spatially focused form of ecological thinking, which builds on what produces desert hospitality. Desert-mapping tools have supported the interactions with spatial complexity and the exposure of spatial control. Second-order desert-mapping uses the learning from desert conditions to disturb perspective, proximity and positionality within space and so reveal and defy representations of space as fixed, flat and unchanging zones of territory. I have shown how desert conditions destabilise previously learned representations of space, land and territory, making all human bodies equally vulnerable as they attempt to relearn how to operate in challenging spaces. This in turn disrupts a human-centric position and vision of land. What emerges is a more fluid set of non-hierarchical relations to land and other bodies.

In this conclusion I will now review the findings in respect of each research question. I will then go on to explore the findings in terms of the original contribution of this research to the following fields: cartographic practice, art practice (land-art, installation and site-specific works) and spatial theory. I will end with potential applications for today and tomorrow, including military application, and relevance beyond the desert.



Fig 4.1: *Military Land,* Fort Irwin, Mojave Desert, 2019, © K. Yoland, all rights reserved.

4.1 Findings

This practice-based research has produced a new artistic methodology for learning from large-scale terrain. Findings reveal that the value of desert learning lies in its offering of a spatially driven and ecological understanding of space, land and territory. Findings can be paired with the three research questions:

(i) What does encounter through bodily immersion in the desert reveal and offer a site-specific art practice engaging with land, space-time interconnectivity and representations of territory?

In summary, the research found that deserts expose the human body to a heightened form of spatial complexity which disorientates the body and disrupts a human-centric perspective of land and space. The experience causes mutual vulnerability and exile in space which has the capacity to spur more ecological and equitable ways of thinking about land-based actions and diverse bodies, which I call desert hospitality. I will unpack these findings below.

Supported by a long-term engagement with desert landscapes, I have explored how desert learning reveals various spatio-temporal dynamics acting simultaneously across land. Through first-hand observation and experience, which involved solo travelling across the open large-scale terrain of three deserts (Chihuahuan, Mojave and the Great Basin Deserts), I found that perspective, positionality and proximity to land and other bodies are challenged when the human body is immersed in the desert's scale, isolation, multiple temporalities and extreme conditions. The human body experiences a sense of exile from previously understood coordinates and colonial representations of land, and must learn new ways of acting to survive.

Through this process, a new way of thinking and acting in space emerged, one that can connect bodies through these mutually shared challenges. Aligned with Cocelle's conceptualisation of the ecological immersion of all living organisms on planet Earth (2018), desert learning reveals that space joins all bodies through the interconnectedness of multiple temporalities – the interweaving of multiple pasts, presents and futures of diverse bodies and systems.[228] This is a move away from

[228] To reiterate, 'bodies' here include larger systems such as bodies of water and, in the most boundless sense, bodies of land, mountains, trees, oxygen.

monochronic (one single linear) time and a move towards recognising a more polychronic time such as those understood by indigenous communities (e.g. the Māori's concept of time, discussed by Matamua (2021)).

To more deeply understand the importance and impact of the desert, my research was informed by theories of kinship and connection that have been explored by writers in the fields of ecology and critical race theory as a means to resist violence and oppression.[229] I was able to link my experiences in the desert to their arguments for the power of exile, vulnerability, strangeness and intimate difference for creating shared bonds. This is because my solo travels in the desert precipitated encounters through immersion, which revealed my vulnerability in open space in terms of perception and navigation. To survive the environment, I was compelled to relearn it and to forge new connections and understanding of other systems of bodies and times intertwined with mine. This relearning was possible because the desert's unique and alien landscape ruptured the dominant representations of space and land I had been previously taught. It rendered me vulnerable and exiled, alongside other humans arriving for the first time, and unable to rely on previous knowledge of how to act and survive. It was these findings that provided me with the term *desert hospitality* – that is, mutual exile and vulnerability. Desert hospitality awakened me to multiple pasts, presents and possible futures in which the presence of diverse bodies, scales, temporalities and ecologies are equally visible and relevant to each other, instead of being suppressed. Encounter with desert hospitality yields a possibility to build something new together, with mutual empathy and compassion, so that the stories and times of diverse bodies are recognised in the ways that humans interact and share land. I will further discuss these findings as contributions to artistic practice, cartography and spatial theory in subsequent sections.

[229] For example, the writings of Dufourmantelle on mutual exile (2013), Mbembe on mutual vulnerability (2019), and Derrida on equal strangeness (2002, 2008). Equally important were the writings on indigenous and ecological philosophies of kinship and temporalities: Bennett (2010), Coccia (2018) and Hokowhitu (2019), Pierotti and Wildcat (2000), and Rifkin (2017).

(ii). How do creative encounters with movement, mapping and spatial control inform understanding of open and closed desertscapes?

In summary, site-specific creative encounters with open and closed desertscapes using the methods of site-writing, lens-based processes and mirror interventions reveal that multiple temporalities act across land (spatial complexity) and that the Fort Irwin simulation operates as a frozen space where diverse pasts, presents and futures are absent (spatial control). I will now expand on the nature of the findings.

During my excursions to navigate open and restricted desert zones, I used site-writing, lens-based processes and mirror interventions as creative methods of encounter which enabled me to interact with the spatial dynamics that exist or are imposed across large-scale terrain (chapter two). Interdisciplinary and experimentally cartographic in nature, these methods of encounter produced valuable insights regarding land-based actions, conflict and im/mobility across desert spaces. In combination, the different methods of encounter constitute a practice-based methodology called desert-mapping, for learning about land, space and representations of territory. This methodology is a principal contribution of this research.

The creative encounters through site-writing, lens-based processes and mirror interventions were responses to the disorientating effect of moving through vast and seemingly empty land. During that movement I was attempting to adjust to the decentring of my body in the desertscape, without recognisable markers with which to comprehend scale and distance. This experience contrasted sharply with the flattened spaces of the simulation training – sites with no apparent history where navigation was maze-like and claustrophobically frozen in a non-time under constant surveillance.

I absorbed these new sensations by engaging in a constant flow of note-taking about the people and spaces I met (site-writing) and altering my photographic process to reflect the disruption of scale and seeming repetition. These actions produced new perspectives and positions in relation to desert subjects and desert spaces. Additionally, using mirror interventions I created new maps of the desert surroundings, bouncing sightlines across space. Known as first-order desert-mapping, these encounters combine diverse textual narratives (site-writing) with framing devices (lens-based processes and mirror insertions) to expand the vision of

the multiple spatio-temporal dynamics operating across land. Furthermore, they yield insight into the navigation and design of simulation sets (especially when reconfigured off-site). Specifically, first-order desert-mapping provides a mechanism for multiple encounters across a range of media, which allow the human body to engage with spatial complexity and grow comfortable with it, while also exposing and challenging the mechanics of spatial control.

(iii). Working off-site, how might creative encounters with on-site desert-mapping outputs influence understanding of spatial relations between bodies and land?

In summary, findings show that reincorporating the elements of on-site encounters in new formats off-site, including installations, opens up new ways for bodies to interact with representations of space, land and territory. Through methods called second-order desert-mapping, the research echoes the spatial complexity found in the desert and reveals the mechanics of spatial control. The spatial complexity of second-order desert-mapping tools gives rise to a sensation similar to desert hospitality and exposes the human body to spatial vulnerability and exile from known coordinates. In this way, the tools contribute to an artistic methodology for provoking future spatial empathy. I will now expand on these findings:

Learning from spatial complexity in the desert, I used strategies of repetition, fragmentation and scale changes within installation formats to challenge the human body's perspective, positionality and proximity to objects, land and points in space. Additionally, these strategies were applied to the representations of the simulation site at Fort Irwin to reveal mechanics of control and explore ways of injecting complexity into the representations. The installations functioned as three-dimensional desert maps, an interactive environment that provoked a set of encounters by deconstructing and reconfiguring desert spaces. Through the camera, performer, or visitor's positioning, the installations reveal how bodies and vision are manipulated inside designed spaces. My findings provided insight into how second-order desert-mapping can provoke encounters which disturb spatial control by rupturing mechanisms of surveillance and representations of space. The outcomes included new techniques with framing devices, which multiply perspectives in space and destabilise the body's position within it and proximity to other points therein. This results in the visiting body's exposure to multiple temporalities and perspectives which complicate visions of land and avoid flattened representations of space. (I will expand on these tools and techniques in section 4.3).

Altogether, the findings connected to each research question describe new on-site and off-site encounters which engage with space-time simultaneity across open land, and with spatial control inside Fort Irwin's simulation site, bringing new interactions with land and territory. The findings show how site-specific and installation art processes (first and second-order desert-mapping) can reveal body and land relations in ways that are aligned with desert hospitality. This supports a generative and ecological thinking which decentres the human in spatial relations and decentres monochronic (linear) time.

4.2 Contributions of the research

Desert learning has contributed (i) ecological thinking through desert hospitality and spatial complexity, and (ii) artistic methods, which together disrupt spatial control and engage with spatial complexity. The following subsections how the outcomes of desert learning contribute to knowledge and practice in specific fields:

4.2.1 Expanding cartographic practice

There is a growing tradition of new, interdisciplinary cartographic methods incorporating hybrid knowledge systems.[230] Alternative cartographies, developing from artistic or cross-field collaborations, have enabled the world to be explored from new perspectives. These methods achieve visibility for subjects, bodies or ecological events that are usually invisible or erased from the conversation. This research contributes to that body of new cartographies. It has used desert learning to devise artistic methods which illuminate how space operates and how bodies are controlled across space. For this reason, the methods lend themselves to the probing and mapping of military geographies, in seeking to make the invisible visible.

The new cartographic methods developed directly from military and desert learning emphasise the multiple embedded narratives inseparable from space. Additionally, my work offers unique three-dimensional cartography developed from

[230] See chapter two, section 3.1. *The urgency of alternative cartographic systems*. Also see Nagel Thompson, ed., *Experimental Geography* (Brooklyn: Melville House Publishing, 2009).

second-order desert-mapping (in an installation format), which allows the metaphorical map reader (the body of the visitor, camera or performer) to enter the map physically as well as conceptually.

What is essential to recognise about the growth in alternative mapping approaches is not only the new knowledge they bring to the context they are applied to, but also that as a corpus they represent a concerted front in establishing new legitimate ways to understand space and build knowledge with regard to land-based violence and im/mobility. As various communities in society – architects, urban planners, policymakers and citizens alike – become more aware of the alternative mapping approaches, they can integrate the practices and insights into ecological thinking and justice across space.

4.2.2 Land art, site-specific art and socio-political art practice

The artworks I have developed for this research engage with the aerial perspective, scale, breadth, isolation and multiple temporalities offered by desert conditions, in ways that echo the 1970s US land art movement. However, I have consciously avoided the monumentality and permanence of land art (e.g. Heizer's *Double Negative* (1969) and Smithson's *Spiral Jetty* (1970)). My goal is to work with space rather than occupy it. Land art did not address the military presence in the desert, but in common with the military it appropriated desert attributes for permanent residence. Desert-mapping, by contrast, has focused directly on the links between desert conditions and military violence, and avoided repeating the military's permanent occupation of the desert sites. Therefore, my research distinguishes itself from land art by actively questioning military and territorial strategies, and developing artistic alternatives with the political and ecological motivation of making work that can support future change.

Additionally, desert-mapping is a process that learns from desert conditions to produce land-based actions on-site and later off-site. This involves responding to the spatial exile and vulnerability emerging from desert immersion and, therefore, operates within a framework of desert hospitality. My methods promote working *with* the desert rather than *on* the desert. With this approach, desert-learning objectives require that humans are decentred. Instead of framing humans as the owners and occupiers of land, they are bodies that can share and learn from the multiple stories and times of the land and diverse other bodies.

Desert-mapping contributes to site-specific and socio-political art strategies through an engagement with multiple space-times, which is achieved by diversifying positionality, perspective and proximity to land and diverse bodies.[231] By employing multiple media and formats within the desert-mapping process, my research has produced new and diverse outputs which offer different encounters with the space-times of the desert. The diversity of outputs exposes the alternative interactions that are possible. This work produces a creative form of spatial complexity and aims to resist the flattening of land and bodies into one spatio-temporal perspective by spatial control.[232] In the site-specific art which has informed the current research, the dominant time is ruptured by the intrusion of a single suppressed time (e.g. *Time Landscape*, Alan Sonfist (1965-present) and *It is what it is*, Jeremy Deller (2009)). Such works operate across two core times, not a multiplicity of times.[233] Other artworks are made for one or two formats – for example, the on-site intervention and photography or moving images of the work/event/action (e.g. *Ruins*, Beverly Buchanan (1981) and *Remote Viewing*, Cauleen Smith (2009)) (See Appendix 0.3, 0.4 and 4.0). In contrast, desert-mapping as a practice methodology allows for both on-site and off-site spatial interactions.

[231] This is achieved through the construction of on-site (chapter two) and off-site (chapter three) spatial interactions in and across multiple mediums.
[232] As chapters two and three have made evident, desert-mapping offers two interlinked evolving methods: first-order desert-mapping and second-order desert-mapping. The first method involves direct encounters with the site and the second involves encounters via off-site reconstructions of mapping, surveillance and control.
[233] Sonfist reintroduces the plants/vegetation of pre-colonial times back into the city of New York. Deller introduces the time of war (in Iraq) into the US peace-time landscape. These two times always exist simultaneously, but they are not normally experienced together. Although the works of Deller and Sonfist are powerfully political, their goals are not necessarily to reveal how spatial control functions, but rather to introduce the conditions of another narrative that systems of power have helped to remove from the collective consciousness.

4.2.3 Spatial theory

Spatial theory has informed this research, but its relevant fields have focused mainly on urban environments and built spaces, not large-scale open terrain, desertscapes or military simulation sites. Desert-learning has explored these gaps. The research offers the field new insights into spatial relations, by developing embodied understanding of the three central concepts: *spatial complexity, spatial control* and *desert hospitality*. As elaborated throughout the thesis, the mechanism for these insights is desert learning through bodily immersion in the desert, and desert-mapping encounters. First-order desert-mapping revealed spatial complexity in the desert (multiple intertwined space-times) and desert hospitality arising from bodily vulnerability and exile, whereas on the military site spatial control operated to suppress this complexity. Second-order desert-mapping disrupted representations of spatial control and mimicked the experience of desert hospitality. Next, I outline how the conceptual development builds on existing theory.

The terms spatial complexity and spatial control are informed by the literature on spatial theory and spatial justice, incorporating Massey and Soja's emphasis on time and Klein's analysis of controlled navigation. Throughout the thesis, I have combined these aspects and extended them through encounters with the open desert and military training sites to develop understanding of how temporal dynamics across space (spatial complexity) impact im/mobility, empathy, and conflict with respect to territoriality and colonisation (spatial control).[234] Whereas previous literature has focused mostly on densely populated spaces, my research turned to open spaces to delineate how spatial complexity functions, how the mechanisms of control conceal such complexity, and how complexity can be engaged to resist control in diverse settings.

The concept of desert hospitality is informed by diverse fields of study which argue that a particular conceptual understanding of the individual body or relations between bodies (human or non-human) can stimulate contemporary forms of compassion. These theorists include Dufourmantelle on mutual exile, Tamas and Derrida on thinking through intimate difference and strangeness, and Mbembe on vulnerability and being in the world.[235] My research has built on their arguments by revealing (through desert encounters with spatial complexity) that the desert can

[234] This has been supported by engaging with desert learning. See Chapter 1, section 1.1 *First Impressions* (desert attributes) and section 1.3. *Desert hospitality*.
[235] See chapter one, section 1.3. *Desert hospitality.*

be the catalyst for all these connections – mutual exile, strangeness, vulnerability, and ultimately empathy between bodies. In short, desert hospitality is not only informed by, but also generated and built from, desert attributes. To extend the literature, my work on desert hospitality illuminates how body-space relations (perspective, positionality, proximity and the experience of temporality across land) play a part in the production of hospitality across all bodies and land – and the road to spatial justice.

4.3 Applications for today and tomorrow

As a practice-based methodology, desert-mapping derives from desert learning but has broader application than the desert. It can be used to support understanding of other settings including sites of conflict and environmental degradation. The twenty-first century is witnessing more ecological damage and forced displacement than ever seen before, and future projections are sobering: "By 2100, as many as 3 billion to 6 billion people may find themselves outside Earth's livable regions".[236] As water levels rise and fires rage across continents, access to land is changing. Also, wars over borders, resources and mobility continue to blight human history.[237] Aerial and ground-based warfare remains a tragic reality as nation-states and non-state actors seek to consolidate their territorial and regional interests and the arms industry's profits. This leads to unconscionable outcomes – starvation, torture, murder and displacement – for large numbers of civilians caught up in the conflicts. Consequently, site-specific work with military spaces could not be more relevant or more urgent. It is not overly dramatic to say that trouble is coming like never before. The possibility of extinction of diverse species, and mass human death or genocide, will become reality if humans and their systems of power do not find alternative and equitable ways of sharing space and respecting each other as equally vulnerable and equally important (all humans, more-than-human and ecological systems alike).

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[236] Dr Christopher Wolf quoted in the article by Damian Carrington, "Earth's 'vital signs' worse than at any time in human history, scientists warn", *The Guardian*, October 24, 2023. Wolf was a co-author of the William J Ripple, Christopher Wolf, Jillian W Gregg, et al., "The 2023 state of the climate report: Entering uncharted territory", BioScience, 2023. For other recent projections of the colossal damage humans are inflicting on the planet, and the consequences, see: David Wallace-Wells, The Uninhabitable Earth, Life After Warming (New York: Tim Duggan Books, 2019).

[237] At the time of writing this thesis, Israel and Russia have waged large-scale aerial and ground-based warfare to solidify their territorial and regional interests. This has led to the torture, murder and displacement of unthinkable numbers of civilians in Gaza and Ukraine respectively and the vast destruction of hospitals and educational institutions.

To this end, desert-mapping contributes to an evolving knowledge base for living in and sharing space. Second-order desert-mapping (such as the large-scale installations and reconstructed lens-based work in this research) offers a template of a DIY structure for rupturing the feedback loops which freeze time inside restricted zones of control. The process of cutting up site-writing, and reconfiguring surveillance and aerial images inside new interactive spaces, shifts how the human body engages with and re-reads representations of space and the stories within. It is a central theme of this thesis that this approach can foster new ways of seeing space that can propel future ecological thinking and empathy across bodies and land.

Desert-mapping has also opened the way for alternative interactions with spatial control and simulation training. In this research, the military training was observed from a non-military perspective, and the simulation sets and space were tested in unorthodox ways. The creative engagement with spatial complexity and desert hospitality offers bodies an awareness of how collective vulnerability in space instigates a mutual humility and a welcoming of the body's surroundings and other different bodies. The approach is transferable to non-desert regions and could offer new material for a broad range of actors including theorists, artists, architects, policymakers, and governments.

Desert-mapping thus highlights the value and power of spatial complexity for promoting choice, mobility and resistance to control. It reveals how working with space-time simultaneity leads to ways of seeing and acting in space which decentre the human and highlight the multiple temporalities of diverse bodies and ecological systems. This in turn shifts the focus from occupation and territory to sharing and spatial empathy. As governments and corporations become increasingly focused on the Moon, Mars, meteorites and other celestial bodies as spaces of occupation, colonisation and extractivism (turning to "the final frontier" as Kennedy called it), it will be essential to bring ecological thinking to counter the 'land rush'. Desert learning and desert-mapping as a methodology can support that discussion with new ways of engaging with space, terrain and bodies which make spatial complexity part of the conversation. Otherwise, humans will have more urgent debates than just Elon Musk suggesting that future settlers should "Nuke Mars" (to heat it up), the question of space debris (we already have over 128 million objects of 1mm-1cm), a Red *Tesla Roadster* orbiting the sun (since 2018) and the

links between Trump's Space Force and the comedy TV series *Space Force* (Appendix 4.1).[238]

4.3.1 Practice-based contributions

In this research I have revealed that land occupation is supported by the closure or flattening of spatio-temporal relationships, and is characterised by denial or ignorance of spatial complexity. Installations and moving-image works offer a means of reconfiguring occupied spaces to expose and challenge the controls that fix and limit the range of mobility and interactions possible across space. These insights have the potential to change how human bodies act with and across land, and in turn to help protect the rights of diverse humans, more-than-humans and land.

My research practice has used lens-based processes, off-site installation and on-site intervention to develop, loop, fold, double and glitch modes of seeing, mapping and occupying desertscapes. For example, the video works have folded, looped and doubled ways of seeing with montage, sound and text. Furthermore, creative encounters emerge from the framing, reframing and layering of frames of space and action in video. Video works also make use of the temporal planes of duration and times nested within times – for example, Hollywood time (e.g. cowboys fighting 'Indians'; sci-fi imaginings of extractivism) with military time (e.g. simulation training, satellite surveillance and remote drone activations) – to reveal the multi-temporal components that act across the space of the desert.

Desert-mapping methods also have potential value in spheres of work outside of art practice, given that the approach offers new ways of engaging with spatial complexity and spatial control across land. The two main spheres are: (i) policymaking and professional work concerning use of land and space; and (ii) communities of citizens. In the first category there are actors with the power either to make change or to continue with existing practices that perpetuate suffering. These actors include government policymakers, urban planners and architects. In the second category are civilians who can work together to raise collective

[238] Rubenstein, Astrotopia, 9 and 115. Also see Scharmen, Space Settlements, 89 (on Club of Rome, Limits of Growth, 1972). Also: Steven A. Mirmina, "Elon Musk's Starman: Is It Really Legal for Billionaires to Launch Their Roadsters into Space?" Harvard Law Review, 2018, and Space Law Reseach (George Town Law Library).

consciousness in order to change habits and create a better future world. These citizens join a rich tradition of diverse indigenous communities, human-rights advocates and ecologists. Given the urgency for the planet and all humans, the two groups should unite in their efforts.

4.3.2 Beyond the desert

Although spatial complexity is most easily perceived in the open desert, it has relevance for other environments and broad implications for justice across space. My research findings can inform the interlinked fields of urban planning, architecture, ecology, human rights, law and conflict resolution, and invite them to absorb new ideas on spatial complexity, control and hospitality, in order to promote equal rights of land and bodies across space. The experimental cartographic methods of desert-mapping, and the spatial consciousness that they germinate, can be used to further develop ecological and kinship-based ethics for the greater good of the planet.

This research was motivated by the long-standing military training and testing in the Southwest deserts and the absence of contemporary research into the management and design of spatial interactions – especially military simulation – in these contexts. It was also motivated by the desire to engage with the other past/present/future space-times of these sites. Desert learning offers a new way to think about space, land and territory using an artistic methodology that is site-specific. Starting with the human body's immersion in the desert, desert-mapping is a means to generate new encounters with the scale, breadth, isolation and multiple temporalities of the desert, stimulating a new spatial vulnerability. These desert encounters, brought about by artistic practices, are a means to decentre the human body from colonial perspectives on space and land, embracing new ecological and more-than-human narratives that exist across multiple space-times. By providing new methods to acknowledge space, land and bodies, the methodology developed here has the potential to seed new ways of seeing and being in the desert and beyond.

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APPENDIX

INTRODUCTION

Appendix 0.0



Zuni Pueblo, New Mexico, John K. Hillers, 1879. In Paula Richardson Fleming and Judith Luskey, The North American Indians in early photographs (Oxford: Phaidon Press, 1991) 147.



Zuni Pueblo, New Mexico, Stereograph, Timothy O'Sullivan, 1873

(See *Library of Congress:* https://www.loc.gov/resource/stereo.1s00368/).

Appendix 0.1

In 1993 after the US sustained massive casualties in Somalia (Mogadishu,) the military and state shifted Fort Irwin towards urban warfare. They created the villages and towns of the country Atropia, which resembles the Middle East and features mosques and signs in Arabic. Within the fiction, the Atropians ask the US to defend them when the nation of Denovia invades. The citizens of Atropia are often played by Iraqi refugees speaking Arabic in role-play. The Blackhorse regiment (11th Armoured Cavalry) acts as the insurgents (Denovians) and all opposing forces for all those training at Fort Irwin.[239]

At the time of visiting Fort Irwin (2019), the simulation training was focused on Middle East desertscapes and urban warfare. In 2023, Fort Irwin started to introduce signage in Russian, Polish, Ukrainian, and Armenian to prepare training in response to Russia's invasion of Ukraine. I have not been able to visit since then, so I do not have first-person insight into the changes. However, it is not the first time the simulation has changed both its geographical focus and the adversaries, and reports say that the simulation sets I visited remain intact.[240]

[239] Information here was supported by on-site discussions and Alan Taylor, "A Replica of Afghanistan in the Mojave", *The Atlantic,* September 18, 2013.
[240] Confirmed through Sonia Paul and Roman Mars, "Imitation Nation", *99% Invisible*, Podcast Episode 566, February 16, 2024.

Appendix 0.2

MISSION

NTC Mission

The National Training Center trains rotational training units, joint, interagency and multinational partners to build and sustain readiness to fight and win, while simultaneously caring for our Soldiers, Civilians, and Family members.

Vision

Train the Force to win in Large Scale Combat Operations.

- Develop ready units and adaptive leaders
- Replicate complex, hybrid threats using a dedicated opposing force and a high fidelity training support system (peer/near-peer threats)
- Replicate TSC and ESC capabilities to command and control RSOI, regenertion and EAB sustainment
- Integrate conventional, joint, special operations forces, and Unified Action Partners
- Provide a "leadership crucible" event
- Develop unit and leadership skills required to win

Priorities

Attracting, Caring for and Retaining quality Soldier's, Army Civilians and Families... enables Training the Force to Win.

- Improve the quality of life for the Fort Irwin Community
- Develop and sustain Cohesive Teams
- Transformation to NTC 2028 - Improve the high fidelity training environment in all five domains
- Execute a robust outreach effort with our Army, our Unified Action partners and the American People

Mission Statement for Fort Irwin, National Training Center.

https://home.army.mil/irwin/about/mission

Last accessed: February 2024

Appendix 0.3



Redacted: Beverley Buchanan, *Marsh Ruins*, 1981–ongoing.
Cement and shell-based tabby concrete.
Marshes of Glynn (southeast coast of Georgia), Brunswick, GA, USA.

This site-specific artwork was created on-site and changes over time, eroding with weather and environmental conditions.

Images of the work are available at: Amelia Groom, *Beverly Buchanan: Marsh Ruins* https://ameliagroom.com/beverly-buchanan-marsh-ruins/ and Siddhartha Mitter, "A Vanishing Masterpiece in the Georgia Marshes." *The New York Times*, July 29, 2023. Both links were accessed in 2024: https://www.nytimes.com/2023/07/29/arts/design/beverly-buchanan-land-art-georgia.html.

Appendix 0.4



Jeremy Deller, *It is what it is*, 2009, United .

Photographs taken throughout the tour.

Image: Courtesy of Jeremy Deller and The Modern Institute/Toby Webster Ltd. All rights reserved.

CHAPTER 1

Appendix 1.0



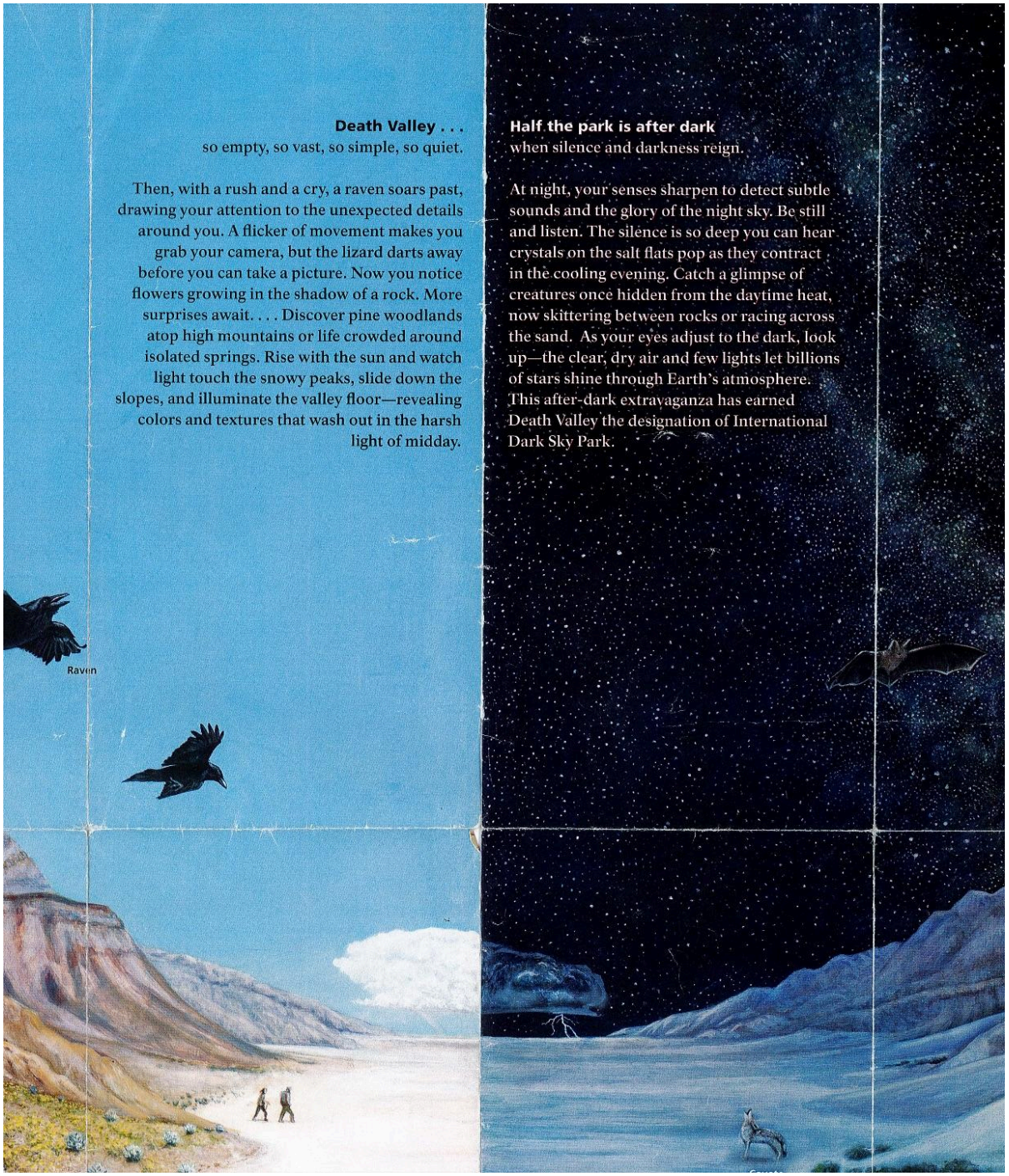
Craters from nuclear testing in the north end of Yucca Flat, Nevada, date unspecified.
Photo courtesy of National Nuclear Security Administration / Nevada Field Office, public domain.

Appendix 1.1

Excerpt from Desert Diaries (K. Yoland):

The dry heat hits like a wall pushing into one's body, creating a sensation of skin on the verge of searing. Simultaneously, bright light comes from all directions, causing the eyes to squint and water. Momentarily blind, the body only has its skin covered in a new temperature. As vision adjusts, reference points remain ambiguous: eternity stretches out as perspective vanishes. A new sense of the horizontal floods out from beneath one's body, creating vertigo for a previously underestimated spatial plane. Inside this new scale, the body struggles to find its bearings – is it a fixed point going nowhere or raw energy ready to flow in all directions?

Appendix 1.2

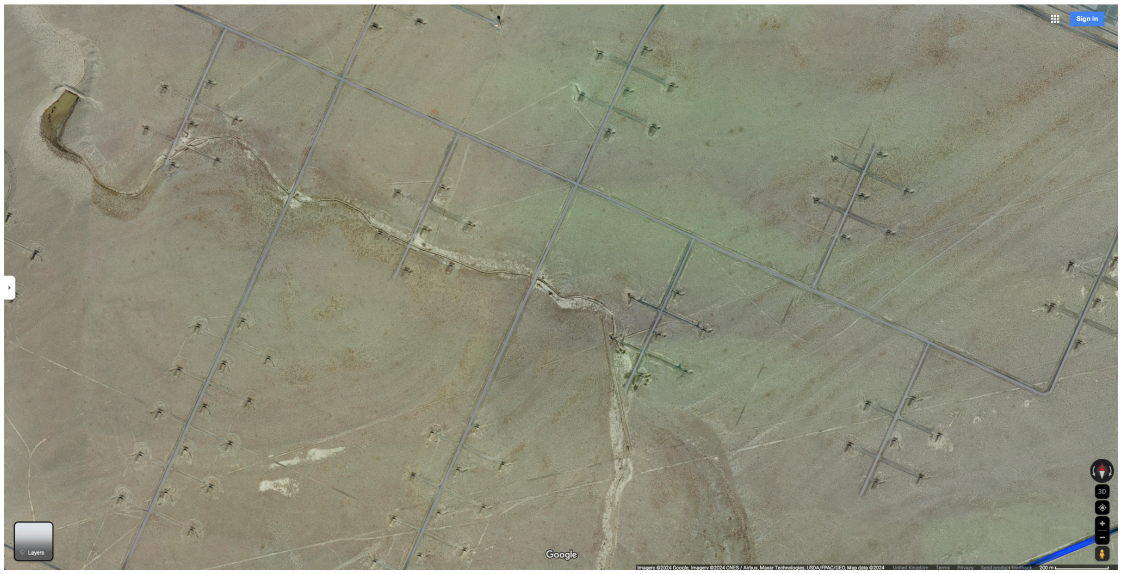


Scan from Death Valley National Park map, describing the change between day and night.
Image: © Death Valley National Park, public domain.

Appendix 1.3 (NAVSEA and location of the sign)







Appendix 1.4

It is underscored by the popularity of Westerns from the first 11-minute feature, *The Great Train Robbery* (1903), to John Wayne's eighty Westerns, which upheld Manifest Destiny and American exceptionalism (e.g The Searchers, see images on next page). From the mid-1960s, this started to be addressed through revisionist Westerns such as Clint Eastwood's *High Plains Drifter* and Sergio Leone's Spaghetti Westerns, (e.g. Dollars Trilogy) which depict white settlers with more moral ambiguity and reveal the extreme violent actions of settlers. More recently, films such as *The English* (2022, TV series), *There will be Blood* (2007) and *Killers of the Flower Moon* (2023) address violent, territorial and extractionist actions by white settlers. (Note that the 1910 film mentioned was set in the desert but not shot in the desert. One of the first Western films to be shot in the desert was D.W. Griffith's *Was He a Coward?* (Southern California, 1911))[241].

[241] See: Shannon Vittoria, "The American West in Film", *The Met Museum* (online research associate article), January 30, 2014.

Appendix 1.5





John Ford, dir. *The Searchers*. Warner Bros. Pictures, 1956.

Images © Warner Bros, all rights reserved..

Appendix 1.6

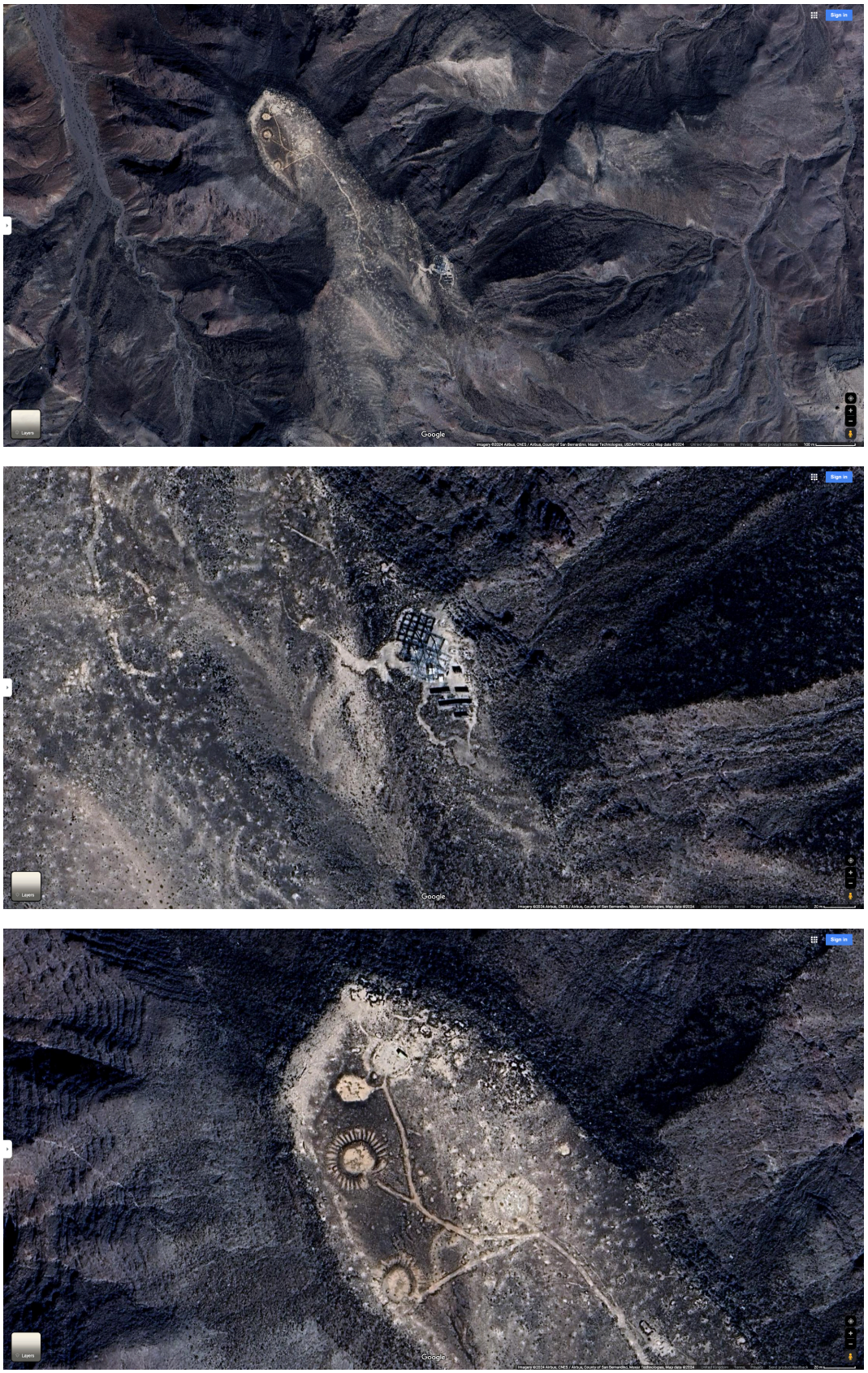


Charles Schreyvogel, *Attack on the Herd* ("*Close Call*"), circa 1907.



Frederic Remington, *A Dash for the Timber*, 1889 ("Cowboys in the Southwest Shooting at Apaches")

Appendix 1.7



Mountains in Twentynine Palms military site, screenshots, Google Earth, 2023, K. Yoland.

Appendix 1.8



Twentynine Palms Marine Base, 2023.
'America's Battalion' photo by Cpl. Aidan Hekker, courtesy of Defense Department, DVIDS.

"U.S. Marines assigned to Charlie Company, Battalion Landing Team 1/5, 15th Marine Expeditionary Unit, fire at targets from a trench while conducting Range 410A at Marine Corps Air-Ground Combat Center, Twentynine Palms, California, Sept. 12, 2023. Range 410A is a platoon live-fire and maneuver combined arms attack range designed to train units in tactics, techniques, and procedures required to provide a sustainable and operational unit across the conflict continuum."

Appendix 1.9

Since 2007 Fort Irwin has integrated an additional form of training to those goals, which include learning not to disrespect or anger the locals in the fictional country. This is in order to avoid increasing insurgency (anti-American sentiment). Magelssen witnessed the new form of training in 2007 when he visited Fort Irwin. From this period trainees were faced with 9 villages which are labelled pro-american, neutral or anti-American – white, grey or black respectively. The soldiers are tasked with keeping white towns white and attempting to turn the other towns grey or white. Magelssen, “Rehearsing the Warrior Ethos” (56).

The new training directives resulted from the damage caused by US forces and US corporations acting in Iraq since the 2003 invasion. Their actions led to anger and distrust of North Americans and fueled insurgent activity. Thomas R. Mockaitis delivered a government report (2007) condemning US action. The report urged a new approach, known as the “British model”, in which a counter-insurgency strategy included “balancing a military campaign with a “hearts-and-minds” campaign designed to build trust” (Magelssen, 53). For the full report see: Thomas R. Mockaitis, The Iraq War: Learning from the Past, Adapting to the Present, and Planning for the Future, Strategic Studies Institute, February, 2007. http://www.strategicstudiesinstitute.army.mil/pubs/ display.cfm?pubID=754 (30 August). For examples of “institutionalised cultural insensitivity and arrogance” which led to anger and distrust by Iraqi citizens also see Magelssen, “Rehearsing the Warrior Ethos” (53-54).

CHAPTER 2

Appendix 2.0



Robert Smithson, *Yucatan Mirror Displacements (1–9)*, 1969.
Image: © Holt/Smithson Foundation / DACS, London, all rights reserved.

For relevant offsite work engaging with perspective and more-than-human temporality, see Smithson's sculpture *Mirror Displacement: Indoors* (dead tree and mirrors), created for *Prospect 69* at Kunsthalle Düsseldorf, Germany, in 1969:
https://holtsmithsonfoundation.org/mirror-displacement-indoors.

Appendix 2.1





Cannupa Hanska Luger, *Mirror Shield Project*, with Standing Rock Sioux Tribe Reservation and in the context of the The Dakota Access Pipeline, 2016.

Images © Standing Rock Sioux Tribe & Cannupa Hanska Luger, all rights reserved.
https://www.cannupahanska.com/social-engagement/mirror-shield-project





(Top) Joan Jonas, *Mirror Piece I*, 1969 (performance view, Bard College, New York
(Bottom) Joan Jonas, *Mirror Piece I & II*, performed 2024 Perth Institute of Contemporary Arts, Australia.
All Images © Joan Jonas, all rights reserved.



Shirin Abedinirad with Guglielmo Torelli, *Babel Tower*, Iran, 2016. The sculpture responds to movement and weather moving around a core axis. Image © Abedinirad & Torelli, all rights reserved.



Alyson Shotz, *Mirror Fence*, Starphire mirror & aluminium, 2003 (new installation version 2014). Image © Alyson Shotz, all rights reserved

Appendix 2.2

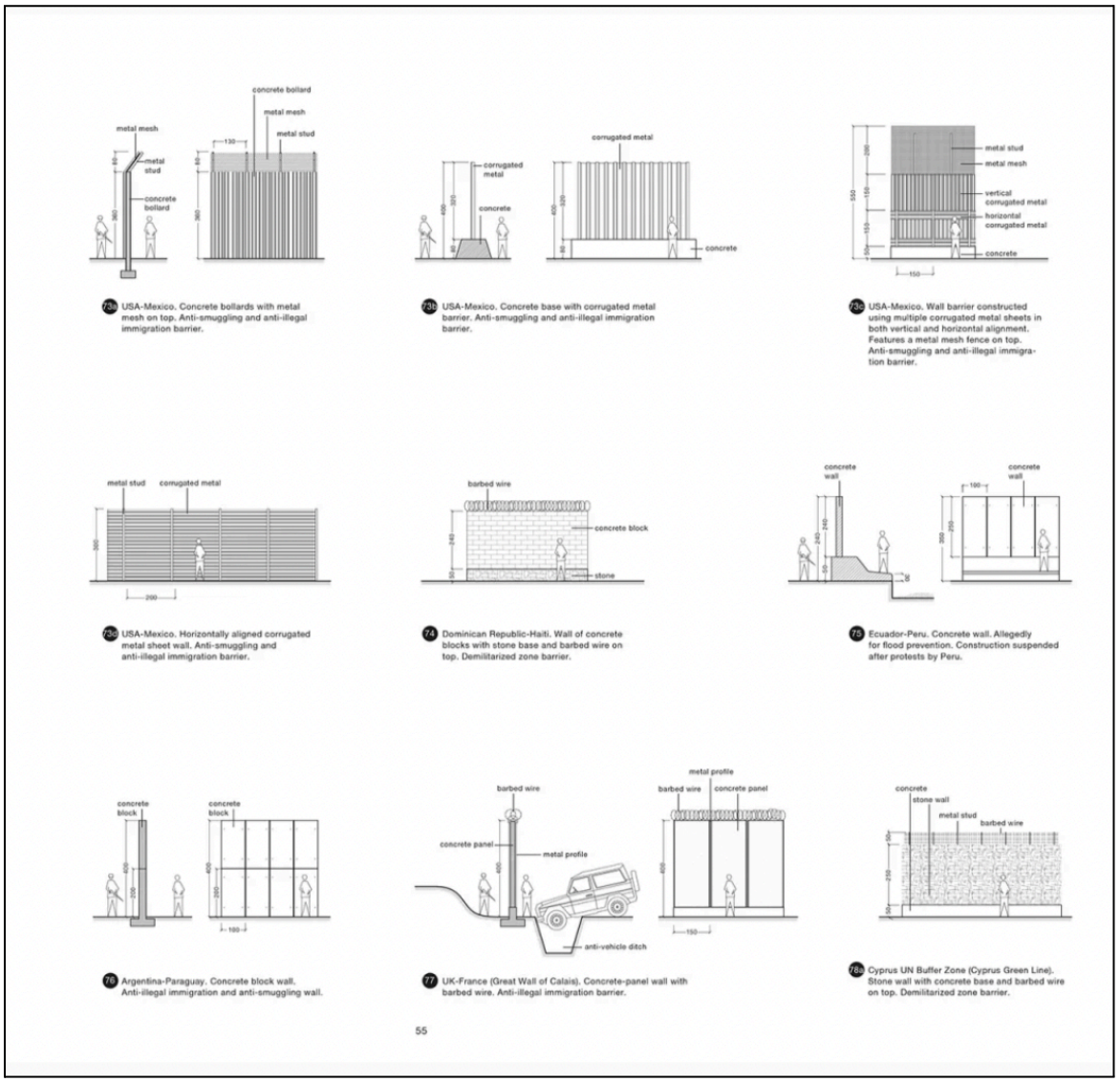


Dan Graham, *Public Space/Two Audiences*, 1976 © Dan Graham.

Image: © Marian Goodman Gallery, all rights reserved.

CHAPTER 3

Appendix 3.0



Handbook of Tyranny by Theo Deutinger, 2018. © Theo Deutinger, all rights reserved.
Diagrams are from the chapter “Walls and Fences”, example diagrams from p.54.

Appendix 3.1



K. Yoland, *I have my eye on you* (series), 2022. © K. Yoland, all rights reserved.
Imagery includes the Apollo 11 moon landing (1969), Fort Irwin military site (Google Earth) and 2001: A Space Odyssey (1968).

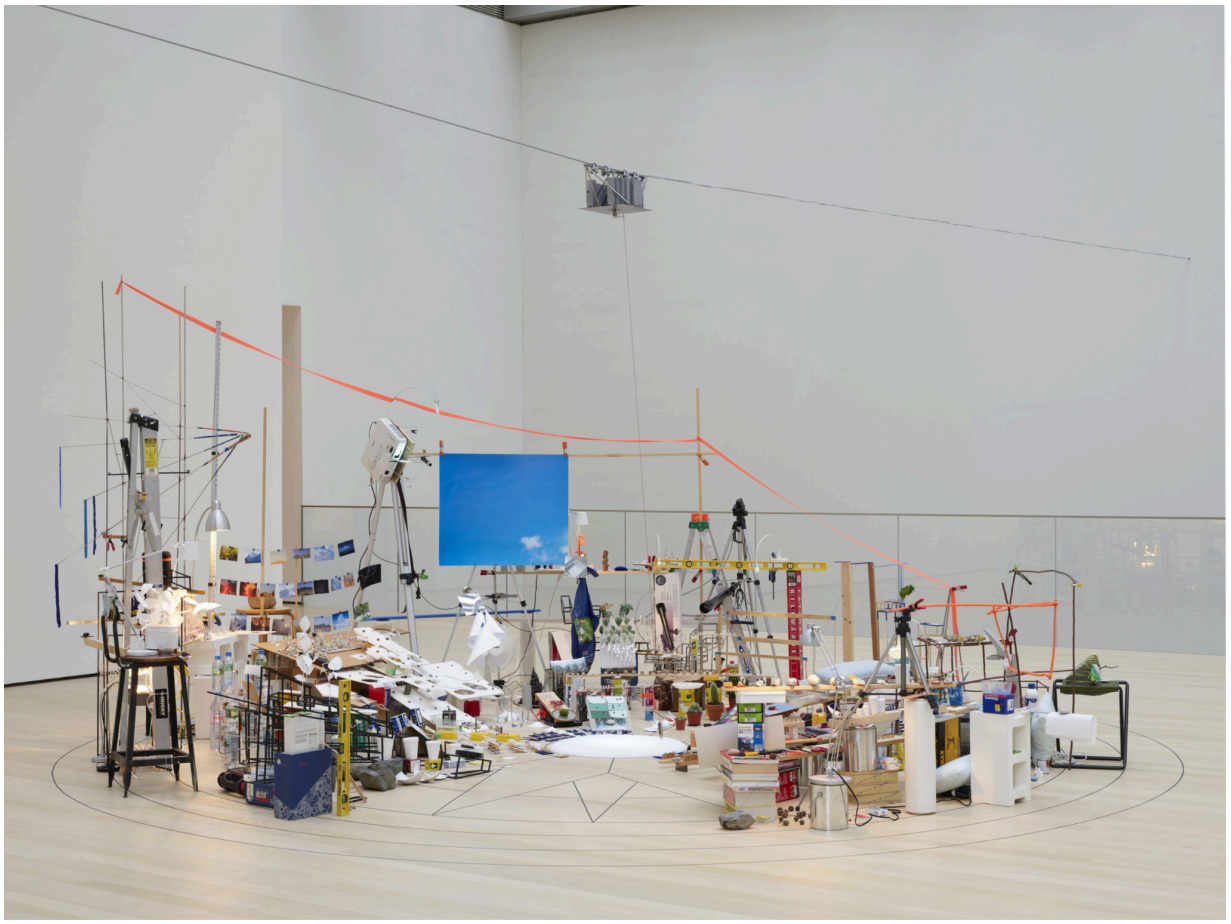


K. Yoland, *I have my eye on you* (series), close-up on series, 2022. © K. Yoland, all rights reserved. Work includes imagery from *The Graduate* (1967), Fort Irwin military site (K. Yoland, 2022) and *The Crucifixion of St. Peter* (Caravaggio, 1601).



K. Yoland, *I have my eye on you* (series), 2023. © K. Yoland, all rights reserved.
Work includes imagery of Fort Irwin military site (Google Earth) and 2001: A Space Odyssey (1968).

Appendix 3.2



Sara Sze, *Triple Point* (Pendulum), installation as seen in MOMA, 2013. © Sara Sze, all rights reserved.

CONCLUSION

Appendix 4.0



Alan Sonfist, *Time Landscape,* a pre-colonial forest which is constantly changing with the environment, New York City, 1965-present. Image: © Alan Sonfist, all rights reserved.



Cauleen Smith, *Remote Viewing*, 2011. Images: Video stills © Cauleen Smith, all rights reserved.
Digital film for projection, color/sound. Total running time: 15 minutes, 24 seconds.
Reenactment of the burial of a school for black children on the site in which it first occurred.

Appendix 4.1



Elon Musk's *Tesla Roadster*, with Earth in the background. 'Spaceman' mannequin wearing a SpaceX spacesuit in the driving seat. Camera mounted on an external boom. *Falcon Heavy Demo Mission*, SpaceX, 2018. This image/file has been made available by SpaceX under the Creative Commons CC0 1.0 Universal Public Domain Dedication.

The Tesla Roadster plays David Bowie's *Starman* on repeat and has been orbiting the Sun since 2018. For more information, visit SpaceX at: https://www.spacex.com/vehicles/falcon-heavy/.

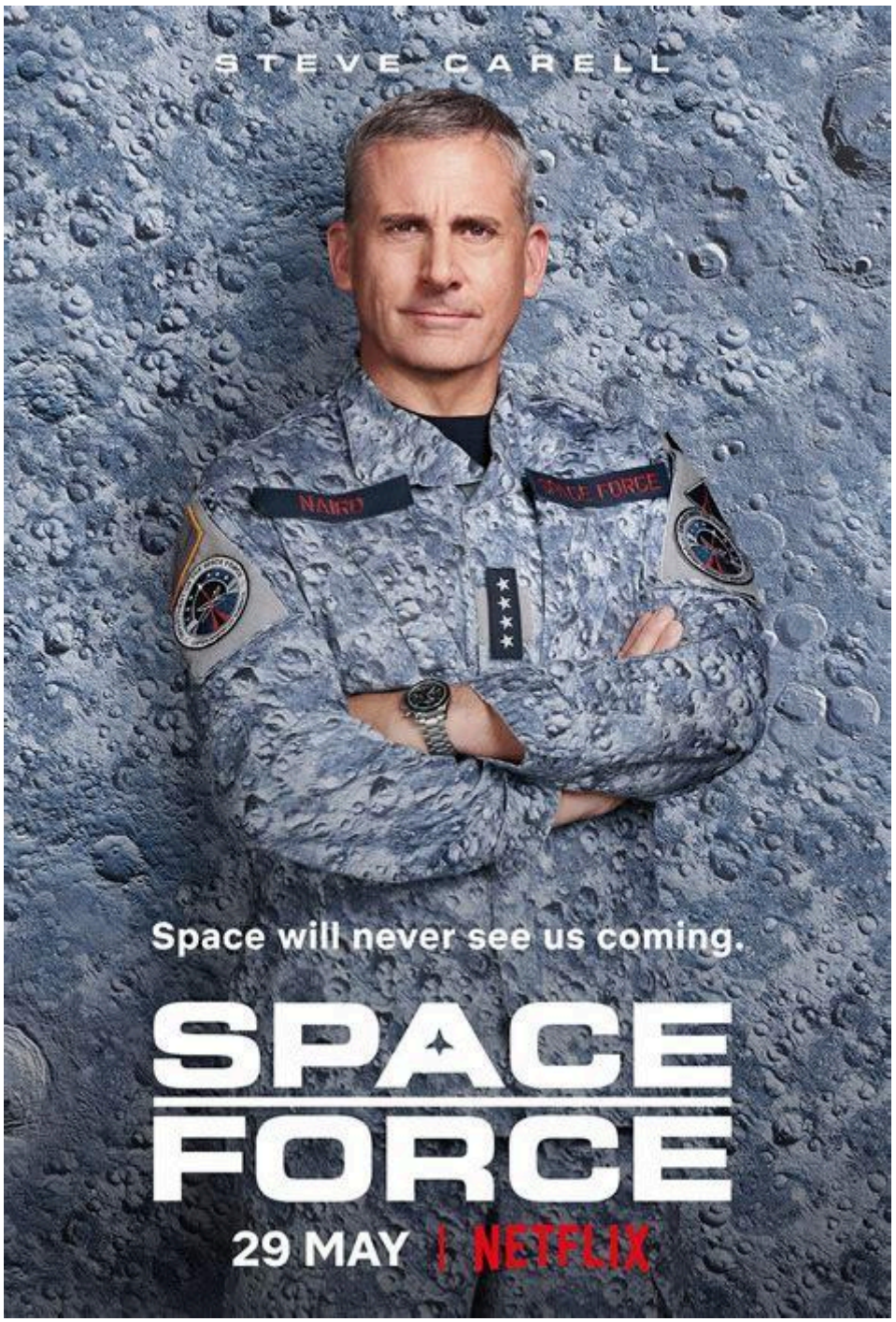






Top image: **(Redacted)** Former President Donald Trump in the Oval Office (White House) unveiling the Flag for the US military wing for outer space 15 May 2020. Space Force was established 20 December, 2019 "the first new branch of the armed services since 1947" © 2020 Alex Brandon, The Associated Press. Bottom images: **(Redacted:)** United States Space Force Flag (left image) which has been compared to the fictional Star Trek logo (right image) © CBS Studios Inc./Paramount Pictures Corp., all rights reserved.

For more information on the United States Space Force: https://www.spaceforce.com/about and, https://www.spaceforce.mil/. For the design and symbolism of the logo: https://www.spaceforce.mil/About-Us/About-Space-Force/USSF-Symbols/.



Space Force, created by Steve Carell and Greg Daniels, 2020. Comedy television series.

©Netflix, all rights reserved.

GLOSSARY

Action(s)

- Acts which involve my body moving through desertscapes and military sites.
- Artistic acts on-site: site interventions, lens-based framing and recording, site-writing, embodied mapping (through movement of my own or other bodies and the use of camera and props).
- Off-site acts: mapping the site through video editing and installation making.

Body(ies)

Human and more-than-human bodies.

Related terms in the glossary: more-than-human.

Cognitive dissonance

The inability to assess distance, scale, and the positionality of one's own body and the bodies of others across space. The term is borrowed from William L. Fox's account of embodied experiences of the Great Basin Desert (2000). The thesis uses the term in the same way but extends it to describe the first set of consequences which emerge when humans encounter spatial complexity across the desertscapes of the American Southwest.

Cognitive dissonance occurs when the human body encounters the immense scale, breadth, isolation and multiple temporalities of the desert. The environment destabilises previously learned cognitive strategies for constructing perspective and interpreting the positionality of bodies across land and space. Cognitive dissonance can impact embodied mobility and interactions through space.

Desert attributes/conditions/environment

The North American Southwest desert's characteristics of immense scale, breadth, isolation and multiple temporalities.

Supporting literature includes: Fox (2000) and Scott (2012, 2021).

Desert hospitality

A hospitality grounded in, and emerging from, embodied encounters with the desert environment. It is a vulnerability conducive to radical thinking, as discussed in chapter one (section 1.3. *Desert hospitality: Exile and vulnerability*).

The thesis asserts that desert hospitality arises from the impact of desert attributes (scale, breadth, isolation and multiple temporalities) which decouple bodies from fixed location or points in space and time and disrupt previous experiences or learned representations of space and land. Such dislocation exposes different scales of time and promotes a spatial awareness that has the capacity to diffuse human-centric thinking about boundaries and territory, and to imagine cross-species co-dwelling, inclusion, equality and resource-sharing. This understanding of hospitality has the potential to engender forms of kinship, care, compassion and refuge equitably to all humans and more-than-humans without hierarchy.

Supporting literature which contextualises diverse forms of hospitality (including the ethical, cultural, political, legal and global (e.g. global migration, borders, and asylum), and animal welfare) and the ramifications of spatial vulnerability, finitude, and exile include: Derrida (2000, 2001, 2002, 2005, 2008), Dufourmantelle (2000, 2013), Mbembe (2019), and Tamas (2012).

Desert Learning (also see Immersion)

The experience of learning from the desert through significant time spent outside on the land (for example, living in the desert or on-site field research). It involves being alone in the desert for periods of time without distraction by other humans, technology or unnecessary amenities and comforts, but it does not preclude safety protocols including maps, compass, first-aid, water/food, survival needs and the use of a vehicle.

My research investigates how immersion in a desert environment might enable a new spatial understanding, a form of ecological thinking. This aligns with American indigenous thought (e.g. Traditional Ecological Knowledge, TEK) that animals and the planet, together with humans, are members of a single community and have knowledge and perspective to share.

Related terms in the glossary: spatial complexity, future ecologies, TEK.
Supporting literature includes: Bennett (2010), Fox (2000), Gibson (2014), Scott (2012, 2021), Solnit (2002), Hokowhitu (2021), Pierotti and Wildcat (2000).

Desert-mapping

A term I developed from working in desert landscapes and military zones. Desert-mapping represents an experimental approach to understanding spatial relations, influenced by the spatial theory of Doreen Massey (1994, 2008). Unlike standard mapping processes it embraces time as a vital component for relations between bodies and space. As a methodology (see introduction chapter, section 0.5 *Methodology*), the mapping process uses diverse creative tools to engage with space and time across different contexts and settings. These tools are site-writing, lens-based processes (video and photography), site interventions, and off-site installations. The process starts with desert learning and immersion, which includes using my body to experience the space-time dynamics (chapter one).

Desert-mapping serves to disrupt human occupation of land in order to explore more equitable spatial relations between humans, more-than-humans and the planet. Ontologically the research can be understood as grounded in a more-than-human approach that decentres the human and regards all things as having equal value. Thus, the outcomes of the mapping can provide fluid and changing perspectives on land, space and the body – stimulating more questions than answers. The mapping process enables active interrogation of colonial perspectives of space, by attempting to undercut processes of surveillance, tracking and zoning (e.g. Fig 2.5, 2.13, 3.1). The process is sensitive to the design mechanisms serving spatial control and is influenced by Peter Sloterdijk's writing on immersion (2011) and Norman Klein's theory of scripted space and special effects (2004) (see respective terms in glossary).

Deep time

A time scale that predates, postdates and is independent of human civilization and includes the universe's evolution. Also known as geological or ecological time. Deep time is important for discussing space-time simultaneity and spatial complexity (see respective terms).

Supporting literature includes: Ialenti (2020), Beech, Elam, Hultqvist (eds) (2016)

Ecological thinking (also see Future Ecologies and TEK)

In this research, ecological thinking refers to new ways that humans might conceptualise and represent land, and act with and on land. It aligns with indigenous thinking which advocates for the rights of more-than-humans and the planet (land, mountains, rivers, trees, etc.) and for community-building with those entities. The research hopes to build ecological thinking through desert learning and creative encounters with desertscapes. Immersion in the desert gives the human body heightened exposure to spatial complexity and the mechanics of spatial control (in this research, through military simulation training). Ecological thinking decentres the colonial perspective on how land is perceived, measured and managed, and instead exposes the multiple temporalities (including more-than-human and geological) which coexist and intertwine with space and land.

Supporting literature includes: Bennett (2010), Crone, Nightingale and Standton (2022), Coccia (2018), Derrida (2002), Dufourmantelle (2013), Haraway (2016), Hokowhitu (2019) Kimmerer (2013), Mbembe (2019), Morton (2013, 2016, 2019), Pierotti and Wildcat (2000), Rifkin (2017), Tamas (2012).

Encounter

An event, rather than a meeting, which produces new thought and understanding. Encounter disrupts preordained representations of the world and its constituent knowledge systems, producing new and unplanned connections. The use of the term is informed by the concept of encounter in the writings of Gilles Deleuze (1994), Johnny Golding (2021) and Simon O'Sullivan (2006).

The thesis focuses on encounters generated by art-making processes, which are site-specific and land-based interactions. It examines how creative acts of encounter are significant for rupturing Cartesian cartographic mapping systems, designed

systems of spatial control, and surveillance processes for perspective, position and proximity to its subject/target.

Supporting literature also includes: Bennett (2010)

Equilibrium

The term equilibrium is borrowed from Sanford Kwinter's application of the language of thermodynamics (2008) in which he argues that government and capitalist systems aim for an equilibrium point to dampen instability and make reality 'concrete'.

Fictioning

This term refers to art-making processes which respond to real-world socio-political matrices in order to build and code new ways of seeing and thinking. The evolving language that is developed by my artistic practice, aesthetic or otherwise, forges different ways of seeing to challenge current systems which prescribe ways of behaving and living. Fictioning provides the possibility of collectively becoming otherwise. My use of the term is informed by fictioning as found in the writing of David Burrows and Simon O'Sullivan (2019).

Flattened space

These are spaces which have undergone constraint – 'flattening' – through human-constructed design mechanisms which impose or oblige certain modes of interacting with the space. Flattened spaces are highly controlled, limited and exclusive/hierarchical. Examples are: military zones, gated communities, airports, international borders, government buildings, city centres, churches, schools, prisons, factories, housing estates, refugee camps, and occupied lands/nations. The designs (both visible and invisible) function firstly to alter an exterior or interior space by way of zoning, borders and laws which restrict mobility, action, access and/or rights to the space. This limits the visiting/existing body's power to choose how to interact. It also restricts the visibility of alternative interactions with the space in the past, present and future, reducing opportunities for change, equality and/or uprising. Flattened space is the outcome of spatial control and the suppression of spatial complexity due to rules and unequal power dynamics. Living or working in a flattened space often makes the body feel disempowered and unable to imagine escape.

Supporting literature includes: Massey (1994, 2008), Soja (1996, 2010) Klein (2004, 2008), Sloterdijk (2011), Weizman (2007), Woodward (2004).

Fold

The term aligns with Gilles Deleuze (1992) and Johnny Golding's use of fold (2021). In this context, a fold is the existence of multiple contexts and space-times which communicate but do not meet, for example:

> That which is 'past' would be entangled with 'the future', and the whole of the universe would be reshaped without edge or outside. Entanglement, here, does not mean 'swallowed up' or even 'mingled'. It speaks to the shift into multiple dimensionalities, the font of string theory...
> — Golding, "The Courage to Matter" (2021, 480).

I refer to folds in order to understand how dynamics of power, struggle and freedom interact in the desert, including the dynamics of spatial complexity (space-time interrelation) and its survival inside zones of spatial control. Thinking in terms of space-time folds has allowed me to consider how desert-mapping can creatively work with acts of slippage and glitching (with respect to perspective, positionality and proximity) to reveal alternative ways of operating and seeing land and space.

Future ecologies (also see Ecological thinking)

'Ecologies' encompass environmental subjects as well as systems, communities, and relations built between and shared by human and more-than-human beings. Applying 'futures' to these ecologies makes reference to the future possibilities and future realities already in the making through thought and collaboration.

My research borrows this framework from the compendium 'Fieldwork for Future Ecologies' (Crone, Nightingale and Standton, 2022). I build on the term to argue that thinking in terms of future ecologies is also to be thinking with and across space-times and, in the context of my research, engaging in desert hospitality and desert kinship. I argue that these ways of thinking and doing build empathy with bodies and land across space (also known as spatial empathy).

Supporting literature includes: Bennett (2010), Coccia (2018), Derrida (2002, 2008), Dufourmantelle (2013), Haraway (2016), Kimmerer (2013), Mbembe (2019), Morton (2013, 2019), Rifkin (2017), Tamas (2012).

Glitch

Throughout the written thesis the term glitch refers to hidden states influencing and acting on body and space. The glitch is the moment at which the fold becomes fractionally visible before disappearing again. An art process can provoke glitches through experimental acts of encounter. In the context of my research, the process is conducted with spatially choreographed arrangements, including aerial maps, mirrors reflecting the spectator or landscape, delayed feedback loops, and video of site actions embedded into new off-site installations. These approaches allow new connections to percolate, emerge and collide.

The term glitch was coined by Legacy Russell (2020) in the context of race, gender, and the digital landscape. Although the spatial context differs in my research, the ideas of how the glitch operates – and its subversive power – remain aligned.

Human time (Individual time/Colonial time)

A colonial time scale measured by the length of the 'average' human life, significantly shorter than deep time. It is based on a Western understanding of time and is linked to the monochronic, which 'segments time into small units so time can be managed and scheduled' (Matamua, *Matariki and the Decolonisation of Time*, 65). In contrast, diverse indigenous understandings of time, such as the Māori system, are described by Matamua as polychronic – fluid and environmental. Notably, there is no singular Māori system of time; rather, it varies by tribe, locality, and region (67).

Supporting literature includes: Adam (1995), Sobelle (2021), Matamua (in Hokowhitu ed., 2021), Rifkin (2017).

Immersion

In this research, immersion relates to the human body in two ways: (i) immersion in the built environment and (ii) immersion in the natural environment.

(i) Built Environment:

Building on the term used by Sloterdijk (2011), immersion in a built environment is an action in which the human or non-human body knowingly or unknowingly cedes control of the immediate environment in order to survive, live or move within the space. Inside a built environment, space bears certain rules designed to govern

navigation/mobility. These rules affect the physical and psychological state and action of any body and require adherence or compromise to manoeuvre. Examples include access to a room through single vs double doors of a certain width and height; access to upper floors by spiral staircase vs elevator; floor-to-ceiling windows vs prison windows; stone vs carpeted floors. In this context, built architecture involves varied spatial control over the bodies which enter. Also relevant is Philippopoulos-Mihalopoulos' (2015) theory of atmosphere in which he argues that the human body is always in a lawscape (interior space, e.g. hotel or airport, or exterior space, e.g. motorway, bike lane, public park) in which the body is guided, controlled, and absorbed within the lawscape's parameters:

> Atmosphere is the lawscape that has managed to reach its 'perfect' dissimulation as a non-lawscape… It is what remains when the lawscape departs, that is to say, when the interplay between in/visibilisation has been replaced by one self-perpetuating, all-containing elemental bubble of air and water and earth, one grand dissimulation.
> — Philippopoulos-Mihalopoulos, *Spatial Justice: Body, Lawscape, Atmosphere* (2015, 107).

Philippopoulos-Mihalopoulos work on spatial justice suggests that justice is inseparable from space, as law and spatial structures co-produce immersive environments.

(ii) Natural Environment:

Relevant to spatial complexity, another form of immersion is found in Coccia's work (2018), in which he proposes that to exist in the world is to be "in the sea of the world" where all living things are immersed. His work begins with an exploration of how plants merge with their environment – absorb water, air, and sunlight – and in turn are involved in continuous exchanges and mixtures. From this, Coccia develops an argument that rather than being discrete objects, movement and interrelation dissolve distinctions between humans, more-than-humans, and the environment. (Coccia, The Life of Plants, 32).

Manifest Destiny (also see Westward Expansion)

A mythology founded on the Judeo-Christian belief that God's chosen people were given the United States to colonise and found as their kingdom. The fundamental tenet that the land, natural resources and animals are the dominion of God's people

is used to justify Westward Expansion, genocide, forced displacement, re-education camps and slavery of indigenous populations across the continent.

Supporting literature includes: Fox (2000), Rubenstein (2023) Scharmen (2021), Zinn (2003, 2005).

More-than-human

Bodies, matter and beings that include non-human animals, plants, organisms, Artificial General Intelligence, and multi-species and future-species communities.

The term is commonly used. See for example Crone, Nightingale and Stanton (2022).

Individual time – see Human time.

Kinship

Kinship refers to the extension of care, compassion, friendship and community equitably to all humans and more-than-humans without hierarchy. In this research, kinship is informed and supported by critical race theory, ecological thinking, and anti-speciesist thinking.

Supporting literature includes: Derrida (2000, 2002), Dufourmantelle (2013), Harraway (2016), Mbembe (2019), Tamas (2012).

Scripted space

Norman Klein's term to describe how design functions in casinos, places of worship and shopping centres (2004). Functioning as special effects, the design of these built environments invisibly controls the experience of the visitor, but gives the navigator the sensation of choosing and building their own journey within the space. The design often reduces visible exits while providing regular instances of directional choice. All active choices are manipulated to give a false sense of freedom. The outcomes are in fact the same no matter what the navigator's decision. In the case of the casino and shopping centre, the objective is capital; in the case of worship, it is awe and reverence. In both cases, awe or capital, the outcome is one in which the built environment maintains a position of power and control.

Simulation

Throughout the thesis, 'simulation' pertains to military training sites that are physical not virtual. They involve sets built to scale. In the case of Fort Irwin National Training Center, these sets are fake Middle Eastern villages. The sets are embedded with surveillance cameras, smell machines and speakers. When active, the simulations involve actors, trainers and pyrotechnicians. The sites are used to rehearse battlefield scenarios within semi-urban environments.

Other relevant physical simulations include Israel's mock Gaza (Tze'elim army base), mixed-nations training in Amman, Jordan (King Abdullah II Special Operations Training Centre), training sites for occupying Mars (e.g. Hawaii and Utah (US), Devon Island (Canada), Oman desert (Oman), Gobi Desert (China)) and urban simulation sites for governments to test riots, civil unrest, terrorism and home-based warfare.

Supporting literature includes: Der Derian (2001), Magelssen (2009), Weizman (2007), Khoshgozaran (2018), Kripa and Mueller (2020) and Pereg (2018).

Spatial (in)justice

Spatial justice for bodies includes having equal rights to move, interact and live in space without segregation, violence, or suffering. Spatial justice cannot be separated from economics or the environment and resources which enable bodies to survive and evolve. Spatial injustice prevails in spaces linked to active war, occupation, colonial roots, poverty and pollution, and across all spaces for bodies suffering prejudice.

In my research, spatial injustice is considered through the impact of spatial control on diverse bodies: this includes how spatial control affects im/mobility and rights to land, and legalises forced occupation and ideologies of territoriality. An example of spatial justice put into practice from an architectural perspective is Studio O led by Liz Ogbu who expands the voices included in the design process in order to ensure the environment is designed with an inclusive core (https://lizogbu.com/studio-o).

Practical applications of broad knowledge systems to justice across space include the numerous projects by Forensic Architecture in which archaeology, scientific study, and spatial analysis are implemented in order to highlight or challenge oppression and segregation of bodies across land. Examples include: Shireen Abu

Akleh: The Extrajudicial Killing of a Journalist and Restituting Evidence: Genocide and Reparations in German Colonial Nambia (https://forensic-architecture.org/).

The subject of spatial justice is informed by: Henni (2022), Massey (1994, 2008), Philippopoulos-Mihalopoulos (2015), Solnit (2020), Soja (1989, 1996, 2011) and Weizman (2002, 2007).

Sovereign time

This term is borrowed from Stefanie Sobelle (2021) and is also known as political time: times in which large-scale histories and power infrastructures are marked. For example: Roman era, Westward Expansion, Second World War, Cold War, Vietnam/American War, Rwandan Genocide, Iraq Wars. All wars, political power and industrial/technological revolutions are part of sovereign time.

Space-time

A term used by Massey (1994) to describe space and time as intertwined and interdependent. Past, present and future iterations of space are always co-present, shaping and informing how a space operates. Ignoring the temporal factors across space prevents a full assessment of power dynamics, inequality and non-human factors at play across land and space.[242]

I assert that spatial complexity exposes humans to space-time relations and forces humans to acknowledge time as a core component and interrelated dynamic with space. In contrast, I argue that spatial control suppresses the various time scales of space (operating simultaneously) by attempting to impose the narrative – and thereby impose the one time scale of the oppressor – in order to block alternatives and freeze potential change.

Supporting literature also includes: Golding (2021) and Soja (1996; 1989).

Spatial complexity

The concept of spatial complexity developed from my experiences of embodied active research in the open desert, and the contrasting military actions within desert sites. It is supported by existing spatial theory in seeking to understand

[242] I also recognise that space-time is a focus of the domain of physics and mathematics. Relevant work includes Minkowski space in which time is recognised unlike in Euclidean space.

alternative relations to space, and builds on Massey's argument for the interdependent nature of space-time relations including the stories of past, present and future. It is also informed by Soja's Thirdspace, Golding's theory of entanglement, and Lefebvre's trialectic deconstruction of space as built, imagined and lived by all. All four theories point to inextricable connections between space and time. Spatial complexity is also informed by its counterpoint, military control, and by Klein's analysis of scripted space (manipulation of mobility and choice) and Sloterdijk's proposition that built environments inevitably impose control on bodies.

All spatial relations exist within interconnected space-times in which past, present and future iterations co-exist and communicate. In this framework, space cannot be separated from time, and time is non-linear. Spatial complexity emerges when the human body encounters the multiplicity of space-times. It forces the body to have new experiences with space and land, which challenge pre-learned representations of space as merely points and locations. In chapter two I argue that the desert reveals the existence of multiple temporalities (including deep time), destabilising the dominant western colonial perspective on the relation between human bodies and space.

See introduction chapter, section 0.4. *Spatial dynamics and the desert*.
Supporting literature: Massey (1994); Soja (1996; 1989), Lefebvre (1991), Golding (2021), Klein (2004, 2008), Sloterdijk (2011).

Spatial control

Spatial control suppresses/hides spatial complexity by implementing territorial zones (military, urban, corporate, nation states, satellite) in which migration and mobility are constrained and monitored. It involves land-based operations that attempt to fix the system permanently, ignoring the impact of past iterations and blocking the possibility of future change. Spatial control is like a polarising lens which flattens space and severs it from time. The thesis examines spatial control in military training sites and simulations. At these desert locations, spatial control is tested and perfected by harnessing the desert's scale, breadth, aerial sightlines and isolation, which allow the military to conduct large-scale rehearsals and to iterate strategies for global-scale territorial relations.

See introduction chapter, section 0.4. *Spatial dynamics and the desert*.
Supporting literature includes: Massey (1994) and Soja (1996).

Spatial empathy

Acts of empathy which develop and evolve from encounters between diverse bodies across space and land.

Spatial empathy emerges from an embodied experience of open land and spatial complexity. A body's exposure to spatial complexity produces an encounter with intertwined space-times, which leads to an awareness of land being far more complicated than fixed points on a map. The encounter ruptures representations of land and disrupts territorial thinking. In the absence of borders, boundaries and fixed points, the mutual vulnerability of all bodies in space becomes apparent. This sense of vulnerability produces empathy that extends to other bodies in space.

Traditional Ecological Knowledge (TEK)

Traditional Rcological Knowledge refers to the practices and philosophies of indigenous peoples of North America. TEK refuses ecological hierarchies and pivots on a broad understanding of community which includes more-than-humans and the planet (e.g. rivers, mountains, trees).

Supporting literature includes: Pierotti and Wildcat (2000)

Thirdspace

A term coined by Edward Soja (1996), deriving from his argument that spatial relations are just as important to human lives as history and the social. In his interview with Christian Borch (2002), he highlights his argument as a "critique of Marxist geography's inherent privileging of the social over the spatial".9 We are affected by the spaces we inhabit (for example, the spaces of a prison cell, housing estate or penthouse will produce different outcomes). Soja calls this the socio-spatial dialectic in which our environment directs our life as much as our life (or class, as Soja puts it) directs our surroundings. Instead of time (history) being imposed on space, Soja asserts that there are two dialectics which interweave – the spatio-temporal and the socio-spatial. This interaction becomes his Thirdspace perspective, which he recognises as similar to Lefebvre's triple dialectic (1991) and Foucault's heterotopia (1994). Both writers had highlighted the limitations of previous theories of spatial relations, as "insufficient to understand the simultaneously real and imagined 'other spaces' in which we live".10 For Soja, they

were advocating for a method of “thirding” which allows, contrary to binary logic, the coexistence of real and conceived space.

In Soja’s Postmodern Geographies (1989), he discusses Foucault’s positioning of space alongside power and knowledge. This is supported, not surprisingly, by Bentham’s panopticon in which the spatial dynamics of the prison mean that the prisoners police themselves out of fear of being observed by the guards (who may or may not be watching from the centre of the space).

Soja, Foucault and Lefebvre’s writings are predominantly applied to built environments (such as cities, prisons, hospitals and homes). I build on their argument by applying it to human encounters with desertscapes. These landscapes are traditionally misconstrued as uninhabited, but in fact are used for military training and speculative human development and colonisation. So, the thesis seeks to explore how the built zones and training sites have affected our relationship to natural/unoccupied environments, and how training in open spaces influences how we condition and control bodies. These explorations inform the understanding of spatial control (see relevant term).

Supporting texts: Soja (1996), Foucault (1994), Lefebvre (1991), Bentham (1995), Woodward (2000).

Westward Expansion

This term refers to North American expansion by European colonists moving westwards across the United States to the north Pacific Ocean. The expansion was justified by their belief in Manifest Destiny, and the imperial, colonial and racist principles inherited from Europe. Westward Expansion involved land grabs, resource plundering and forced expulsion of indigenous peoples from their homelands. It also involved genocidal killing, forced re-education camps, and slavery of indigenous communities. Also see: Manifest Destiny

Supporting literature includes: Fox (2000), Rubenstein (2023), Scott (2012), Solnit (1994), Zinn (2003, 2005).

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