

MADE UP GROUND

We stand on made-up ground

There are no blank slates, no tabula rasa, and so, at the start of any construction project excavations and earth works try to assert ground level, working against the site as it exists, which stubbornly refuses to comply with the precise lines of an architectural drawing. Where there were once gaps, crevasses, depressions which fell below the ground line, they are now filled and evened out: the vulgarities of reality smoothed over in preparation for the enactment of a new future.

But the echo of the void remains. The material used to fill the gaps remains more porous than the earth around it, however much it might be compacted and compressed, seams of difference exist. These areas of infill remain unsteady, they cannot bear the same loads as the ground which surrounds them. Ribbons of tension run through, fractures which are treacherous and liable to slip.

The areas of infill are referred to as made-up ground.
Made-up ground is unreliable, unstable, unsettling.
All cities stand on made-up ground.

BREAKING GROUND

This is a talk about ground, more specifically, about how we touch the ground, the points of contact we make with the places we inhabit and how they shape us in return.

It is an attempt to focus on the everyday meetings between the body and the built, not as something that we reach for, stretching out a hand to stroke the surface of shuttered concrete, but as a point of constant connection, grounding us in the world.

This is new ground for me. As an architect and lecturer in architecture I have been trained in, and now teach visual methods of representation. Along with most of my profession I am mired in bias towards sight. But this singularity of focus denies so much of the complexity of place. In my work with science fiction I have traversed terrains of spectacular strangeness. And it is this intimate connection with the surfaces of other worlds which has driven me to seek out new ways of considering the built. The made-up ground of science fiction has, yet again, given me grounds to think my world anew.

So this is an attempt to look away, to lower my gaze and develop an attentiveness to the world in which I find myself. In her discussion of geographies of responsibility Doreen Massey talks about how global phenomena are grounded, carried into places by individual bodies.

She draws on the work of Gibson-Graham who call for “a set of embodied interventions that attempt to confront and reshape the ways in which we live and enact the power of the global.”¹ A focus on embodied experience, and, I would argue, a consideration of touch, can

¹ Julie Katherine Gibson-Graham “Beyond Global Vs. Local” 2002, cited in Doreen Massey ‘Geographies Of Responsibility’ 2004

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be a way to avoid the slick finish of the glossy visual to resist the flattening's of globalisation, by providing an intimate and innately individual specificity of place.

Touch blurs the boundaries between our bodies and our environment, between this place and another, opening us up to consider the relations and identities through which we and our places have been constructed, allowing us to acknowledge our multiple and varied responsibilities.

Along the way, I will be guided by Joan Slonczewski's *A Door Into Ocean*. Written by an author who is also a microbiologist, (and just in case anyone is tweeting, Joan's pronouns are they, them) it provides us with an exploration of life on the ocean moon of Shora, it presents a world without land, a place where the ground is not pre-existent but must be constructed, woven together and maintained. It is a place where ground is multiple, contextual and subjective.

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Each of the five sections of this talk will follow one specific character as they encounter one of the grounds of the novel. These encounters will be traced onwards into architectural and literary theory, and the other worlds of science fiction, before being considered in relation to the world in which we find ourselves.

As described by Samuel Delaney², it will set the grounds of the fictive world against, alongside, and in between the ground of the given, acting as a seam of difference which troubles the surface, unsettling and breaking the made-up ground on which we think we stand.

FROM THE GROUND UP

Her hands were clenching a steel rail which bounded the terminal platform of the skystreet. Before her, beyond the interminable courtyard, rose the face of the Palace Iridium. A blunted triangle... the façade inclined slightly so as to rise like a steep mountain slope.

And so, we follow the smooth sweeping step of Berenice, as she moves through the fictional city of Iridris, the capital city of Valedon, her bodyweight focused to the tapered point of her heels, a sequence of percussive impacts against the polished stone, muffled by the fabric which drags behind her.

She knows the source of the stone she walks on, its value in trade, its cost in extraction. But, the impact of her step does not create even the smallest fracture, she cannot scratch the surface. Instead, she feels as if she is a fixture extruded from the ground itself, a seamless part of this constructed whole, both formed and held in place by tradition, expectation and obligation.

On either side buildings rose higher than even the cliff...the depths of chasm... way above, the buildings rose forever ... their reflected glare stinging her eyes.

This city is familiar to her, its towers that swell up from the landscape, the gleaming opulence of the upper levels. It is perhaps familiar ground, for us as well. It resonates with so many

² "Not a question of figure/ground antagonism, but ground/ground where one is the fictive world, and the other the ground of the readers given world." Samuel Delany 'Starboard Wine' 1984

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science fictional cities we have visited before that it can be evoked in this novel with relatively sparse description;

it is enough to know that it is high and deep, highly polished other than where it is cracked and dark. It is hard and unforgiving.

This is a vision of a high-rise urban future so prevalent in science fiction as to be almost a cliché according to Stephen Graham.³

It is deployed as a symbol of the techno-utopia, the soaring heights attained by the pursuit of technological progress of a very narrow bandwidth. The development of new building materials, the graphene futures which reproduce the present but even taller, even shinier.

It is also the language of the critical dystopia where power inequality is made manifest in spatial hierarchies. The structuralising of privilege, made easily measurable in terms of meters from ground level. A compression of oppressive systems into the fabric of a single city, or a single building.

It is not the symbolic deployment of this image of the vertical urban future as utopian ideal or dystopian critique which I find so disquieting, or its debatable accuracy as extrapolation or prediction of our contemporary urban future, and, for the sake of brevity, I will not even mention the relative design merits of these images as architectural propositions (although it is something I would be happy to rant about over a glass of wine later). Rather it is the allure of the image itself, its potency and subsequent dominance over architectural imagination that I find so troubling.

The image of the high-rise city is so pervasive, that the built future has become synonymous with rapid vertical urbanisation⁴. Whether we envisage ourselves as fighting against it or revelling in it, it is the backdrop against which the future is written. It may be the setting within which stories of resistance are told, but it remains stubbornly present to be fought against. A form of capitalist realism, the image of the high-rise city contains within it the insidious foreclosure of alternatives.

It is a product of a techno-scientific ideal of progress, the cultural narratives that conflate industrialisation with advancement. Behind the towers or twisted pinnacles is the presumption that the technological prowess manifest in either; the development of new materials required to reach the heights, or the complexity of computer modelling required to shape these forms, is evidence of the superiority of these structures and by association the societies that built them. It is an image so enmeshed in the aesthetics of futurity, that anything else; the low rise, the rural, the modest or unassuming, appears regressive, stagnant, or simply naïve. For me, as an architect, this thought is sickening. As a fan of science fiction, it is only marginally less disturbing. It does such heart-breaking disservice to the myriad worlds of sf, the breath-taking scope of possibilities we have visited.

³ “The image of the radically verticalised cityscape has so dominated science fiction as to be almost a cliché.”
Stephen Graham *Vertical Noir: Histories of the Future* 2016

⁴ See also: Lucy Hewitt and Stephen Graham *Vertical Cities* 2015
Vivian Sobchack *Cities on the Edge of Time* 2014
Aaron Barlow *Reel Toads and Imaginary Cities* 2005

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And this is an issue of media as well as message, form as well as content. There is a plethora of critical literature on the occularcentrism of architecture⁵ coupled with growing current concern over the production of an image as a commodity object evident in the development of design briefs which specifically request that a building be ‘instagrammable.’ The image of a building holds incredible power.

As opposed to the image, touch is a reciprocal act. As Kevin Hetherington notes, we touch something to confirm that it is there, that our eyes do not deceive us.⁶ Touch cannot be replicated or transmitted as commodity product, it requires our body in this place. We touch and are touched, we confirm ourselves as subjects; that we are here, too, experiencing this, that this is how we feel.

...the ground bristled with sharp objects more dangerous than the spines of coral fish; for the hundredth time she fingered the soles of her aching feet. Her skin burned, dry as bleached raft-wood.

Where Berenice moved through the city with reluctant assurance, Merwen’s steps through the city of Iridis are hesitant and pained. A visitor from the planet’s moon, Shora, she does not wear shoes, and her contact with this hard world is unmediated and unremitting. Its abrasive edges scratch and tear at her flesh, its smooth surfaces strike at her heels. The fabric of the city makes small insistent demands of her. To find ease in this place she must be other than she is.

thick black boots that struck the hard black pavement, pounding incessantly. If these creatures were all human, as Usha insisted, then some purpose must guide their boots, but what could it be? Did the pavement flatten the soles of their boots, or did the marchers work together to polish the sombre pavement as smooth as a night-time sea?

As is so often with the fictional traveller, she questions the world in which she finds herself. Watching the movements of a troop on patrol, the rhythmic pounding on pavement, it is unclear to her whether the stone has flattened the soles of the boots or if the boots have polished the stone smooth. In this conceptual slippage the city is revealed as a mutual construction, the simultaneous development of inhabitant and the world, each inextricably enmeshed with the making of the other. She hints at the possibility that the built future is perpetually under construction, made and remade by the performance of its inhabitants. That which seems fixed is exposed as the product of ongoing labour to sustain and maintain it. In turn, ceasing such action holds radical potential, as the small and seemingly insignificant impressions we make on the surface of the world hold great cumulative power to reshape it. As we walk the worlds of science fiction we examine them as if they had been constructed from the ground up, able to witness the ways in which architecture shapes and is shaped by the societies and individuals it contains. Is here that architecture is made and remade, performed and embodied, present in this moment of contact.

⁵ “(in the)hegemony of the eye over the other sensory realms... architecture has turned into the artform of an instant visual image.” Juhani Pallasmaa *The Eyes of the Skin* 2005

⁶ Kevin Hetherington *Spatial Textures: Place, Touch, And Praesentia* 2003

GROUNDLESS

As Spinel stepped down the exit ramp, he surveyed the surface below. It looked like hard crusted soil, with a sort of evergreen matting, yet it could not be 'land' underneath. His feet lost weight for an instant, and he gripped the railing until the swell subsided.

Shora is an ocean world, bounded by an unbroken horizon line of water, the solid ground of the sea floor reached only in death. As Spinel, an apprentice from Valedon, steps onto one of the rafts which drift across its ocean, the presumption of the ground beneath him falls away. What was understood to be solid is transformed into surface, a platform hovering over a great void, haunted by the depth of the ocean underneath. The fact of the ground, so universally present as to be utterly unremarkable, is palpably absent.

It is a shift in perspective prompted by a multi-sensory experience of this new world, where body and environment are mutually constructed and understood. The view of the unbroken horizon, the scent of sea spray, the sound of water lapping at the raft edge... these act alongside experiences which can be defined as tactile: the cool temperature of the damp raft, the rough texture of the matted plants, the pressure of bodyweight sinking into the surface; as well as the senses which inform our somatic sense of self; a vestibular awareness of balance as the raft shifts, a kinesthetic awareness of the position of limbs which informs his stance, a proprioceptive awareness of muscular tension exerted in an effort to assert his place in this uncertain world.

To focus on the site where the body and the landscape meet, where we touch the surface, is an opportunity to talk about how a place feels. It foregrounds the haptic aspects of this experience, including both the tactile sensory information transmitted through the skin, and the interior, somatic sense of self which provides the background understanding of embodiment. To consider the haptic is not to try and disentangle this experience from its multisensorial context, but rather to foreground sensations that are all too easily taken for granted.⁷

In studies of haptic forms of knowing, the very ordinariness of these subjects makes them difficult to discern⁸. Often only appreciable in their absence, or when stumbling over unfamiliar ground alongside a guide who moves with ease. Haptic ways of knowing are the habits which form the unconscious background to our engagement with place; our bodily response to the particularities of surface which direct patterns of movement, now internalised to become the distracted routines of everyday.

In the worlds of SF everyday distracted routines, actions as simple as stepping off an escalator for example, are re-presented as intricate patterns of balance which must be re-

⁷ "To foreground sensations that have customarily been understood to be so basic to bodily existence that they have been taken for granted." Constance Classen *The Deepest Sense: A Cultural History of Touch* 2012
See also: Mark Paterson *Haptic Geographies* 2009

Jennifer Mason and Katherine Davies *Coming to our Senses?* 2009
Paul Rodaway *Sensuous Geographies Body, Sense and Place* 1994

⁸ "They are sensations that are subtle or ordinary in nature." Máire Eithne O'Neill *Corporeal Experience: A Haptic Way of Knowing*

see also: Mags Adams et al. *The 24-hour City: Residents' Sensorial Experiences* 2007

Jennie Middleton *Sense and the City* 2018

Hannah Macpherson *Articulating Blind Touch* 2009

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learned, when we go to step onto the multi-lane pedestrian pedway in the worlds of Wells, Asimov or Clarke.⁹

As we shift, twist or undermine the solidity of the ground it creates sites of vulnerability, fractures which open up in the way we see the world and ourselves. As described by Malcolm Porter, the ground is our primary point of postural spatial reference; “the very basis for our sense of our own corporeality and our uniquely human orientation.”¹⁰ It is a trope deployed to great effect in sf novels which use twisted and distended stairs or ramps to distort the perception of grounded reality and provoke psychological destabilisation.¹¹

The embodied and sequential experience of climbing a stair can also allow for vast structures to be understood, measured out in the days or weeks required for a body to ascend. An awareness of distance generated through the cumulative measure of lifting of each foot. Height portioned out in the fractional measures of a step.¹²

In Scott Russel Sander’s *Terrarium*, the city floats on the ocean, entirely self-contained it offers no points of visual connection to the sea or sky. Here, our protagonist climbs a stair to measure the scale of the city against her own body, the development of haptic knowledge of both the city and the self. As described by Juhani Palasmaa, “I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other. I dwell in the city and the city dwells in me.”¹³

In *Terrarium*, the performance of climbing is an act of dissent, a wilful restating of built reality in terms of the individual body, a moment of radical self-reliance and a reclamation of spatial agency.

In Sally Miller Gearhart’s *The Wanderground* the established social patterns of habit are undergoing a radical shift, as the power of the men in the cities is challenged by the new understandings of place developed by the hill women. These shifts of power which are reshaping the wider world are visible within the textures of one woman’s home. Carefully protected from the rising damp and dew, this home is lined with books, neatly packed together to form the surface of the floor, spines up so that they can be identified¹⁴. Gaps are formed where books have been removed to be read, their absence is a marker of the shifting relations between the interior worlds of the reader and the domestic space they inhabit and shape. In this room, institutional repositories of knowledge are relocated into the domestic, and the intellectually abstract is understood through the intimately tactile. It is a symbolic relocation of the text as a container for knowledge, not something to be reached for but

⁹ H. G. Wells *A Story of the Days To Come* 1899

Arthur C. Clarke *The City and the Stars* 1956

Isaac Asimov *The Caves of Steel* 1953

¹⁰ Malcolm Porter Jr *The Stairs at Säynätsalo Town Hall* 2011

¹¹ Yoshio Aramaki *The Sacred Era* 2017

William Sleator *House of Stairs* 1974

Robert Silverberg *The World Inside* 1971

Jeff VanderMeer *Annihilation* 2017

¹² Iain M. Banks *Matter* 2008

Arthur C. Clarke *Rendezvous with Rama* 1973

¹³ Juhani Palasmaa ‘The Eyes of the Skin’ 1996

¹⁴ “Now she noted that Seja’s reading had rendered the floor pretty uneven in places...next to two texts on plant diseases right near her reach was a long hole whose bottom, Alaka could see, was the dark earth itself.”
Sally Miller Gearhart *The Wanderground* 1979

something to rest upon. The visitor must tread carefully, learning to walk a landscape of another's mind.

The disorienting effect of the loss of ground, and the establishment of alternate forms of spatial reference has been explored by geographers and urban studies scholars working on maps of Hong Kong¹⁵. Here, the density of urban development combined with the steeply sloping terrain has prompted the construction of hundreds of urban footbridges which interconnect levels between structures, dissolving any notion of 'ground level' as a fixed point of reference¹⁶. It is an interconnected understanding of the city that has shaped its use as a site of protest. The 2014 umbrella movement, a 79 day long occupation which called for transparent elections in response to the proposed selective pre-screening of candidates by the Chinese state body, saw up to 100,000 protestors occupying slivers of land between and beneath the walkways, allowing them to directly address the government workers who could not avoid traversing the paths above. In the recent Anti-Extradition protests, the linking walkways and interconnected malls have allowed for groups to disperse and regroup when confronted by tear gas or violence. These are movements drawn from an embodied and practiced ability to navigate this terrain, the lived experience of the systems of power and control which are written into this fabric, and an awareness of the legal and political frameworks which govern them. A right to the city and to democracy vehemently defended in the face of overwhelming personal risk.

Without the certainty of land to define himself against, Spinel is adrift. The abrupt shift in sensation has momentarily untethered his sense of self and he is dislocated without the stable ground to provide a point of reference. It is a moment of profound spatial estrangement which makes him aware of all he had taken for granted, all he has lost. But like Spinel as he watches Merwen make her way across the raft with a sure step, the worlds of SF suggest that there is something to be gained from feeling the ground beneath us fall away, that there are other ways of placing ourselves within the worlds we make.

At Merwen's footfall, half the scaly things slithered down the side. Spinel recoiled, but Merwen unconcernedly went out onto the branch, so he followed, more slowly. The rose-orange scent intensified, and its source soon appeared: blossoms, brilliant yellow tricorners sprouting from bushes on side branchlets that grew ever denser as he went on.

COMMON GROUND (1260)

Up on the raft, beyond the silkhouse, grew rows of buoyant airblossoms, kept aloft by reservoirs of secreted hydrogen gas. Beyond the airblossoms, the raft sloped gently upwards, until it dipped to a hollow in the centre.... A door hole opened in the floor of the silkhouse, and tunnels extended through the raft, winding in an eerie phosphorescent maze.

The rafts they step onto are not a surface but a thickness; mounds which swell with gas, mosses which sink under pressure, small pools of water which sit in the hollows. They blur the line between raft and sea in an indistinct and uneven gradation, as intentional structures fray outwards into the sharp edges of corals and the rich slick of plant life. Both edges and interiors are porous; tunnels knit their way through the depths while spongy surfaces shift

¹⁵ See: Shelton et al. Making of Hong Kong: From Vertical to Volumetric 2013

Lisa Law Filipino Women and Geographies of the Senses in Hong Kong 2001

¹⁶ Cities Without Ground: A Hong Kong Guidebook Adam Frampton, Clara Wong, and Jonathan Solomon 2012

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and secrete. As Berenice makes her way into these tunnels she steps out of her shoes and sheds the clothing she had worn on Valedon, casting off layers of separation. Over time her skin acquires new pigmentation as the breath microbes exuded by the walls seep into her pores and subtly shift her physiology. The environment she inhabits permeating and transforming this last barrier between body and built.

The others stepped one by one through the rabbit-hole of a doorway, passed the outer rooms, and descended to the maze of tunnels and caves. Roots and vines twisted from the walls at odd angles. This was where the “lifeshaping” took place ... a furry paste that covered the dipping walls and ceilings, glowing in flares of green and amber that created a dizzying illusion of motion.

In these submerged spaces the Sharer’s acts of lifeshaping are performed: healing and restorative practices, chemical analysis and complex genetic manipulations. The living organisms which are woven into the structures developing into tentacular protrusions which wrap, seal or penetrate the surface of the skin. It is a space where the border between environment and self is porous and indistinct.

This blurring of the boundary of the body and environment through the porous membrane of the skin is explored in a number of sf novels, works such as *The Crystal World* which challenge us to consider how encounters with the world we inhabit can infiltrates and remake us.¹⁷

While in Samuel Delaney’s *Babel 17* a series of interfaces between body and ship allows each of its navigators to interpret the data around them as an isolated form of sensory input, and the signal to dock is translated as: a white circle, the sound of an e-minor triad, the smell of hot oil. The built space of the ship is felt as if it were the body of its inhabitants.

These works disrupt the boundary of the self, what Didier Anzieu refers to as ‘skin ego’: a western cultural conception of the skin as an envelope rather than an interface, an image of individual coherence and cohesiveness¹⁸. Rather, the skin is acknowledged as porous and contiguous with the surfaces it touches, an understanding of our place in the world which requires us to acknowledge the messy fleshy realities of the body.

As Elizabeth Grosz notes, skin “‘provides the ground for the articulation of orifices, erotogenic rims, cuts on the body’s surface, loci of exchange between the inside and the outside.’”¹⁹

In the worlds of science fiction our skin ego is ruptured in more ways than one. Here we are able to empathetically engage with a perception of a world formed through and by an embodied experience radically other or alien to our own²⁰. In the reading of these texts, we

¹⁷ Greg Bear *Blood Music* 1983

Mike Carey *The Girl with all the Gifts* 2014

Nnedi Okorafor *Lagoon* 2014

J.G Ballard *The Crystal World* 1966

¹⁸ Didier Anzieu *From the Skin Ego to the Psychic Envelope* 1986

cited in Franck Bille *Skinworlds: Borders, haptics, topologies* 2018

and David Howes *The Skinscape: Reflections on the Dermatological Turn* 2018

¹⁹ Elizabeth A. Grosz *Volatile Bodies: Toward a Corporeal Feminism* 1994

²⁰ Suzanne Keen *Empathy and the Novel* 2007

imaginatively inhabit these alternate life-worlds, an exercise in troubling the internalised self-image which governs our understandings of both body and place.

While the work of phenomenologists explores the embodied nature of ‘being in the world’, these understandings of place are critiqued where they fail to engage with the wider power structures or socio-cultural systems within which such embodied experiences are framed. Mike Paterson describes such humanistic geographic reading as retrograde in their avoidance of gendered bodies, queer bodies, racialised bodies, of individual sensory or physical difference.²¹

The homogenized notion of the body is one which permeates architectural practice, where designers rely on technical standards to define a generic ‘normal’ or on ‘self-imaging’ which reproduces the existing patterns of privileged within the industry²². Practices which are being redressed by the work of groups such as Dis-Ordinary architecture, who see design as an extension of human capacities, which includes the rich range of neuro and bio diversity.

The worlds of science fiction provide us with an awareness of our embodied experience of place as a reflexive construction, between the body and the built. This is evident when we visit new worlds with an unfamiliar gravitational pull for example, which require the body to adapt; adjusting to a new spring in our step, or succumbing to the crushing slog of unexpected effort. For the visitors to the Heechee tunnels in Frederik Pohl’s Gateway, this acclimatisation is perpetually out of reach. The vertigo brought on by the low gravity is exhausting, requiring new ways of sleeping, walking, dancing, being together in space. It is a disquietingly alien place which is perpetually unknowable and unresolved, a space where humanity cannot be at ease, and as such it presents a continual disruption of the embodied and internalised ways of knowing which we thought we could rely on.

As the inhabitants of the Heechee tunnels invent new forms of dancing, they demonstrate the intertwining of physical and social ways of knowing, the patterns of habit developed to survive and thrive in the world as it is encountered, practiced until they have become ingrained in the body. It is present in the Fremmen ability to walk without pattern so you don’t attract the worm, or the habits of unseeing which allow the inhabitants of Beszel and Ul Quoma to live their overlapping lives.

Walter Benjamin describes this as tactile appropriation, a form of knowledge which is acquired through physical engagement rather than intellectual contemplation²³. These are knowledges constructed through bodily effort; the physical movement across or through a landscape, the gradual development of an internal, corporeal understanding of the texture of terrain. Formed as much by our ability to become unaware of it, as is it by a continual defining presence.

In the Kunst Haus Wein, in Vienna, the floor swells and undulates, brickwork and timber deliberately formed into uneven surfaces. The architect, Hunderwasser describes it as ‘a symphony for balance’ it is designed to resist habits of movement, to elicit an awareness of the familiar patterns of pace and stride through their delirious disruption. In doing so, it

²¹ Mark Paterson More-than visual approaches to architecture: Vision, touch, technique 2011

²² Rob Imrie Architects’ Conceptions of the Human Body 2003

²³ “Buildings are appropriated in a two fold matter: by use and by perception – or rather by touch and sight.” Walter Benjamin The Work of Art in the Age of Mechanical Reproduction 1969

confronts us with the variety and richness of place, and opens up the visitor to the possibilities which are flattened by orthogonal construction.²⁴

It provokes a broader understanding of what Hunderwasser calls our “relationship and contact to earth”, it suggests the possibility of other ways of being in the world, a somewhat science fictional pattern of thought. But, this experience is not universally available. The uneven floor fails to consider those for whom level access is a necessity not a design feature, building in ableist assumptions and exclusions. This failure to account for the diverse range of inhabitants, places damaging limitations on this work as a truly radical design.

“Well, I can’t say that Valans aren’t human. They’re excitable and very fearful... Perhaps it comes from dwelling on the world’s floor, among dead bones”

...

“but suppose they are our sisters... who will share in their destruction?”

The bodily difference between the Sharers and the Valedon is such that each debates the others relative ‘humanity’, the differences in their methods of reproduction and physical appearance are underwritten by the social, cultural and linguistic differences which seem to separate them. But the moist membranes which enfold and heal Berenice attest to their shared humanity on a genetic level, a dissolution of skin ego which suggests the possibility of a common ground. Through SF we walk the streets of strange new worlds inhabiting bodies other than our own; we allow the terrain of twisted landscapes to permeate our skin, and we practice the sway of a stranger’s gait until it becomes ordinary. These fictions allow us to critically engage with our embodied understanding of place by becoming steady on unfamiliar ground.

GROUNDSWELL

It looked flimsy for a house on the sea... the sloping panels were no more than woven sea silk, twisted into saddle-shapes and glazed somehow. What would become of it in a hurricane, let alone when the sea swallowed?

Merwen makes her way across the raft with ease. She has made this ground herself, coaxing raft seedlings together, weaving supports, and layering up surfaces. Each raft is a product of collective making, tending and care. She has witnessed the rafts grow and decay, worn down by weather, by inattention or over-use, breaking apart under the pressures of ocean swells or accreting into new forms. The silkhouses which grace the surface of the rafts are lightweight, made from cloth spun from the sea-silk weeds, they are not designed to withstand storms or the migration of the sea-swallowers. As with the rafts themselves, they are carefully maintained, but not mourned when they decay or return to the sea.

A malleable surface, the texture of the raft informs and bears witness to patterns of inhabitation. One layering among the many processes of growth and decay which define the dynamic ground. This process of imprinting is described by Tim Ingold in relation to

²⁴ “An uneven and animated floor is the recovery of man’s mental equilibrium, of the dignity of man which has been violated in our levelling, unnatural and hostile urban grid system.”
Hunderwasser, *The Uneven Floor* 1991

footprints, the impression our bodies make on touching the ground, visible in the wearing down and building up of layers.²⁵

The science fictional imagination provides ample opportunity to contemplate the relative permanence of architectural constructs, exercising our fascination with destroying the worlds of our own making. With spurs of steel jutting from the shattered concrete, and broken glass underfoot, the image of the post-apocalyptic city is a hostile revisioning of the surfaces of the world we had previously smoothed to ease our passing, the revenge of materials bent into shape.

Concrete is stained and spalls, brickwork seeps salts, efflorescing and onion-skinning off in layers, stone is corroded by rain, metals fatigue and oxidise, and render attracts mould and rots. But architects do not design for decay. We design to prevent it, but rarely acknowledge its inevitability. Jane M. Jacobs and Stephen Cairns claim that architecture is perversely nascent, preoccupied with the moment of birth, of creation, to the point where we cannot meaningfully engage with the lives of the buildings we create²⁶. It is a profession dedicated to shaping a future, that exists in a stuck present.

Yet, the decay of the built is continually with us, held back only by the concerted efforts of maintenance and repair work. This is work which, as Miwon Kwon states, “continuously erases the marks of its own labor (including the body or the labourer) rendering itself invisible, and is rendered invisible.”²⁷ To overlook maintenance work is a denial of continual processes of touch, both the wearing down of surfaces by weather or the passage of feet, and the physical acts of cleaning which stroke and sooth the surfaces of the built.

In Kim Stanley Robinsons NY 2140 the high tide line now laps the upper storey windows of the towers of Manhattan. In response, the maintenance work of waterproofing and sealing, of pumping and drying has become the foundation of continued inhabitation. But the lines which defined ownership have drifted with the shore line, and the buildings which now sit in the intertidal zones occupy an uncertain legal position, as the existing maps of ownership are hastily redrawn. The high tide line marks them with the green stain of algae, barnacles and weeds, a slick overlay onto their previously brash material. Here, the acts of maintenance work not to shore up and sustain privilege, but allow these buildings to function as sites of social and political possibility. The water marks and streaks of lurid green brand the buildings which fall into this new territory, places where existing orders are unsettled, where the ground has become slippery.

The worlds of sf ask us to critically question what it is that we are maintaining, and suggest moments where ceding to decay might open up spaces of new possibility. In Nalo Hopkinson’s *Brown Girl in the Ring*, the center of Toronto has been abandoned by the government and its institutions ‘leaving the rotten core to decay.’ In their wake, they have left a space where other forms of knowledge held by the Romany and Caribbean Canadian inhabitants are given space to surface. While those who return to visit arrive and depart by helicopter, never setting foot on the ground, Ti-Jeanne whose feet are familiar with the

²⁵ “Making their way along the ground, people create paths and tracks... their temporality is bound to the dynamics of its formation... a function of the weather, and of reactions across the interface between earth and air.” Tim Ingold *Footprints through the weather-world* 2010

²⁶ Jane M. Jacobs and Stephen Cairns *Buildings Must Die: A Perverse View of Architecture* 2014

²⁷ Miwon Kwon *In Appreciation of Invisible Work* 1997

rewritten patterns of this place, is able to reach into the roots of the built to call upon the spirits of the dead which dwell deep within the ground.

In their work on critical care Joan Tronto and Berenice Fisher define care as “everything that we do to maintain, continue, and repair ‘our world’ so that we can live in it as well as possible. That world includes our bodies, ourselves, and our environment, all of which we seek to interweave in a complex, life sustaining web.”²⁸ Caring is not synonymous with maintenance, and living in our world as well as possible will require us to both acknowledge and welcome decay as part of the life of the built.

In their speculative proposition for an art gallery in Bangkok, the architectural practice Heresy, fronted by the avatar New Territories, designed a magnetic mesh which would be strung over the façade, that would attract particulates from the air to thicken, harden and become opaque.

Rather than isolating the gallery in denial of the levels of air pollution in the Bangkok biome, the building would be a tangible confrontation, becoming as occluded and damaged as the lungs of its inhabitants. It is a hyperbolic proposition, but one which speaks to an acknowledgement of responsibility, that the built should unflinchingly express the impact of the urban.

Within the narratives of science fiction, we can inhabit these imagined impacts. As a genre, it is uniquely able to engage with the spans of geography and time required to consider and present ecological catastrophe, with novels like Doris Lessing’s *Shikasta* series or Olaf Stapledon’s *Last and First Men* dealing with spans of time which extend far beyond our contemporary moment. or novels like *The Waste Tide* which confront the accumulation of plastic waste in the oceans, accreting in the great pacific garbage patch to form a new landmass. It is here perhaps that we can truly acknowledge the Anthropocene, that new epoch of geological time dominated by human impact, present in the laying down of new layers of ground which have irrevocably reshaped of the world we live in, and visible in fictions which, as Richard Crownshaw describes “narrativize the planetary.”²⁹

The raft structures and the society of the Sharers is avowedly eco-topian, existing in a preternatural balance with the patterns of growth and decay, migration and seasonal change, based on an intimate awareness of their role in a web of interconnected relations and impacts. What Sarah Lohmann describes as a ‘balanced flow state’ albeit one which is inherently closed off along environmental and speciesist lines³⁰. As Joan Slonczewski notes in a blog post about the novel, there is no record given of Shora before the Sharers developed the technology to harvest and spin the sea silk, to twist the genetic make-up of the clickfiles to act as messengers, or hunt the shock-wraiths³¹. It is such a perfect an image of balance, where nothing is unknown, that it implies a radical structuralising of the environment in the years before the novel opens.

²⁸ Berenice Fisher and Joan Tronto *Toward A Feminist Theory Of Caring* 1990

²⁹ “This, then, is memory work from a speculative future of an unfolding Anthropocene ... The narrativization of the planetary” Richard Crownshaw *Speculative Memory* 2017

Citing: Kate Marshall *What Are the Novels of the Anthropocene?* 2015

Mark McGurl *The Posthuman Comedy* 2012

Wai Chee Dimock *Low Epic* 2013

³⁰ Sarah Lohmann PhD thesis forthcoming 2020

³¹ Joan Slonczewski [www. ultraphyte.com](http://www.ultraphyte.com)

As the storm passes, Spinel alone is struck by shock, at the slik-house structures are now exposed to be as fragile as broken egg shells protruding from the raft, reflecting the sharp-edged nature of his loss. The illusion of shelter and security shattered. The vast scales of time and space considered in worlds of science fiction provide us with a site to consider both the slow drift and the radical break of change and decay, to inhabit the implications of our everyday actions and stand in the wreckage of the groundswell.

It mattered little, since all the silkhouses were gone. Where Merwen had lived, only a few battered fragments of panelling still stood, jagged as a cracked egg-shell....

GROUND CONTROL

“Home is a shore of land I can stand on. If I were to slip from this branch, I’d fall straight to the bottom of the sea.”

....

“I dreamt that one time I will simply turn downward and swim forever to the floor.”

Beneath the Ocean of Shora lies the sea bed. This is the final surface of Shora, the ground that cannot be walked upon, a land which will remain perpetually distant, a site reached only in death. For Spinel, contemplating the depth of the ocean is to look into the void of his own mortality weighted beneath him, the place from which he cannot return. While Merwen’s partner Usha, overcome with grief, dreams of swimming down to this place, to join those she has lost.

“Mining is the thing now. You can’t imagine what minerals lie untouched on the floor of that ocean.”

It is here that the values of ground overlap. For the Sharers, it is a place which exists beyond any bodily frame of reference, an unattainably spiritual space. For the Valedon, it is where the true value of Shora is held, in its unknown and untapped mineral resources, an understanding of ground mired in terms of territory or commodity, established and enacted by colonialism and capitalism.

The critical examination of ground as a site of resource extraction is addressed in a plethora of SF novels, from Ken Macleod’s Fall Revolution series, which sees colonised worlds and asteroids mined for mineral resources, to those such as Le Guin’s *The Word for the World is Forest* or Tiptree’s *Brightness Falls from the Air* where the indigenous flora, fauna and inhabitants themselves are harvested.

Off the coast of Dubai, the most exclusive land is that which does not yet exist. Confronted by a geography which fails to offer enough opportunity for commodification, archipelagos are constructed in the shape of palm trees or a map of the globe. Although they are located on the coast of a desert, the sand of the dunes is not sharp edged enough for construction. So, this sand has been imported from India, China, Malaysia, Kenya, Sierra Leone or Australia where land that was stolen from indigenous peoples is now sold on. Built using the same techniques, since 1963 Singapore has grown by 20 percent, the sand used to construct this land resulting in the effective relocation of 24 small Indonesian islands, now wiped from the

map³². These relocations of land are painfully dramatic, but the use of sand in the construction industry in Europe is similarly culpable, our liability masked and all the more insidious. As with oil and precious metals, the extraction of ground exists within buried webs of exploitation.

These materials exist in a state of hidden ubiquity, uniquely occluded substances which permeate our political and economic systems. When confronted by this invisibility, energy humanities scholars have suggested that the depictions of these systems embedded within fiction, and in particular science fiction might offer a way to consider how they have shaped ways of being in the world. In relation to oil in particular, Graeme MacDonald suggests that: “fictional awareness offers more than stories about energy types and systems. It establishes a means to contemplate – and possibly to deconstruct – energy capital’s formidable representative skills, notably its narrativization of the “natural” necessity of oil to our functioning social systems.”³³

The multiple story-worlds of sf allows us to step outside of the ubiquity of any single valuing of ground. The short story ‘Legends are Made not Born’ by Cherie Dimaline, a Canadian Métis writer describes the move to New Earth, where indigenous peoples are the last to be evacuated. Each nation collects that which it cherishes, the strains of corn, the seeds for sage and sweetgrass; they also collect as much of the lands that were left as could be carried. Small comfort when considered against the overwhelming loss, these stacked crates of dirt hold within them a spiritual notion of place, a value beyond that which can be tangibly measured or physically experienced.

In Chicago, the work of the Settler Colonial City Project attempts to make visible the theft of indigenous land. In their work on the Chicago Cultural Center they expose its location on an area of built up ground, created by landfill from the Chicago Fire of 1890. It is a place which did not exist in 1833 when the Treaty of Chicago was signed. To walk on this ground is to traverse unceded indigenous land. It is an act of trespass which resonates with the continued injustices of Federal relocation programmes, forced displacement implemented to accommodate commercial resource extraction.

For Loretta Lees place is “a practice and a product, it is performative, in the sense that it involves ongoing social practices through which space is continually shaped and inhabited.”³⁴ It can, and must, be performed otherwise.

And subtle acts can hint at greater significance. Desire lines are evidence of a conflict between designer’s intention and performed reality, they suggest the possibility of stepping outside the rules which have been laid down in the lines of paving stones, to choose another route. Here, the designated paths have been thrown over in favour of the one which better suits our collective purpose. For Michel de Certeau the placement of sidewalks is a strategy of the powerful, where citizens ultimately walk is the tactic which tells us more about society.³⁵

³² Fred Pearce *The Hidden Environmental Toll of Mining the World’s Sand* 2019

³³ Graeme Macdonald *Research Note: The Resources Of Fiction* 2009

See also: Gerry Canavan *Retrofutures and Petrofutures* 2014

Caroline Edwards *Peak Oil In The Popular Imagination* 2015

³⁴ Loretta Lees *Towards A Critical Geography Of Architecture* 2001

³⁵ “The space of a tactic is the space of the other. Thus it must play on and with a terrain imposed on it and organized by the law of a foreign power.” Michel de Certeau *The Practice of Everyday Life* 1980

In the spaces of science fiction we are able to explore the myriad stories which can be told upon the surface of the same roads; In Octavia Butler's parable series, the road is an unwelcome necessity in an attempt to find a new place of belonging. Over such long distances, the unforgiving strike of shoes against hard surface wreaks damage on joints and bones, a path constructed without the frailty of the human body in mind. By comparison, the concrete and tarmac of the city in Tiptree's short story "Your Faces, O My Sisters!" is greeted with great affection. For her, the hard concrete and unforgiving edges of the city are soothing, a balm to weary soles. The road offers the comfort of the footpath in the forest, to touch it is to reconfirm the existence of the self and the reassuring presence of others.

These imagined lives enacted on the same surface provide a glimpse into the multiple, simultaneous and conflicting experiences of space which exist alongside, over and between those which we have attuned ourselves to witness. As described by Donna Haraway; "Location is the always-partial, always-finite, always-fraught play of foreground and background, text and context, that constitutes critical inquiry. Above all, location is not self-evident."³⁶

For those of us used to relying on the plan drawing, which implies that the place being depicted is stable, complete and fixed, engaging with the haptic can introduce unsettling equivocality. As described by Cooper and Law touch is a proximal way of approaching the world, fragmentary and precarious, innately context-specific³⁷. It provides a way of grasping at the whole which destroys any notions of impartiality, it requires time and movement, suggesting that any impression gathered is fleeting, an understanding of space particular to you, here, now.

It made no sense to someone whose own home, modest thought it was, had stood for generations, the one bit of property his family could call their own.

And everywhere, from nooks amid the coral, filaments of sea silk hung and pulsed to the rhythm of an unseen drummer, reaching deep among the branchlets that extended from the main trunk, down far as Spinel could see, an inverted forest.

Spinel shares the Valedon understanding of land as something fixed, a certainty which can be owned and built upon. Moving across, between and underneath, the Sharers inhabit the spaces around the rafts as much as they occupy the surface. Life below or within the thickness of the rafts is not concealed, yet it remains beyond the Valedon ability to comprehend. To engage with the multiple grounds of SF is to acknowledge the patterns of unseeing, the forms of control which we have woven into our everyday lives and are re-performing in the cities we inhabit. It offers us a place to consider our own subjective systems of value, and perhaps choose the path less travelled.

³⁶ Donna Haraway Modest witness: feminist diffractions 2014

³⁷ "(The proximal) deals in the continuous and the 'unfinished'; it is what is forever approached but never attained....The proximal manifests implication and complicity, and hence symmetry, equivalence and equivocality." Robert Cooper and John Law Organisation: Distal and Proximal Views 1995 cited in Kevin Hetherington Spatial Textures 2003

STANDING OUR GROUND

When I first started writing this, I had chosen *A Door Into Ocean* as a touch-stone (if you will excuse the terrible pun) for its engagement with the surfaces of the worlds it contains. Since then, I have spent a great deal of time considering the ground on which I stand. As many of you are aware, until two days ago members of the University and Colleges union in the uk were on strike, in protest of the abhorrent exploitation of casualised workers, the iniquitous 15% gender and race pay gaps, and the barriers to access and advancement in HE both overt and insidious. As I talk with colleagues and friends who have defended picket lines both physical and virtual, it seems fitting to have spent so much time dwelling in a novel whose central narrative examines the possibility of protest, the demands it makes on those who participate, and the potential for power that it holds.

With an immense effort Lystra pulled herself up, until her head spun. “I – I’m still here. The death-hasteners came, and they...” There were only boot prints sunk in the mud all around the raft.

The Valedon arrive in Shora as a colonising force, deploying an occupying military presence and willing to commit genocide if necessary to access the material wealth of the land below the ocean. It is a novel which speaks painfully but hopefully about the potential of non-violent civil disobedience. It has been described as naively utopian, overly reliant on both the fear and compassion of the occupying force which prompts them to reflect on the horrors of their actions. But, it, and I remain resolutely hopeful.

At a time when we are confronted with devastating global concerns, the consideration of fictional ground may seem frivolous, the notions of the haptic too personal to hold broader relevance. And that may well be true, but it does not mean they cannot also be valuable. To resist or present alternatives requires an understanding of how we have shaped and are shaped by the worlds which we have made. I would argue that making contact with the myriad worlds of science fiction provides us with expanded awareness of our own situatedness, a plurality of positionalities which extends our empathetic understanding to the truly alien, and a relational notion of identity of simply breath-taking scope. It grants us a better understanding of ourselves, and our shared ground.

Science fiction is unsettling. I hope it is unsettling enough create ribbons of tension in the worlds in which we live, seams of difference liable to slip, fractures in the made-up ground on which we stand.

Acknowledgements:

Maggie Butt, Rachel Hill, David Roberts, Katie Stone & LSFRC
Parisa Hassanzadegan for illustrations of Shora